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# The Journal

OF THE

# American Medical Association

EDITED FOR THE ASSOCIATION UNDER THE DIRECTION OF THE BOARD OF TRUSTEES BY

GEORGE H. SIMMONS, M.D., LL.D.

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AMERICAN MEDICAL ASSOCIATION, CHICAGO, 1918

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# RECURRENT OR HABITUAL DISLOCATION OF THE SHOULDER *

M. S. HENDERSON, M.D.
ROCHESTER, MINN.

Dislocations occur more frequently in the shoulder joint than in any other joint in the body. Reduction is, as a rule, readily accomplished, but if delayed beyond a few hours, is not easy. If deferred for days, it is quite difficult, and a delay of more than a week may mean that all attempts at reduction will fail. If the dislocation is associated with a fracture of the surgical neck of the humerus, unless reduction is accomplished by an open operation, the patient usually comes to a resection of the head of the bone later.

Habitual dislocations of the shoulder joint occur in cases in which reduction has been accomplished and the convalescence completed without incident, so that there is no cause for anxiety. The habit of easy dislocation is a sequela that cannot be foretold. A shoulder joint may be said to be subject to habitual or recurrent dislocations when they occur irregularly as the result of some trivial voluntary manipulation or effort on the part of the patient.

The shoulder joint is a true ball-and-socket joint. The depth of the socket is so slight and the amount of the head of the bone in actual contact with the glenoid fossa so small that it is a wonder dislocations of the shoulder are not much more common. The socket is formed by the glenoid fossa of the scapula and its cartilaginous rim. The capsule itself is quite lax, the shoulder owing its stability to the muscular arrangement. It is reinforced at certain points by the insertion of muscles into and through it, to the bone beneath. When the shoulder girdle is paralyzed and the muscle tone gone, as in anterior poliomyelitis, or trauma to the brachial plexus, we see the lax dislocated shoulder which cannot be kept in place. The long head of the biceps originates from the upper margin of the glenoid fossa, and crosses the cavity of the shoulder joint anteriorly, surrounded by synovium (Fig. 1). Its action in this situation serves to strengthen the joint and prevent dislocations through this part of the capsule. Over the whole is the strong fan-shaped deltoid, which by its action tends to hold the head of the humerus in the glenoid fossa. The supraspinatus, infraspinatus and teres minor inserted into the greater tuberosity of the humerus thicken and strengthen the capsule above and behind and by their action tend to hold the head of the humerus in place (Fig. 2). Into the lesser tuberosity of the humerus the subscapularis tendon is inserted in front and into the inner side of the bicipital groove, serving to strengthen the anterior part of the capsule (Fig. 3). At the lower margin of the glenoid fossa arises a part of the triceps, in no way reinforcing the capsule, and between this point below and the point of insertion of the subscapularis above, there is no muscular insertion on the anterior portion of the capsule. This area is the weak part of the capsule, being the place in which dislocations usually occur (Fig. 4).

Definite evidence of the pathologic condition is lacking. The limited opportunity for examination of the entire field at the time of operation accounts for much of the difference of opinion. In 1880, Joessel[1] gave it as his opinion that the dislocation was the result of a tear in the capsule at the attachment of the supraspinatus and infraspinatus and the teres minor. Such a rent, he contended, would allow the arm to drop down and luxate through the lax portion of the capsule between the insertion of the subscapularis above and the origin of the triceps below, without necessarily tearing this lax portion. Thomas does not agree with this view, asserting that, in his opinion, the rent usually occurs in the anterior inferior portion and that there is no damage to the capsule in the region of the greater tuberosity. In none of the cases in this series has there been any evidence of rupture of the supraspinatus and infraspinatus tendons and damage to the capsule. It might be supposed that a rupture of these tendons would tend to detach some of the periosteal cells from the greater tuberosity, and that the callus thus formed would cast shadows on the plate; but the roentgenograms in every case in this series were negative. Also the curative value of a capsulorrhaphy of the anterior inferior portion of the capsule would further substantiate the theory that this is the point of exit for the dislocating head. Other authorities, such as Loebker, suggest some abnormality or defect in the head of the humerus, but their proof for such a condition is not very convincing.

There is always a history of a traumatic dislocation. The second dislocation may occur a few weeks or few months after the first, and those that follow gradually become more frequent. The motion producing luxation is one with the arm in abduction and a little forward. The position causes the greater part of the humeral head to be pressed against the weak part of the capsule, and at the same time relaxes the biceps tendon as it runs in the bicipital groove. The dislocations may occur so often that the patient or his friends under his direction may make the reduction.

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* From the Mayo Clinic.
* Read before the Southeastern Medical Society of Iowa, Fairfield, Iowa, Oct. 18, 1917.

[1] Joessel, J. G.: Ueber die Recidive der Humerusluxationen, Deutsch. Ztschr. f. Chir., 1880, 13, 167-184.

The number of dislocations and the degree of disability vary in individual cases. One patient in the series had experienced more than a hundred dislocations. As might be expected, dislocations are more common in the male than in the female, the proportion in this group being seven males to one female. They are found in the young and the middle aged, and are by no means unknown in the aged. Epileptics are subject to them. The disability due to the uncertainty and irregularity of the attacks may be so extreme that the patients are unable to earn a livelihood. It is generally stated that recurring dislocations are caused by insufficient fixation following the original luxation. This is probably true, but the fact remains that when the ordinary dislocation is reduced and the patient is allowed to go about his usual duties in a few days, subsequent dislocations rarely occur. To safeguard our patients against this disagreeable sequela, the arm should be carried in a sling for ten days, and abduction of the shoulder absolutely prohibited for one month following the accident.

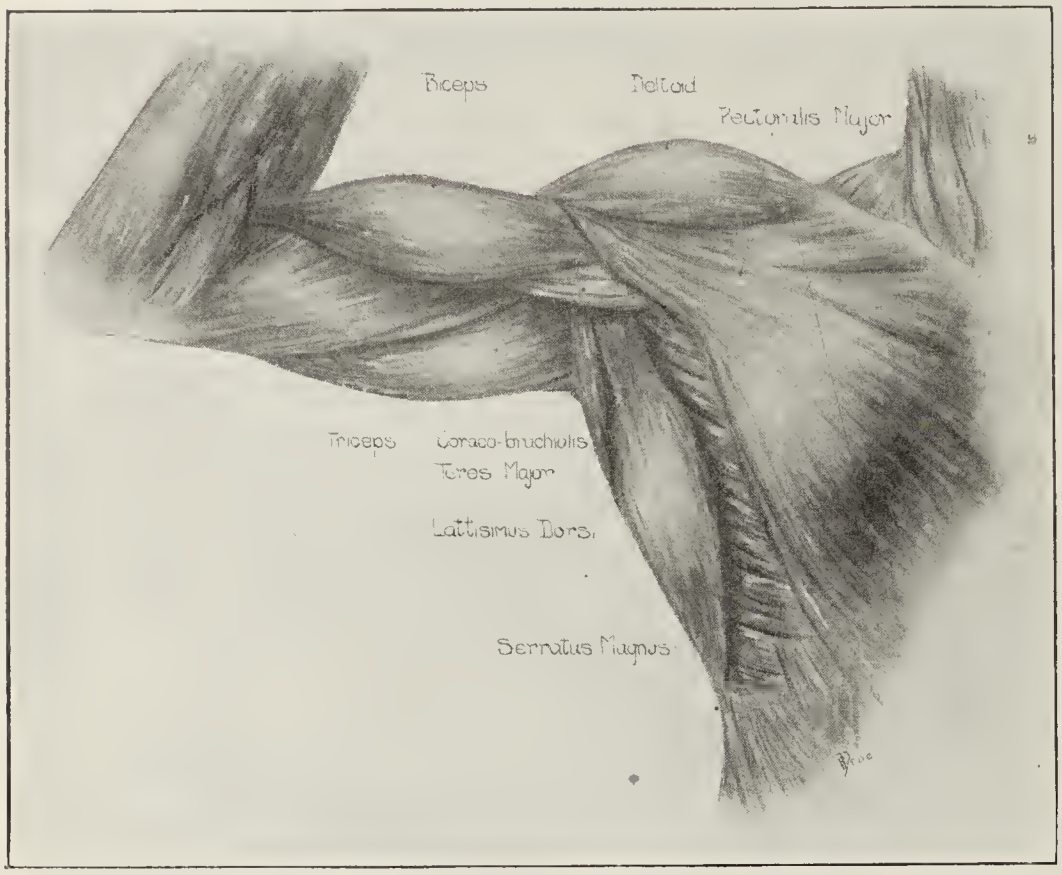

Fig. 1.—Anterior view, showing muscular arrangement about the shoulder.

As braces and appliances are cumbersome, and seldom successful in the treatment, there remain only surgical measures. In the past, extreme measures have been undertaken to relieve the condition.

Resection of the head of the humerus has been done by some surgeons, notably Cramer, Kuester, Kraske, Popke, Volkmann, Schueller, Staffer, Mueller and Francke. Such a procedure is mentioned only to be condemned. Albert[2] prevented the recurrences in his cases by producing a bony ankylosis; and while this seems somewhat extreme, it might readily be advised if milder measures failed. An ankylosis of the shoulder joint produced with the humerus at a right angle to the body gives a very useful arm, as has been shown in cases of infantile paralysis in which such operation has been performed because of paralysis of the deltoid. The scapular vertebral muscles acting on the scapula are used to abduct the arm. It has been found that, by merely incising the capsule at the anterior inferior angle and overlapping it, by the process of capsulorrhaphy, the dislocations are prevented. Gerster[3] in 1883 was the first to do this. Bardenheuer did the same in 1886, and Ricard in 1892. More recently, Thomas[4] has reported cases in which cure has been effected by capsulorrhaphy. Young has outlined a method, basing his operation on the fulcrum action of the pectoralis major and the latissimus dorsi. The operation consists in the severing of the lower portions of these muscles at the point at which they are inserted into the lips of the bicipital groove.

To expose the capsule of the joint for capsulorrhaphy, an incision is made which runs along the anterior fold of the axilla while the arm is held in abduction. The pectoralis major muscle is strongly retracted, and the dissection is carried down to the capsule below the tendon of the subscapularis. An incision is made into the capsule, and three or four mattress sutures of No. 2 chromic catgut doubled are inserted (Fig. 5). It will be found that the overlapping of the capsule may be secured readily by rotating the arm. The sutures are placed in the weak, lax part of the capsule at the inferior anterior portion. The wound is closed, the arm is held strapped to the side of the body for two weeks, and abduction to a right angle is not permitted for six weeks.

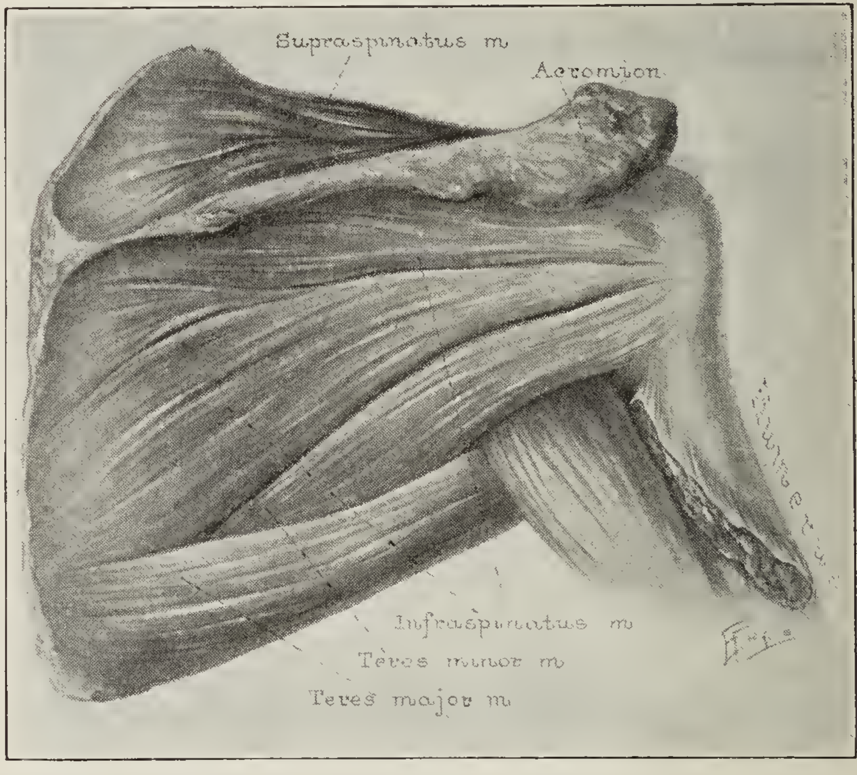

Fig. 2.—Posterior view of shoulder, showing insertion of supraspinatus, infraspinatus and teres minor muscles.

The plastic operation of Young is accomplished by an incision which starts a little farther out on the axillary fold and extends a little farther down onto the humerus over the bicipital groove. The tendon of the pectoralis major is brought into view and the lower half severed. The latissimus dorsi on the opposite side of the biceps tendon is exposed and the inferior half of it is divided. The arm is then placed in a plaster-of-Paris spica, and is held at a right angle to the body for from ten days to two weeks.

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[2] Albert, E.: Arthrodese bei einer habituellen Luxation des Schultergelenkes, Internat. klin. Rundschau, Vienna, 1888, **2**, 281-283.

[3] Gerster, A. G.: Fracture of the Humerus and Scapula, Complicated with Severe Injury of the Entire Brachial Plexus Followed by Paralysis, Med. News, Philadelphia, 1884, **44**, 421.

[4] Thomas, T. T.: Habitual or Recurrent Anterior Dislocation of the Shoulder. I, Etiology and Pathology, Am. Jour. Med. Sc., 1909, **137**, 229-246; II, Treatment, ibid., pp. 367-377.

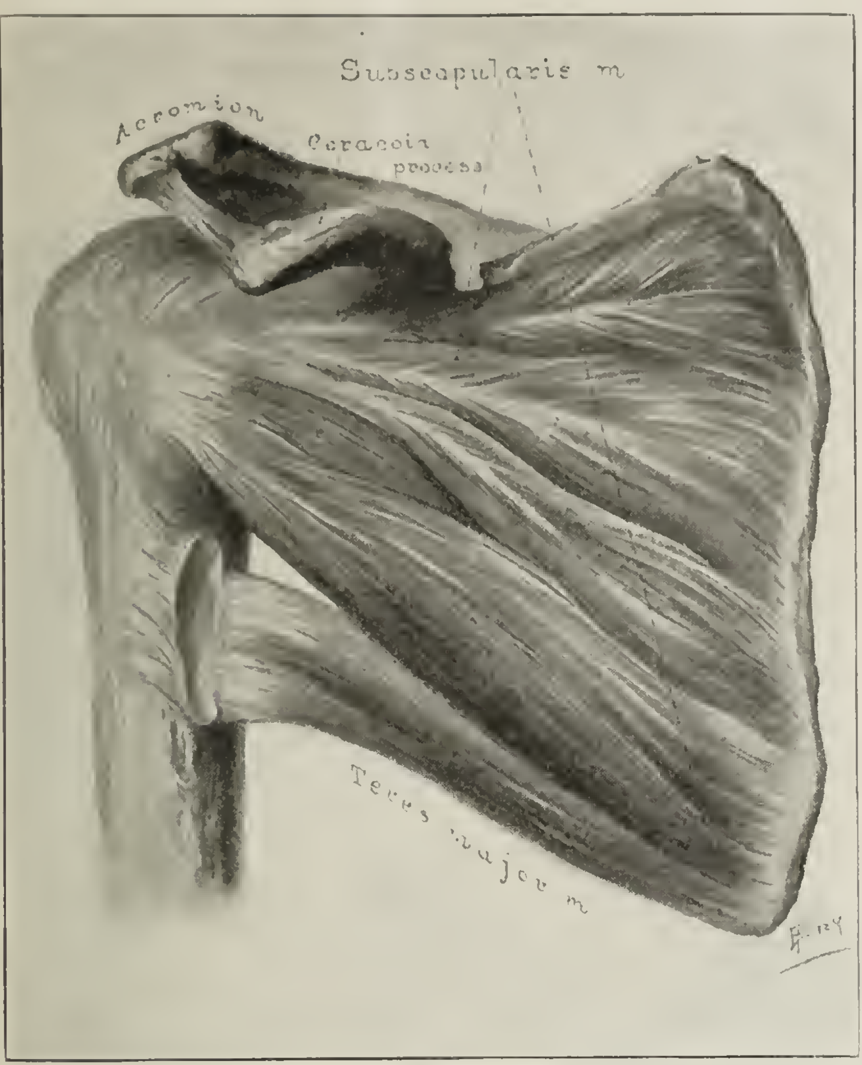

Fig. 3.—Anterior view of scapula, showing insertion of subscapularis and teres major muscles.

The question confronting the surgeon is which operation to choose in order to secure the relief desired. From a study of this group of only eight cases, I am unable to answer the question. The principles underlying the operations are dissimilar, and I know of no way of determining beforehand which procedure offers the best chance for cure. It is possible that if the capsule is strengthened, it will withstand the fulcrum action claimed by Young. On the other hand, the weakened capsule may withstand attempts at dislocation when the fulcrum is weakened, if the operator will lengthen part of the tendons of the pectoralis major and the latissimus dorsi.

Eight patients, of whom seven were men and one a woman, have been operated on in the Mayo Clinic for recurrent dislocation of the shoulder joint. One operation, performed July, 1917, is too recent to report, although the patient is well up to the time of writing (October, 1917).

Five of the remaining seven patients may be called cured. There is one in whom the operation was noted as a failure though really only a partial failure, for whereas, previous to the operation, the patient had experienced twelve or more dislocations a year, in the last year and a half he has had only two. In one other case, the treatment is apparently a distinct failure after a capsulorrhaphy and a lengthening of the tendons of the latissimus dorsi and the pectoralis major. If the patient in this case returns, I shall advise an arthrodesis of the head of the humerus and the glenoid fossa with the arm at a right angle.

REPORT OF CASES

Case 1 (66183).—W. C., a man, laborer, aged 24, came to the clinic for examination, April, 1912. Six years previously he had dislocated his shoulder, and the dislocation had not been reduced for thirty-six hours. After that there had been multiple dislocations, not prevented by apparatus. Capsulorrhaphy was performed, April, 1912, and there were no dislocations until November, 1913. January, 1914, the Young operation was performed. The man has since had dislocations, and the case must be called a failure.

Case 2 (87419).—H. W., a man, laborer, aged 25, came for examination, July, 1913. Five years before, his left shoulder had been dislocated in a runaway accident. Later he had had seven dislocations, and was incapacitated for a month after each. There had been an interval of two years between the last two dislocations, the latest one occurring, June, 1913. Capsulorrhaphy was performed, July, 1913, and in a communication from the patient, August, 1917, he said he had had no further trouble and was doing everything he wished to do with his arm. The case may be classified as a cure.

Case 3 (90312).—L. L., a man, clerk, aged 19, was first examined, August, 1913. Eighteen months previously, the shoulder had been dislocated while he was playing hockey. During the eighteen months the dislocation occurred probably a dozen times, the last time while he was swimming. Capsulorrhaphy was performed, August, 1913, and in a communication from his mother, September, 1917, it was stated that the arm feels somewhat weak but that no dislocations have occurred. The case may be called a cure.

Case 4 (107485).—M. G., a man, merchant, aged 41, was examined, June, 1914. Nineteen years before, he had fallen and dislocated his right shoulder. It was reduced immediately. There were several dislocations during the next four years, and then he caught a cold which seemed to settle in the right shoulder. For four months there was a soreness which prevented his lifting the right arm to the head. After that, he had numerous dislocations, and ten years previous to the examination he fell, and in catching himself, dislocated the left shoulder. The left shoulder has not been dislocated, however, for two years, and we consider the dislocation

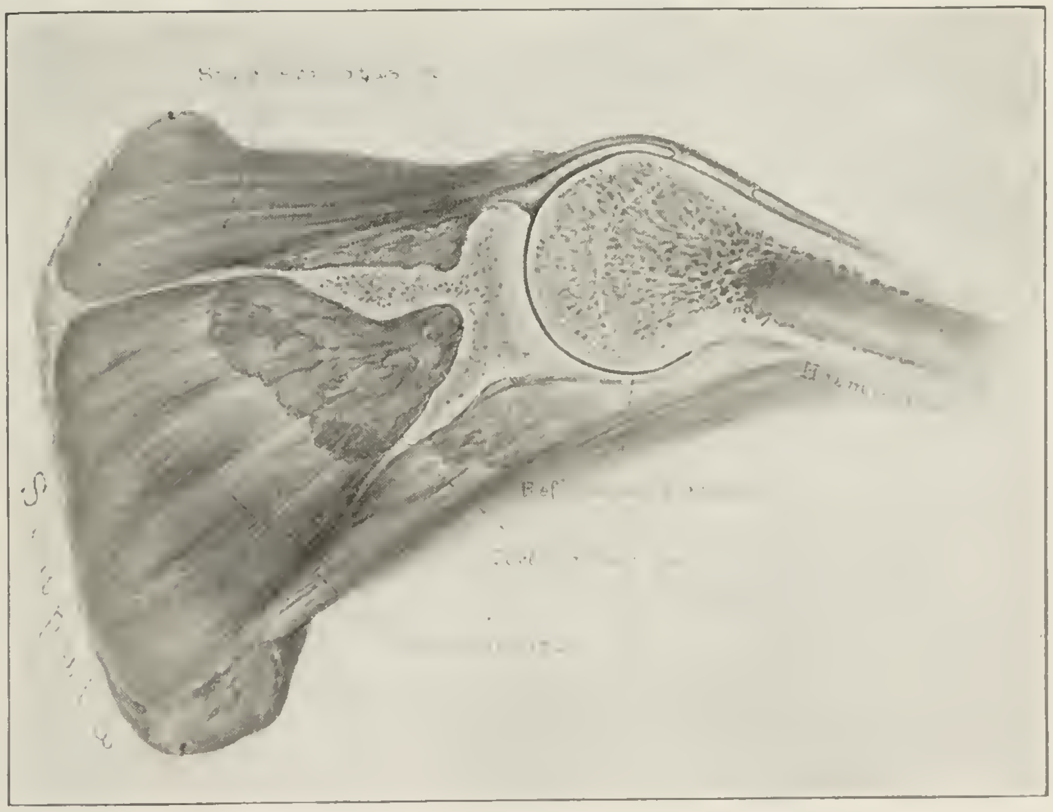

Fig. 4.—Frontal section through right shoulder joint, viewed from behind.

merely the result of an ordinary trauma. The right shoulder, however, had been out of joint repeatedly, the last dislocation being three weeks before the examination. Capsulorrhaphy was performed, June, 1914, and in a communication, August, 1917, the patient asserts that he has had no further trouble, and that he gets along nicely.

Case 5 (118613).—R. V. A., a man, bookkeeper, aged 33, was examined, November, 1914. After a dislocation of the left shoulder, seven years previously, he had had recurring dislocations, at least twelve a year. He sometimes threw the shoulder out of joint in reaching for a book or anything on a shelf. November, 1914, capsulorrhaphy was performed. The patient was not troubled until May, 1915, when he had a peculiar feeling that his shoulder was going to slip out. He now reports that during the last year, two and one-half years after operation, the shoulder has slipped out twice. This case should not be put down as a distinct failure, since the shoulder is really improved, and the function is markedly improved. As the patient intends to return for observation, I have recommended that the Young operation be performed to see if it will stop the trouble.

Case 6 (123803).—S. F. L., a man, lawyer, aged 25, was examined, February, 1915. Eight years previously, he had dislocated his shoulder playing football. The next time, it was dislocated while he was swimming, the third time, while he was playing baseball, and it had even slipped out while he was sleeping. At the time of the examination, he was wearing a band around the body to hold the arm to his side. He had worn it steadily for a year and a half, thus averting dislocations. The condition had completely incapacitated him for any participation in athletics. Capsulorrhaphy was performed, February, 1915, and in a letter from him dated August, 1917, from an officers' training camp, he says he has been able to do his bit in such strenuous tests as digging trenches, bayonet exercises and trench storming, without suffering the slightest inconvenience or trouble from the shoulder.

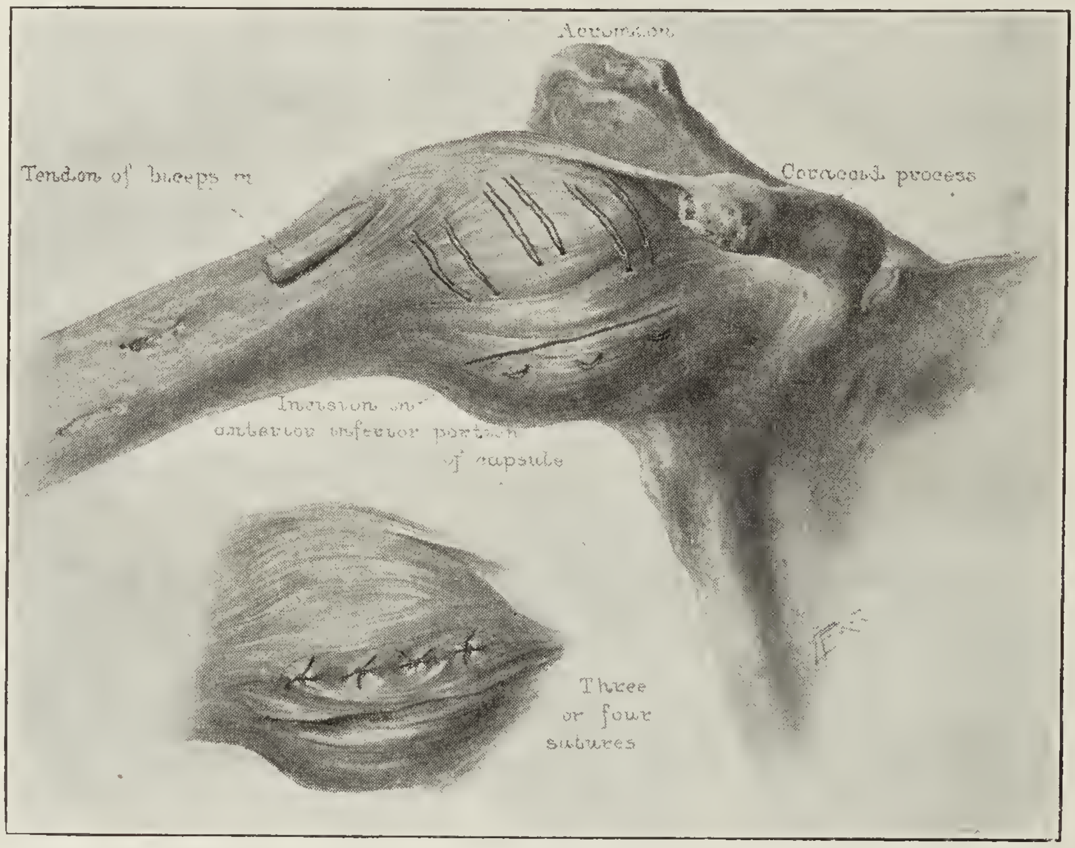

Fig. 5.—Capsule, showing overlapping (capsulorrhaphy), with four doubled chromic catgut sutures in place.

Case 7 (156847).—J. C. S., a man, merchant, aged 30, was examined, April, 1916. Ten years before he had dislocated his shoulder. The dislocation remained for two days, and then reduced itself, which would lead one to believe it must have been a subglenoid dislocation. The shoulder has been dislocated many times since, and he has had to take gas, ether or chloroform about ten times. April, 1916, the Young operation was performed. In a letter dated August, 1917, the patient declares that he has had no further trouble, and that this shoulder seems to be as strong as the other one.

Case 8 (200995).—H. J., a woman, nurse, aged 33, was examined, July, 1917. On Thanksgiving day, 1915, she fell and dislocated her shoulder. It was reduced about an hour later, and was held to the side for ten days. The next dislocation occurred Christmas day, 1916, to be followed by four dislocations. Capsulorrhaphy was performed, July, 1917, and up to the time of writing, October, 1917, there have been no further dislocations.

## CONCLUSIONS

1. Recurrent dislocations of the shoulder may be cured by operation, capsulorrhaphy being the operation of choice.
2. Capsulorrhaphy has been found to be sufficient in the majority of cases.
3. Resection of the head of the humerus is not permissible for the condition.
4. Arthrodesis or ankylosing of the head of the bone to the scapula with the arm at a right angle would be an extreme measure, but permissible.

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# PARALYSIS OF RECURRENT LARYNGEAL NERVE ASSOCIATED WITH MITRAL STENOSIS

## REPORT OF A CASE

GEORGE E. BROWN, M.D.
AND
BERT E. HEMPSTEAD, M.D.
MILES CITY, MONT.

Paralysis of the left recurrent laryngeal nerve is usually associated with aneurysm and dilatations of the aortic arch. It is only since Ortner's original report[1] in 1897 that we have learned that recurrent paralysis may be associated with and apparently caused by cardiac enlargement. In a recent statistical survey of recurrent nerve paralysis[2] embracing 116 cases of this type only four were reported as being due to mitral stenosis, all involving the left recurrent laryngeal nerve. In a series of 360 cases of unilateral laryngeal paralysis, quoted in the same article, only ten cases were due to an enlargement of the heart in mitral stenosis. The other causes of left recurrent paralysis are associated with mediastinal enlargements and in patent ductus arteriosus, the nerve being incarcerated with the aorta and ductus. Pericardial and mediastinal adhesions compressing the nerve have also been shown to be an etiologic factor.

Paralysis of this type due to mitral stenosis is of rare occurrence, and up to 1916, only eleven cases had been reported with necropsy confirmation. There have been, however, a large number of clinically reported cases with a recurrent paralysis associated with mitral stenosis in which the cardiac condition could be proved the causative agent by elimination. This proof has become more exact since the advent and general use of the roentgen ray in chest diagnosis. Aneurysm and mediastinal enlargements can be ruled out with absolute exactness, making possible a differential diagnosis.

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[1] Ortner: Recurrenslähmung bei mitral Stenose, Wien. klin. Wchnschr., Aug. 19, 1897.

[2] Recurrent Nerve Paralysis, in Thomson, St. Clair: Diseases of the Throat.

Fetterolf and Norris,[3] in their exhaustive report on the anatomic findings in this condition, have made the mechanism clear. Their conclusion, based on the study of a series of frozen cadavers, is:

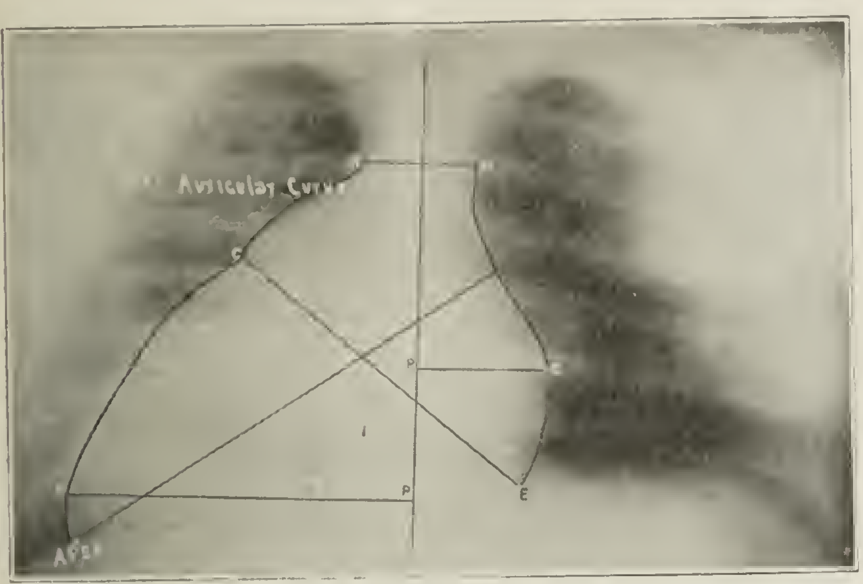

Fig. 1.—Seven foot heart plate, Dec. 24, 1915. Reduction shows heart reversed. Note the auricular bulge and increased heart width.

> It is our conviction, based on careful study of the anatomic relations in hardened preparations, that the indirect mechanism may be a variable one, but that when compression is accountable for the recurrent paralysis, it is always caused by the nerve being squeezed between the left pulmonary artery and the aortic ligament. Anything that will dilate or force upward the left auricle or the left pulmonary artery would tend to cause the condition. The anatomic relations are such that the direct pressure of any portion of a dilated left auricle on the aortic arch is impossible.

REPORT OF CASE

*History.*—Mrs. B. A., aged 35, housewife, referred by Dr. D. A. Baker of Jordan, Mont., consulted one of us (Dr. Hempstead), Dec. 24, 1915, for loss of voice. She had four children living and well; one child had died at the age of 23 days from convulsions, and the patient had had two miscarriages at three months. The menstrual history was negative. Two years before, she had had a light attack of articular rheumatism; the joints had been red and tender, and the patient was in bed four days. She had had gray hair since the age of 18. The present trouble had begun four months before with hoarseness, which was progressive and did not follow a cold. This condition progressed in spite of all usual treatment, and became so bad that talking above a whisper was impossible, and the patient was much distressed, as she had sung a great deal. There was no pain, nor cough. The patient had noticed shortness of breath for the past year, especially after exertion. She also stated that a "tight feeling" had been present during exertion, on which account she had discontinued heavy work. She had noticed no edema of the feet. The hoarseness had been worse after severe exertion.

*Examination.*—The patient was well nourished, weighed 170 pounds, was 5 feet 5 inches in height, and was of moderate obesity. No cyanosis, marked dyspnea, nor thyroid enlargement was noted. There were no abnormal pulsations. The voice was decidedly husky, and talking was possible only with the whispered voice. There was complete paralysis of the left vocal cord; no inflammatory reaction was present; the right cord did not pass the median line; there was no evidence of aneurysm. The lungs were normal. There were no visible pulsations, and no impulse was palpable. A faint thrill, palpated in the upright position, could not be timed at the first examination. On account of the large breasts, the cardiac outlines could not be defined by percussion. The apex was not located; very marked irregularity was present (auricular fibrillation), many beats not reaching the radial pulses. On auscultation, a loud blowing murmur was heard in the mitral area, transmitted to the axilla. A soft presystolic murmur could be heard with difficulty in the fourth intercostal space, not transmitted. Both the first and the second mitral sounds were loud and distinct. The aortic and the pulmonary sounds were negative. The liver edge was palpable. There was no edema of the extremities. The pulse was small. A marked difference could be detected in the pulses when the arms were elevated, the pulse being considerably stronger in the right. The systolic pressure was 155, the diastolic 90, in both arms. The urine and the Wassermann reaction were negative. Fluoroscopy revealed a broad heart, with the left auricular curve prominent. There was no evidence of aneurysm, and there were no mediastinal enlargements. The heart measurements (7 foot heart plate) were: length, 11 cm.; width, 13.5 cm. These differ from the figures of Clayton and Merrill,[4] who give as the average, in a series of fifty-four cases of women weighing from 160 to 175 pounds: length, 12.6 cm.; width, 11.7 cm. The measurements in our case show a decided increase in cardiac width, which is the usual thing in mitral lesions, particularly mitral stenosis. Figure 1, taken at the time of the first examination, shows the prominent left auricular curve, and Figure 2, taken nine months later, shows the decided reduction in this area.

*Diagnosis and Treatment.*—A diagnosis of mitral stenosis with an associated left recurrent paralysis was made. The patient was sent home and instructed to remain in bed six weeks with absolute rest, with digitalis in large doses and the continual application of the ice bag. She was observed daily by Dr. Baker. After six weeks she was allowed to get up and gradually resume a limited activity.

She again reported to us, March 4, 1916, showing a marked improvement. The throat examination revealed the left cord moved to the median line, though the movements were not so good as those of the right cord; the voice was about normal. The heart examination did not reveal much change. Arrhythmia was not so marked. The patient still had some dyspnea on climbing stairs. She was given further precautions regarding treatment, and allowed to return home.

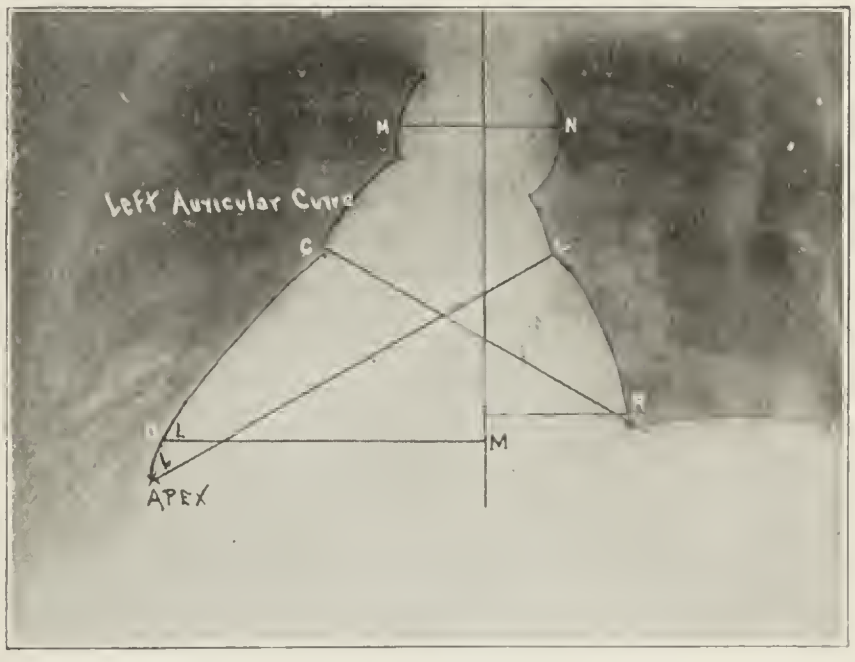

Fig. 2.—Seven foot heart plate, Sept. 10, 1916. Reduction shows heart reversed. Note the diminution in heart diameter, and auricular curve.

September 10, she again reported for observation. The examination of the cord showed practically normal movements; the voice was absolutely natural, and the patient had resumed her singing. No change in the size of the heart was demonstrable; the rhythm was regular. Thrill was felt with difficulty. The sounds were unchanged at the apex, with the exception of the first sound, which had become very clear and loud. Roentgenoscopy revealed the change in the left auricular curve as shown in Figure 2. A letter from the patient a year later states that she is in fine condition and has had no further trouble.

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[3] Fetterolf, G., and Norris, G.: The Anatomical Explanation of the Paralysis of the Left Recurrent Laryngeal Nerve Found in Certain Cases of Mitral Stenosis, Am. Jour. Med. Sc., May, 1911.

[4] Clayton and Merrill: Am. Jour. Med. Sc., October, 1910.

### COMMENT

This was a case of mitral stenosis, associated with temporary paralysis of the left recurrent nerve during a period of mild decompensation, in which, under appropriate treatment, the left auricle decreased in size. This reduction in the size of the auricular chamber evidently released a pressure on the left recurrent nerve with restoration of its function. The case is the only one of this particular type that we have been able to find in which a diagnosis could be made early enough to allow the nerve function to return. The case illustrates the importance of a rigid investigation of every case of left laryngeal paralysis to rule out its more common causes, as no other etiology offers a better chance of relief than this particular type.[5]

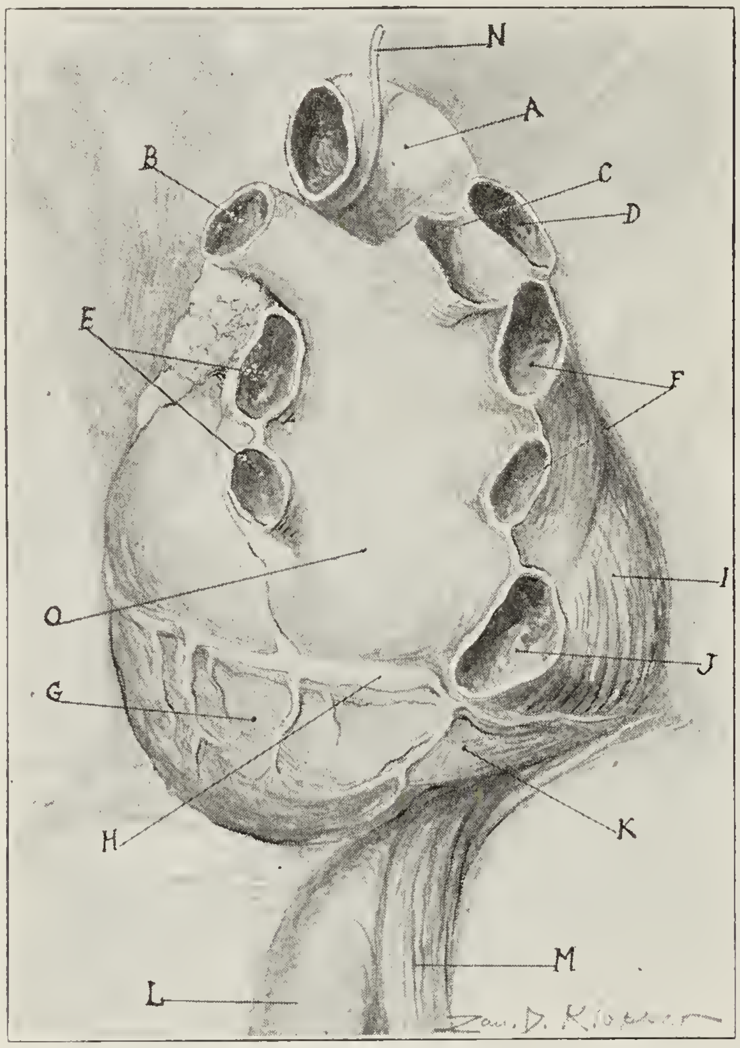

Fig. 3.—Drawing made from illustration in article by Fetterolf and Norris: Oblique view from the right of a dissection of the mediastinal viscera from behind: *N,* left recurrent laryngeal nerve; *A,* aorta; *B,* left pulmonary artery; *O,* left auricle; *G,* left ventricle; *I,* right auricle; *K,* right ventricle.

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[5] In addition to the references already given, the following will be found of interest:
Hall, F. de H.; Ferrier, Sir David, and Permewan, W.: Discussion on the Etiology of Unilateral Paralysis of the Recurrent Laryngeal Nerve, Proc. Roy. Soc. Med., 1912-1913, **6**, Laryngol. Sect., pp. 139-168.
Von Schrötter, H.: Ztschr. f. klin. Med., 1907, **63**, 160.

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**Early Treatises on Heart Disease.**—The first definite treatise on disease of the heart was that of Senac (1749), which was followed by the splendid books of Corvisart (1818), Laënnec (1819-1826), James Hope (1832), Bouillaud (1835) and Stokes (1854).—P. S. Roy, *Annals of Medical History.*

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# STUDIES IN THE TRANSPLANTATION OF WHOLE ORGANS

## I. AUTOTRANSPLANT OF THE LEFT KIDNEY TO THE NECK WITH RIGHT NEPHRECTOMY IN THE DOG *

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The following experiments were undertaken to perfect the technic of organ transplantation with reestablishment of circulation and function. The neck was chosen for the site of the transplant because here the excretion can be readily observed and collected.

The first experiments in transplanting the kidney to the neck were done by Ullmann,[1] who in 1902 performed the operation in a dog. It was later tried by Carrel,[2] Carrel and Guthrie,[3] Floresco,[4] and Borst and Enderlen.[5] Of these experiments the most successful was that by Floresco, who obtained a functioning transplant which excreted bloody urine for eight days. The kidney was removed on the ninth day because of necrosis. Floresco contributed much to the subject by discovering the destructive effect of perfusing transplants with saline solutions. Guthrie[6] has also laid great stress on this point. In 1910, Villard and

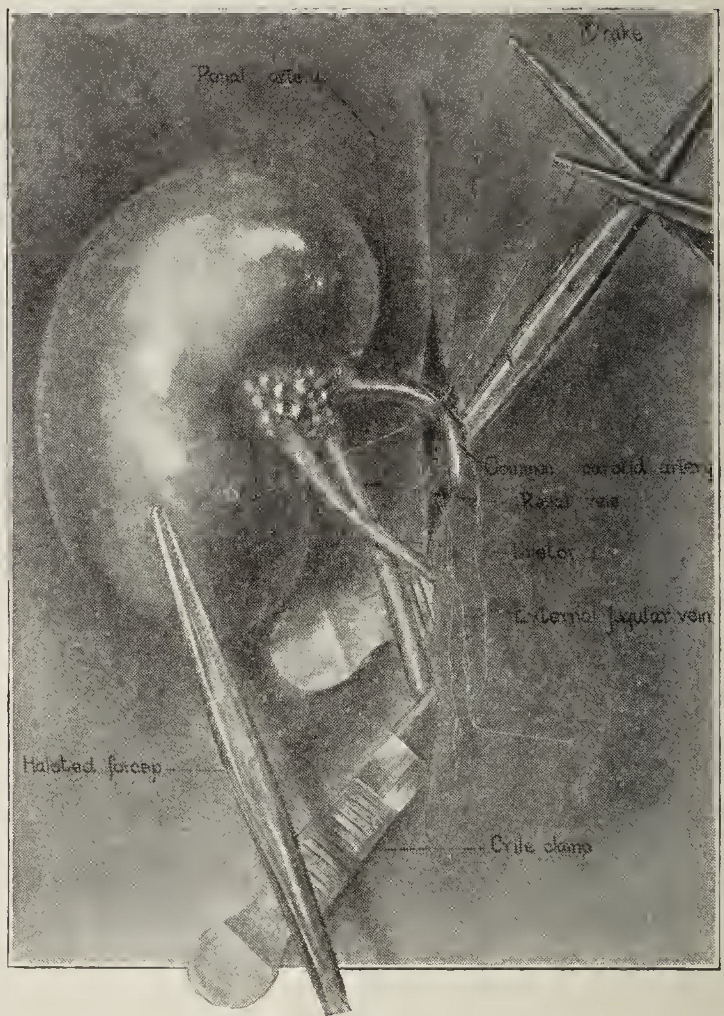

Fig. 1.—Anastomosis of the left renal artery to the right common carotid artery, and the left renal vein to the right external jugular vein. Natural size.

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* From the Mayo Clinic.
* Presented before the joint meeting of the Olmstead County (Minn.) Medical Association and the Mayo Clinic, Rochester, May 23, 1917.
[1] Ullmann, E.: Experimentelle Nierentransplantation, Wien. klin. Wchnschr., 1902, **15**, 281-282.
[2] Carrel, A.: The Surgery of Blood Vessels, Bull. Johns Hopkins Hosp., 1907, **18**, 18-28.
[3] Carrel, A., and Guthrie, C. G.: Functions of a Transplanted Kidney, Science, 1905, n. s., **22**, 473.
[4] Floresco, N.: Recherches sur la transplantation du rein, Jour. de physiol. et de path. gén., 1905, **7**, 47-59.
[5] Borst and Enderlen: Ueber Transplantation von Gefässen und ganzen Organen, Deutsch. Ztschr. f. Chir., 1909, **99**, 54-163.
[6] Guthrie, C. G.: Blood Vessel Surgery and Its Applications, New York, Longmans, Green & Co., 1912, p. 120.

Tavernier[7] attempted the operation with more success. They obtained a functioning transplant which remained in the neck for sixty-eight days but without removal of the other kidney.

### TECHNIC

Abdominal and cervical incisions are made simultaneously. The assistant exposes the kidney while the cervical vessels are being cleaned of their outer fibrous coats. The renal artery and vein and the ureter are freed, cleared and sectioned. The vessels are emptied of blood and washed with liquid petrolatum from a bulb syringe. The vessels are sutured with prepared raw silk threaded on No. 16 needles, the Murphy plain "over and over" stitch with Carrel stay-sutures and dark background being used. The ureter is led through a small separate wound in the skin. The wounds are sutured with linen. Collodion-gauze dressing is used. The ureter is covered with a wet dressing of neutral solution of chlorinated soda. Figure 1 shows some of the details of the technic.

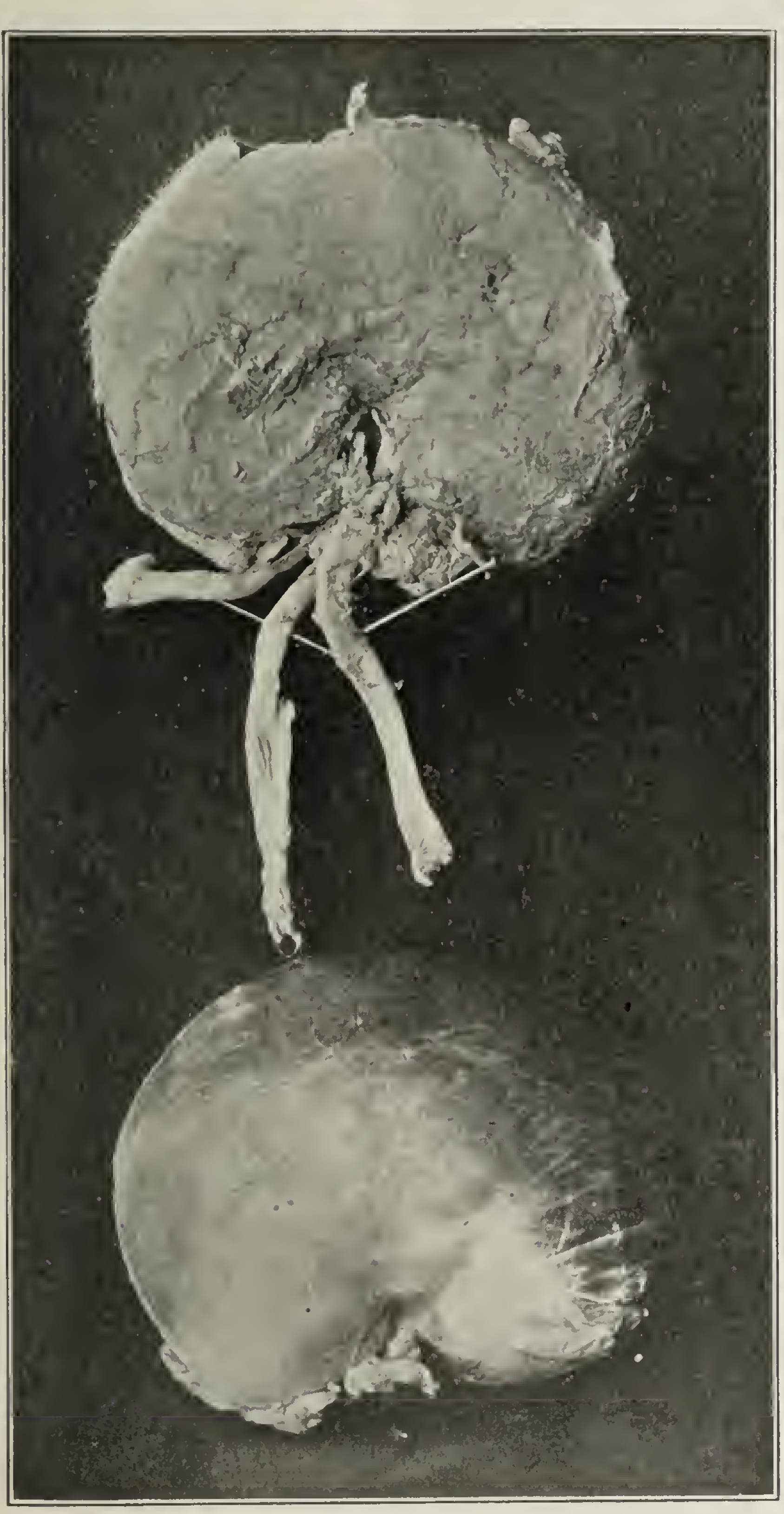

Fig. 2 (Dog B 949).—Upper specimen, transplanted kidney which has become infected. The sites of venous and arterial anastomosis are indicated at the positions pierced by pins. Note the continuity of caliber and gross structure at these points. Lower specimen, right kidney The dog lived seventeen days.

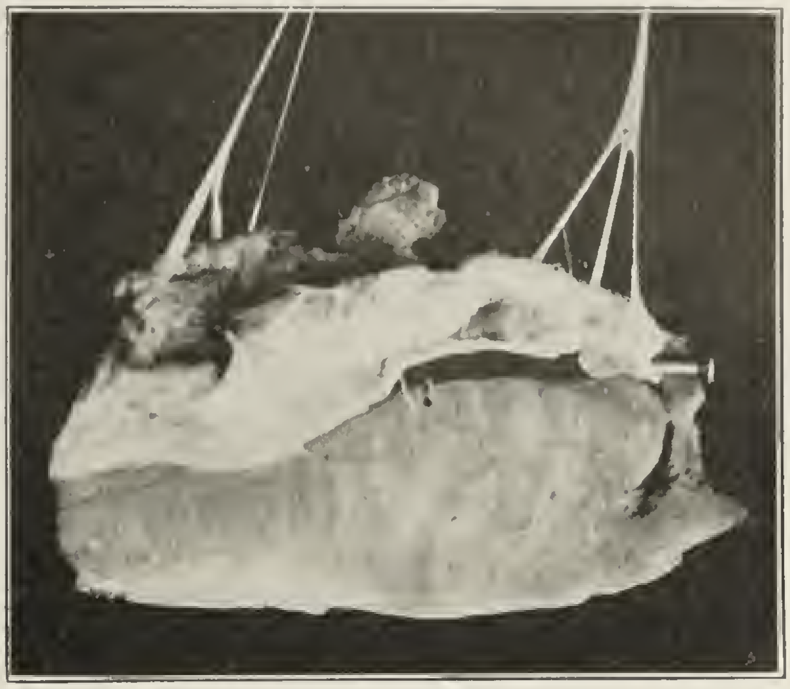

Fig. 3 (Dog B 949).—Branches of second cervical nerve which have become intimately attached to a newly formed outer capsule. Enlarged about two diameters.

In these experiments there were five partial successes before complete success was obtained (Table 1).

### COMMENT

The fourth experiment furnished some interesting data. Twelve days after the transplantation a catheter was placed in the bladder and a ureteral catheter in the ureter of the transplanted kidney. One c.c. of phenolsulphonephthalein was injected into one saphenous vein. In four minutes the phenolsulphonephthalein appeared in the urine from the transplanted kidney. In the first hour 17 c.c. of urine were collected from the transplanted kidney, and 17 c.c. from the bladder. The specimen from the transplant contained 1.44 per

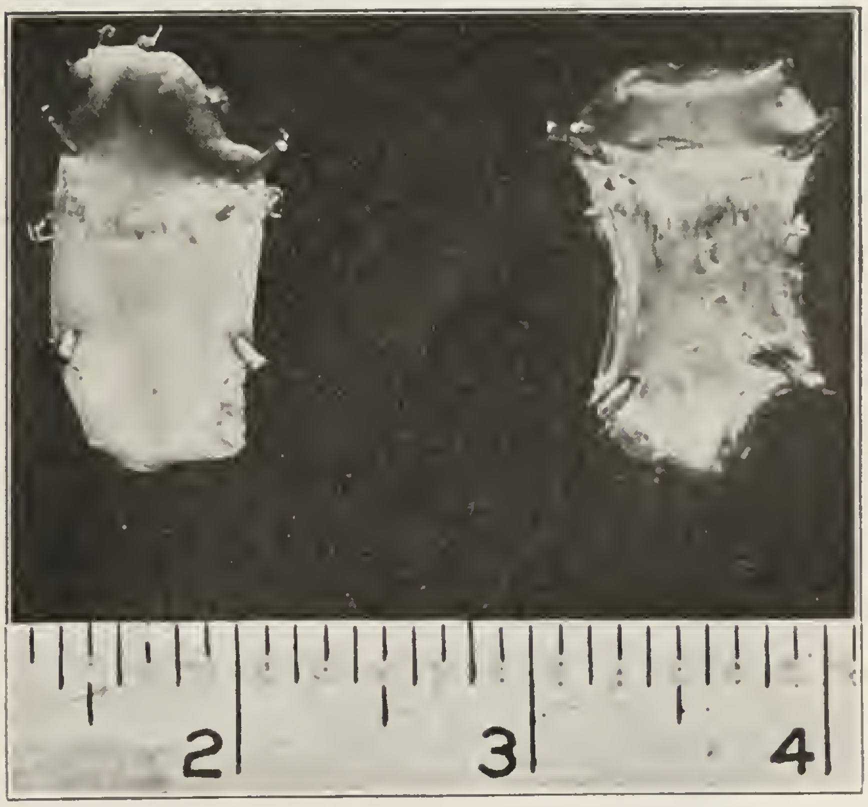

Fig. 4 (Dog B 949).—Inside appearance of the renal vein and artery at the sites of anastomoses. Continuous endothelium is shown, but there still remains suture material, shown at the sectioned edges and buried in the thickness of the vessel wall seventeen days after the transplantation.

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[7] Villard, E., and Tavernier, L.: La transplantation du rein, Presse méd., 1910, **18**, 489-492.

cent. of the phenolsulphonephthalein. In the second hour the transplanted kidney excreted 13.5 c.c. of urine with a trace of phenolsulphonephthalein, while only 12 c.c. were obtained from the bladder. The urine from the bladder showed no phenolsulphonephthalein during the first two hours. On one occasion the end of the ureter was seen to move during contraction. Specimens from this dog are shown in Figures 2, 3 and 4. Figure 3 shows the second cervical nerve after it had been dissected away from the new perirenal tissues, in which it spread out in all directions.

### PROTOCOL OF SUCCESSFUL EXPERIMENT

Experiment 388 (Dog B 976).—An adult, female mongrel fox terrier, weighing 8.6 kg., with brown and white short hair, was operated on, May 2, 1917.

8:58 a. m., intratracheal ether anesthesia was begun.

9:15 a. m., the incision was made.

TABLE 1.—DETAILS OF EXPERIMENTS

| Date of Operation | Dog No. | Experiment No. | Time of Operation | Circulation Cut Off | Function | Remarks |
|---|---|---|---|---|---|---|
| 3-16-17 | B 870 | 243 | 3 hours, 20 minutes | Not recorded | None | Operation too long (dog recovered) |
| 3-30-17 | B 919 | 311 | 2 hours, 26 minutes | 44 minutes | None | Distemper; pneumonia |
| 4- 6-17 | B 936 | 332 | 2 hours, 41 minutes | 54 minutes | None | Peritonitis from tearing apart of transverse wound |
| 4-13-17 | B 949 | 345 | 2 hours, 21 minutes | 57 minutes | 6 days | Pyelitis of the transplant; foreign body in the rectum; distemper, pneumonia. |
| 4-20-17 | B 960 | 356 | 2 hours, 15 minutes | 48 minutes | 2 days | Renal vein anastomosed to the inferior thyroid vein; distemper, pneumonia. |
| 5- 2-17 | B 976 | 388 | 1 hour, 41 minutes | 32 minutes | 4 months 1 day | Successful; for details see protocol |

TABLE 2.—AUTOTRANSPLANTATION OF KIDNEY (PROTOCOL OF DOG B 976)

| Date and General Condition | Notes on Wound | Flow of Urine from Neck | Examination of Urine | | Treatment* |
|---|---|---|---|---|---|
| | | | Gross or Chemical | Microscopic | |
| 5- 2-17—Wt. 8.6 kg.; excellent | Operation | Flow in spurts | ................ | ................ | Dakin dressing |
| 5- 3-17—Excellent | Collodion gauze loose | Waves of urine | Phthalein appeared in 7 minutes | ................ | Dakin dressing |
| 5- 4-17—Eye and nasal discharge | Serum let out | 7 waves to minute | Amber, clear; alkaline faint trace albumin | Few leukocytes, erythrocytes and epithelial cells | Boric acid nose and eyes |
| 5- 5-17—Excellent | Neck excoriated with urine | Waves of urine | Amber, clear, alkaline | Many leukocytes; ammonium urate crystals | Boric acid nose and eyes |
| 5- 7-17— | ................ | ................ | ................ | ................ | Metal collar; no dressing |
| 5- 8-17—Excellent | Slight discharge | 2-6 waves per minute | ................ | ................ | Silver nitrate to wound |
| 5- 9-17—Very lively | No discharge | Waves every few seconds | ................ | Scattered leukocytes | Dr. sodium bicarbonate |
| 5-15-17—Wt. 8.9 kg. | ................ | 7-5 c.c. in one hour† | Alkaline; 0.24 per cent urea and ammonia | Few leukocytes | ½ dr. sodium bicarbonate |
| 5-16-17—Wt. 8.7 kg. | Right nephrectomy | 60 c.c. per hour† | ................ | ................ | ................ |
| 5-17-17—See Fig. 5; watery nasal discharge | Slight discharge from neck | 45 c.c. per hour† | Light amber | ................ | ½ dr. sodium bicarbonate; zinc ointment |
| 5-18-17—Active, interested | New collar necessary | Squirted a foot once | Light amber; alkaline; no albumin; 0.3+ per cent. urea | 2 or 3 clusters leukocytes; no epithelial cells | Petrolatum with chlorinated lime; licked off |
| 5-19-17—Active, runs; became drowsy, dizzy | Lumbar collodion gauze; partly chewed off | Licked urine and chlorinated lime from legs | Very light amber | ................ | Dram sodium bicarbonate |
| 5-20-17—Good | Loin incised because of swelling | Free flow | ................ | ................ | Cold; brought in shivering |
| 5-21-17—Very active | Dakin dressing on loin | Dripping | ................ | ................ | Dram sodium bicarbonate; Dakin dressing |
| 5-22-17—Excellent | Dakin dressing on loin | Squirted over 12 inches | ................ | ................ | |
| 5-23-17—Excellent | Dakin dressing on loin | ................ | ................ | ................ | Shown at county medical society |
| 5-24-17— | Dakin dressing on loin | Squirted from neck; head stationary | ................ | ................ | Dakin dressing; ate aluminum and rubber collar |
| 5-25-17—Excellent | Neck abrasions from lack of collar and rubbing neck | ................ | ................ | ................ | Zinc ointment |
| 5-26-17— | Bit off leather collar | ................ | ................ | ................ | Sodium bicarbonate |
| 5-27-17—Excellent | Pus from punctured loin abscess | ................ | ................ | ................ | Leather-metal collar bitten off |
| 5-28-17—Excellent | Pus from punctured loin abscess | No injury to ureter from lack of collar | ................ | ................ | |
| 5-29-17—Excellent | Abscess closed over | 4 c.c. in 8 minutes or 30 c.c. per hour | 0.6 per cent. urea and ammonia | ................ | |
| 5-30-17—Wt. 8.1 kg.; good | Abscess opened again | ................ | ................ | ................ | Original collar on |
| 5-31-17—Wt. 8 kg. | ................ | ................ | ................ | ................ | 0.2 gm. calcium chlorid |
| 6- 1-17—Wt. 8.3 kg.; good | Loin wound drains through small hole | ................ | ................ | ................ | Belt collar on again |
| 6- 2-17—Wt. 8 kg.; excellent | ................ | ................ | ................ | ................ | Zinc to neck |
| 6- 3-17—Wt. 8 kg. | ................ | ................ | ................ | ................ | |
| 6- 4-17—Wt. 8.5 kg.; excellent; cough | ................ | ................ | ................ | ................ | Boric acid nose and eyes (dusted) |
| 6- 6-17—Wt. 7.8 kg.; excellent | ................ | ................ | ................ | ................ | |
| 6- 7-17—Fine spirits | ................ | ................ | ................ | ................ | Collar left off |
| 6-27-17—Wt. 8.9 kg. | Slight discharge | ................ | ................ | ................ | |
| 6-29-17—Excellent | ................ | ................ | ................ | ................ | |
| 8-18-17—See Fig. 6 | Loin wound moist | Spurts 1 meter away | Amber clear alkaline | No cells or detritis | Photograph taken |

* Amount of sodium bicarbonate only estimated; it was taken with food and some lost.

† Urine collected by catching drops; very small error makes estimation necessary.

9:40 a. m., the vessels of the neck were clamped off with Crile clamps.

9:48 a. m., the renal vessels were clamped.

10:20 a. m., circulation was reestablished through the kidney.

10:56 a. m., the last stitch was taken in the wound.

11:05 a. m., anesthesia was stopped.

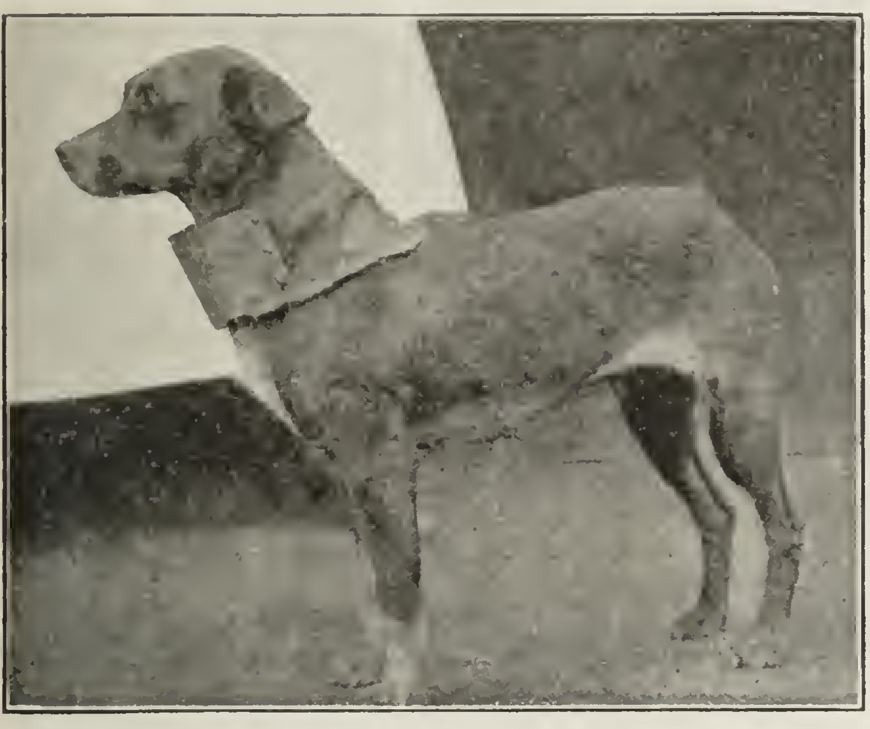

Fig. 5 (Dog B 976).—Twenty-four hours after right nephrectomy.

### CONCLUSIONS

1. It is possible for a dog to remain alive and in good health more than four months after the transplantation of one kidney to the neck, even when the remaining kidney is removed two weeks after the transplantation.
2. After the transplantation of a kidney with its ureter, the ureter may be seen to move when contracting during excretion.
3. The ureter in a renal transplant may have the power to squirt the urine away from the animal by periodic contractions.

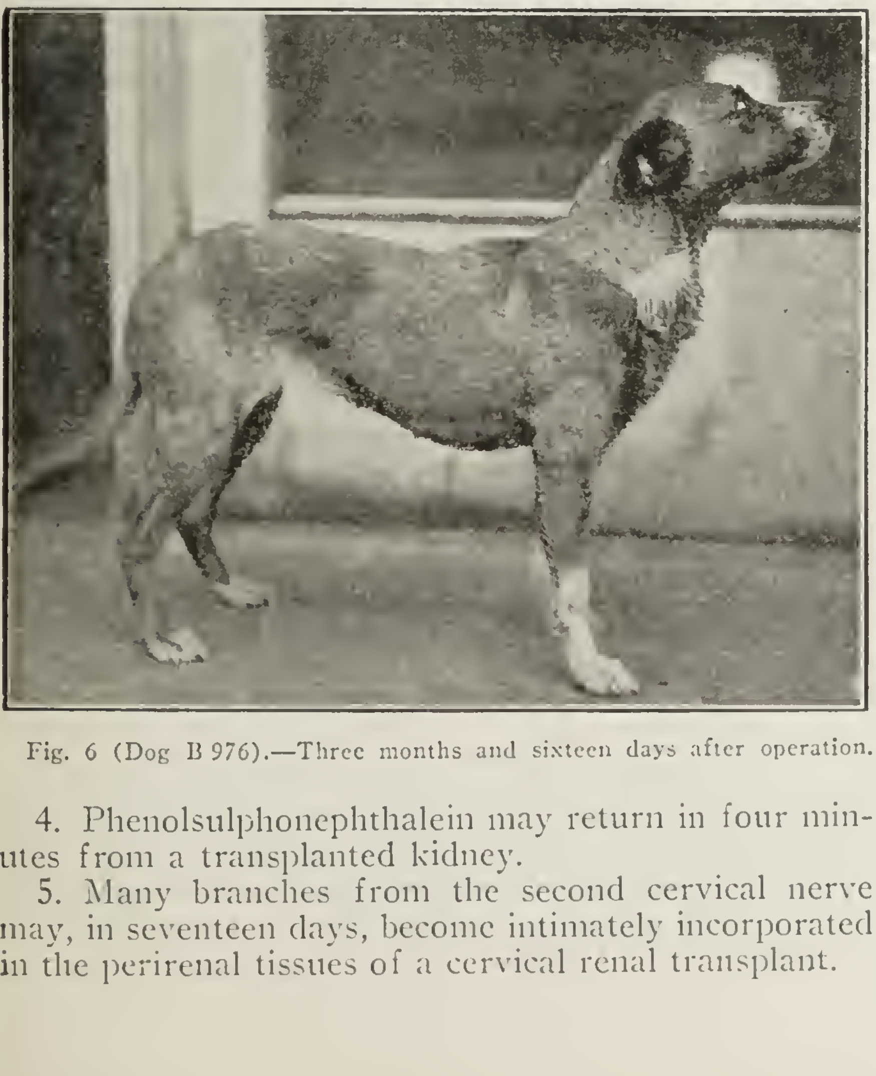

Fig. 6 (Dog B 976).—Three months and sixteen days after operation.

4. Phenolsulphonephthalein may return in four minutes from a transplanted kidney.
5. Many branches from the second cervical nerve may, in seventeen days, become intimately incorporated in the perirenal tissues of a cervical renal transplant.
6. The quantity of urine from a cervical renal transplant is markedly increased after the removal of the other kidney.
7. The neck is a favorable site for the observation of an experimentally transplanted kidney and its excretion.

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# ACTION OF EMETIN ON MALIGNANT TUMORS *

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While there has been, up to the present time, no experimental confirmation of the theory that malignant tumors are of parasitic origin, there are still some observers, especially among clinicians, who hold the belief that the etiologic factor in neoplasia is a parasite, possibly amebic in origin.

This possibility suggested to me the testing of the effect of emetin (alkaloid) on malignant tumors, since this is considered a specific for amebic dysentery. Tests of the drug were made, therefore, in cases of human and animal carcinomas and of animal sarcomas. The results obtained in human beings seemed rather promising; but because of the many pitfalls in this special field of work, I considered it advisable to test the drug extensively on tumors of rats and mice before I drew definite conclusions. The experiments have shown that emetin has no effect on malignant tumors.

The reason for the publication of these observations is the fact that Mary Freeman[1] reported lately that she had used emetin locally in a case of skin cancer with seeming success. She states that the idea of using this drug in cases of cancer was suggested to her in a paper by Roehr[2] on the amebic origin of the disease.

Since it is highly probable that the use of emetin in cancer may suggest itself to others than Freeman and myself, it seems of some value to record my observations for future reference.

## CLINICAL OBSERVATIONS

Case 1.—M. S. was suffering from inoperable local recurrences, following a radical amputation of the breast for carcinoma. The treatment was begun in March, 1916. Injections were made into the tumors, 0.03 gm. of emetin being injected, under aseptic precautions, at each sitting. After the injections, each tumor increased to three times its previous size, softened and disappeared without discharge of pus. This case seemed very promising for a while. Then, at the lower angle of the wound, the patient developed a large recurrent growth which would not yield to treatment, and she died from internal metastases in July, 1917. The clinical diagnosis was confirmed by microscopic examination.

Case 2.—S. M., nine months before, had undergone a radical amputation of the breast for cancer. When she came under my observation, she was complaining of swelling of the left arm and dyspnea. There were no external recurrences, nor any enlargement of the liver. After injections of emetin into both arms and legs had been given during a period of many months, the dyspnea disappeared entirely, and the swelling of the arm was considerably reduced. The condition improved so markedly that injections were stopped during the last six months. At the present time the patient seems to be in perfect health. The roentgen ray, however, shows a shadow in the lung. Too much stress cannot be

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* From Columbia University, George Crocker Special Research Fund, F. C. Wood, director.

1. Freeman, Mary: South. Med. Jour., 1917, **10**, 246.
2. Roehr, C. G.: South. Med. Jour., 1915, **8**, 855.

laid on the fact of the disappearance of the edema. It is evident that this case cannot be considered of any importance in an estimation of the value of emetin.

### ANIMAL EXPERIMENTS

Carcinomas and sarcomas in rats and mice were treated by injections: (1) into the tumor; (2) subcutaneously, and (3) intravenously. The maximal dose of emetin that could be injected into the tumor or subcutaneously without injurious effect was found to be 0.00043 gm. Repeated injections into the tumor caused necrosis and scab formation. In the majority of cases, the scab fell off after a week, leaving an indurated area. Sometimes an area of alopecia was the only indication of the former site of the tumor. Microscopic examination of the necrotic area and the surrounding tissues showed practically a total absence of tumor cells. There was, however, a marked round-cell infiltration of the tumor-bearing area and of the surrounding tissues. The disappearance of the tumors is evidently based on the cell-destructive action of the emetin. This destruction is not limited to the tumor-bearing area, but extends to the surrounding tissues, thus preventing the proper nutrition of the tumors and establishing another factor for the disappearance of the growth.

By another series of experiments, it was shown that the mechanical factor, that is to say, the injection of the fluid into the tumor, does not play any rôle in the results obtained. Two sets of tumors, from two different series of six animals each, were injected with identical quantities of emetin and physiologic sodium chlorid solution, respectively. Whereas the tumors injected with emetin disappeared, the tumors injected with sodium chlorid solution grew at exactly the same rate as the controls.

Subcutaneous injections of emetin at some distance from the site of the tumors seemed to retard the growth. It is, however, a well-known fact that a considerable percentage of these transplanted tumors are either retarded in growth or completely disappear. After testing the drug in this fashion in a great many animals, I reached the conclusion that though the growth seems to be slightly retarded in a fairly large percentage, the retardation does not occur in a sufficiently large number of injected animals to warrant the supposition that the findings are due to a specific action of the emetin. It is rather to be assumed that they were accidental.

The most conclusive evidence concerning the action of emetin on carcinoma and sarcoma was derived from the intravenous injection of this drug into mice. The maximal dose was 0.00022 gm., and injections were repeated three times in the course of a week. The animals stood the injections very well. Tumors of animals thus treated did not differ in their growth from the tumors of the controls. Furthermore, microscopic examination of the tumors did not indicate any change, when compared with the controls.

### CONCLUSIONS

1. Injection of emetin into carcinoma and sarcoma may cause a complete macroscopic disappearance of most of the tumors. This disappearance is not due to a specific action of emetin on the tumor cells. The action of the drug is purely caustic, similar, though in less degree, to the action of phenol (carbolic acid), zinc chlorid, etc.

2. Repeated intravenous injections of emetin do not affect the growth of carcinomas and sarcomas. This proves conclusively that emetin has no specific effect on the growth of malignant tumors.

3. These observations do not strengthen the amebic theory of malignant tumors.

565 Park Avenue.

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# FAMILY PREVALENCE IN ANENCEPHALY

## REPORT OF CASE

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The occurrence of anencephalic monsters is not extremely rare. Few obstetricians that have attended many births have failed to observe one instance at least of this type of monstrosity. Ballantyne[1] in a series of 325 cases of monstrosity and fetal disease found forty-six anencephalics, an incidence of 14 per cent.

The case here reported is placed on record because of family prevalence, which in itself is a rare occurrence. In only two of Ballantyne's series had the mother previously given birth to an anencephalic fetus. This was noted in 1861 also by Lammert[2] and a little later by Carli,[3] who reported the birth of three anencephalic fetuses occurring in succession as in the case here related. Martin[4] has reported the history of six anencephalic births in the course of the reproductive life of one woman. This woman had also given birth to two normal infants and one other monstrosity.

The course of pregnancy that ends in the birth of this type of monstrosity is as a rule not markedly abnormal. The most frequent abnormality found is hydramnios with its attendant symptoms. As may be expected, the fetal heart is heard with difficulty if at all, and the fetal movements are not apt to be readily elicited on palpation, or strongly felt by the patient. If the pregnancy goes to term, the course of labor is apt to be prolonged mainly because the presenting part acts as an unsatisfactory dilator, and because of premature rupture of the membranes in the cases associated with hydramnios. Dystocia may arise from the breadth of the shoulders. Obviously, presentation by the breech gives a greater chance for spontaneous delivery. If artificial delivery is indicated with the head presenting, both Cragin[5] and Williams[6] advocate version with breech extraction.

The prognosis for the mother varies but little from that of a normal labor if the patient is in skilled hands. The fetus if born alive usually dies quickly, although Ross reported a case in which the child lived more than sixteen days.

### REPORT OF CASE

Mrs. C., aged 25, Russian Jewess, housewife, married five years, was seen in labor in the maternity wards of the Grace Hospital, New Haven, Conn., Oct. 24, 1917. This was her third pregnancy. The family history was negative; there was no history of monstrosities in either the patient's or her husband's family. Both were members of large, healthy families, and there was no blood relation. The previous history was negative except for the abnormal births. The first pregnancy terminated at seven months spontaneously, and a dead anencephalic monster was born. This pregnancy was accompanied by hydramnios. The labor was inaugurated by premature rupture of the membranes. The second pregnancy was also accompanied by hydramnios, with premature rupture at the seventh month. At this time she was put to bed for two weeks, at the end of which a macerated anencephalic monster was removed from the uterus. In both of these pregnancies the fetal movements were felt but seldom by the patient. There were no puerperal complications. The menses began at 15, occurred regularly every twenty-eight days, and were free from pain. The last menstruation was Jan. 1, 1917. The fetal movements were felt early in July. Confinement was expected, Oct. 8, 1917. The health of the patient during the present pregnancy had been good; no nausea or vomiting had occurred at any time, no edema, no headache and no eye symptoms, and the bowels had been regular with occasional medication. The fetal movements had not been strong at any time, and of late had not been felt with certainty.

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[1] Ballantyne, J. W.: Antenatal Pathology and Hygiene, 1904, **1**, 332.

[2] Lammert, G.: Arch. f. path. Anat., 1861, **22**, 230 (quoted by Ballantyne).

[3] Carli: Bull. d. sc. med. di Bologna, 1863, Series 4, **19**, 30 (quoted by Ballantyne).

[4] Martin, J.: Med. Exam. Philadelphia, 1840, n. s., **23** (quoted by Ballantayne).

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On entrance to the hospital the patient said that the bag of waters had broken twelve hours previously, that a great deal of water had drained away, and that pains had started soon afterward.

The pulse and temperature were normal, the teeth good, the nose and throat negative. There was moderate bilateral enlargement of the thyroid. The heart and lungs were negative, the urine was negative, and the blood pressure was 110 mm. The breasts were of moderate size, well formed, the nipples erect, and colostrum was expressed. Examination of the abdomen revealed a few new striae of small size. The fundus uteri was 8 cm. below the xiphoid cartilage. Fetal movements were not seen or palpated; the fetal heart was not heard, and the position was not made out. Pelvic measurements were: spines, 24.5; crests, 27; trochanters, 30; external conjugate, 18.25. The arch was wide. There was no edema of the extremities. In the region of the left groin, superficial varicosities of moderate size were seen. These extended to the vulva on the left side and for a short distance on the anterior and inner aspect of the thigh.

Rectal examination at this time was unsatisfactory; a vaginal examination showed a relaxed perineum and a well healed scar from previous laceration, the vagina negative, the os fully dilated, the membranes ruptured, and the presenting part slightly engaged. On account of the unusual sensation imparted to the examining fingers, deep palpation by the vagina was made. and the fingers slipped readily into the fetal mouth. In the absence of cranial bones, a diagnosis of anencephaly was made.

Labor pains at this time were of second stage character, and the patient was urged to use these for one hour in expelling the fetus. At the end of this time a rectal examination revealed no progress. The patient was etherized, and an easy version and extraction performed. There was no hemorrhage, the perineum was not torn, and the placenta and membranes were complete.

The fetus was stillborn; its weight was 3,150 gm., its length 48 cm. A typical picture of anencephaly with complete spina bifida presented itself. The head presented the well known appearance, the cranial vault and the scalp being practically absent, and this portion of the head covered by thickened dura mater, which was dark red. The head was deeply set on the shoulders, the eyelids protruding and thickened, the forehead absent, the nose flattened, the mouth open and the tongue protruding. The whole cerebrospinal canal from end to end was open. The vertebral arches in no place were united posteriorly, and were separated from 3 to 4 cm. most of the distance. The entire canal was covered by dura mater through which a few strands of nervous tissue could be seen. The remainder of the body was that of a well formed male child.

The puerperium was uneventful, and the patient left the hospital on the fourteenth day. A Wassermann test of the maternal and paternal blood was negative. The microscopic examination of the placenta revealed no evidence of placental syphilis.

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# EXHAUSTION PSEUDOPARESIS

## A FATIGUE SYNDROME SIMULATING EARLY PARESIS, DEVELOPING UNDER INTENSIVE MILITARY TRAINING *

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At present the various organizations of our Army are being subjected to a rigorous system of medical examination with a view to the elimination of those unfit for military service. In this system of inspection the special departments of medicine have received recognition, and it is becoming more and more apparent that neurology and psychiatry are destined to play a most important rôle.

Not long since, as Contract Surgeon, U. S. Army, I was assigned to one of the large officer's training camps in order to make neuropsychiatric examinations of the personnel. The camp contained approximately 1,500 men, divided into eight companies of infantry and four batteries of field artillery. Each candidate was given a special examination, as a result of which twenty-one men were recommended for discharge as suffering from disease of the nervous system of sufficient gravity to incapacitate them for the responsibilities and duties of military life.

Of this number, nine were examples of functional nervous disorders and would be classified under such headings as neurasthenia, vasomotor neuroses and the psychoneuroses. Only one case presented symptoms of a definite psychosis, probably belonging to the paranoid type of dementia praecox.

Another group of cases which we were able to demonstrate, and a most important one, showed evidences of syphilitic disease of the central nervous system in the form of incipient paresis, preparesis, or early cerebral syphilis. There were eleven cases in this group, of which six were regarded as incipient paresis, and the remaining five as examples of preparesis, or early cerebral syphilis.

Generally speaking, the clinical symptoms presented were not marked, and consisted merely of pupillary changes, tremors of the face and hands, and slight disturbances of articulation on repeating test phrases. General cerebral symptoms or evidences of mental deterioration were so slight as to be practically negligible from the diagnostic standpoint, and for the detection of this very important and serious group of cases we were almost wholly dependent on those slight but well established somatic symptoms of early paresis which are so characteristic to the trained observer.

It should be emphasized that in all of these instances of syphilitic disease of the central nervous system the men were able to perform their duties in the camp, some with considerable satisfaction to the commanding officers. They made no complaint of physical illness, and were apparently unaware of their true condition. In all of these cases, the syphilitic nature of the affection was confirmed by serologic examination of the blood and cerebrospinal fluid before the final recommendation for discharge was made.

The signal importance of eliminating such men from military service must be apparent to all, as the potential or incipient paretic would always constitute a serious menace to a military organization, especially

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* Read at a joint meeting of the New York Neurological Society and the Section on Neurology and Psychiatry of the New York Academy of Medicine, Nov. 13, 1917.

as a commissioned officer. This is all the more true as the disease is in a very early stage with but few subjective and somatic manifestations; and the individual in question might be well launched on his military career before the evidences of a serious breakdown became apparent, perhaps with tragic consequences to himself or the men under his command.

As directly bearing on this question, I would emphasize another group of cases which came under observation, the formal recognition of which is of some importance because of the rather close similarity of the somatic symptoms to those of early paresis. In three of the cases the clinical diagnosis of paresis seemed fairly certain, and the fourth, although doubtful, was very suspicious; yet serologic examinations of the blood and spinal fluid were quite normal, and practically all symptoms disappeared after a week or ten days' rest.

In my opinion this condition was dependent on an exhaustion of the cerebrospinal centers, producing a clinical picture closely simulating that of early paresis. All of those clinical criteria which I have mentioned and which had enabled us to select from 1,500 men eleven undoubted cases of incipient paresis, preparesis or early cerebral syphilis failed us here; yet I do not feel that the fatigue cases in the acute stage could have been eliminated with certainty excepting by serologic examinations. Realizing, by personal experience, the diagnostic difficulties presented by these fatigue symptoms, I believe that attention should be directed to their occurrence and close resemblance to early paresis; for, if the examiner should escape the error of regarding the exhaustion case as one of paresis, he might fall into one equally lamentable and view the early somatic symptoms of paresis as merely exhaustion phenomena.

In civil life I have not encountered a similar condition, and the clinical facts to which attention is directed are chiefly of significance to military surgeons.

Before proceeding to the reports of my cases I would emphasize the unusual strain, both mental and physical, to which men in an officers' training camp are subjected. This is not only physical in nature, but also mental, as there is much theoretical knowledge to acquire, and not a few of the men have stepped suddenly from a rather sedentary life to the arduous labors and keen competition for an officer's commission. When one has personally observed the splendid spirit and effort which animates such a camp, one can then understand the unwonted nature of the stimulus and the possibilities of extreme fatigue not usually encountered in ordinary times and occupations.

## REPORT OF CASES

Case 1.—*History.*—Man, aged 36, single, previously a lawyer, referred to the post hospital, Sept. 24, 1917, for examination, had been in the officers' training camp for a month undergoing a course of intensive military training, and for several days had been actively engaged in the arduous work of the digging and construction of trenches. For some years he had practiced law, and had led a rather sedentary life. He was unused to the severe physical exercise which life at the camp had entailed, and it had been an effort for him to keep up. He had had gonorrhea at the age of 16, and malaria in 1907. He denied syphilis. Some years previously he had indulged excessively in alcohol, but during the last seven years he had been a total abstainer. He stated that he had had several vertiginous seizures during the past few days, some headache, and had felt nervous and depressed.

*Physical Examination.*—The face was flushed, the expression was dull and heavy, and the speech was tremulous. The pupils were moderately dilated and unequal, the right slightly larger than the left. The pupillary margins were rounded, and presented no irregularities. There was scarcely an appreciable reaction to light, and the faint response which was elicited was quite sluggish. This was true of both the direct and the consensual reactions. The sympathetic skin reflex was feebly present. The reaction on accommodation was preserved. The ocular excursions were normal save for a slight nystagmoid twitch in the extreme lateral positions. There was no true nystagmus. The cranial nerves were normal, and there was no optic neuritis. There were marked facial tremors and some lingual tremor, and when the effort was made to close the eyes and expose the teeth simultaneously, the muscles of the face broke into coarse tremor movements identical with those of early paresis. The speech also was tremulous, and suggested the paretic type. On the repetition of test phrases, there was a distinct dysarthria, with some syllable stuttering and associated movements of the upper facial muscles. There was a coarse tremor of the hands and fingers, and the handwriting was quite irregular and tremulous. The tendon reflexes were all present and active, namely, the masseter reflex, the supinator, biceps and triceps jerks, as well as the knee jerks and the Achilles jerks.

The abdominal and cremasteric reflexes were present, and the plantar reflex was of the flexor type (no Babinski). General sensation was unimpaired. There was no Romberg symptom, and no ataxia of the upper or lower extremities. Mentally the man was dull and slow, and gave the impression of being rather dazed. There appeared a distinct slowness of comprehension and a slowing of reaction time in response to questions, which was in contrast to his previous education and professional training. Problems in mental arithmetic were performed with difficulty, and with occasional errors. The character of the pupillary changes, the marked tremors of the face, tongue and hands, and the speech disturbance, together with the slight mental dulness, coincided very closely with the clinical picture of early paresis. He was therefore admitted to the hospital for observation, and specimens of the blood and cerebrospinal fluid were sent to the Army Medical School for examination. Both were reported negative for the Wassermann test. The spinal fluid showed no increase of globulin, and only two cells. The colloidal gold reaction was negative. The urine, heart and lungs were normal. There was no elevation of temperature.

The pupillary changes, tremors and speech disturbance persisted for several days, and then gradually subsided.

After a week's rest there was a marked improvement in the symptoms. The pupils were equal, and their responses to light became active, the tremors vanished, and the speech disturbance and all evidences of mental dulness and apathy disappeared. The case was finally regarded as an acute exhaustion of the cerebrospinal centers, with symptoms closely resembling those of early paresis.

Case 2.—*History.*—Man, aged 30, single, a lawyer, referred to the post hospital, Sept. 24, 1917, for examination, like the previous patient was a candidate in the officers' training camp, and for a month had been undergoing intensive military training. For the past few days he had been actively engaged in trench digging, using a pick and shovel. He stated that for a fortnight he had been nervous, had lost sleep, and was unable to memorize the theoretical work. These symptoms had steadily increased. He had had several light attacks of vertigo, but did not lose consciousness. He denied venereal infection. He was moderate in the use of alcohol, but was an excessive smoker.

*Physical Examination.*—The face was flushed; the pupils were unequal, moderately dilated, and practically stiff to light. No definite light reaction could be obtained either directly or consensually. The reaction on accommodation was present, and a slight sympathetic response was also manifest. There was a marked tremor of the face and lips on articulation, and the speech was quite tremulous. On repeating test phrases there was the slight dysarthria and syllable stuttering characteristic of paresis. On the patient's attempting closure of the eyes and exposure of the teeth simultaneously, a typical coarse tremor developed as in paresis. There was also a rather marked tremor of the hands and fingers. The cranial nerves were normal. There was no nystagmus, and no optic neuritis. The jaw jerk was active, and the tendon reflexes of the upper extremities were present and equal. The knee jerks and the Achilles jerks were active and equal. The abdominal and cremasteric reflexes were present, and the plantar reflex was of the flexor type. Sensation was unimpaired. There was no ataxia, and the gait and station were normal. The patient's mental processes appeared to be somewhat dull and retarded, and he gave the impression of having undergone slight mental deterioration, when his previous education and training were taken into consideration. This, together with the tremor, speech disturbance and pupillary changes, was strongly suggestive of incipient paresis. He was therefore admitted to the post hospital for further observation, and specimens of the blood and cerebrospinal fluid were sent to the Army Medical School for examination. The Wassermann test of the blood and the spinal fluid was reported negative. There was no increase of globulin, and only one cell. The colloidal gold reaction was negative. The heart and lungs were normal, and there was no elevation of temperature. The urine was normal.

The suspicious symptoms persisted for several days, and then gradually improved. After a week's rest, the pupillary reflexes to light had returned, the anisocoria disappeared, the tremors vanished, and the speech lost its paretic character. There was still some nervousness and a tendency to insomnia. In the absence of positive findings in the blood and spinal fluid, and after the rapid improvement under rest, the case was regarded as an acute exhaustion of the central nervous system, with somatic symptoms strongly suggestive of early paresis.

Case 3.—*History*.—Man, aged 34, married, previously an insurance broker, referred to the post hospital, September 23, for examination, had been undergoing active military training for a month, and for the past ten days had been engaged in trench digging. He stated that he had had no venereal disease, and had not indulged excessively in alcohol or tobacco. He had worked hard as an insurance broker, but in recent years had not had much outdoor work. Although large and well developed physically, he had found the training increasingly trying and difficult. For several nights previous to his entrance to the hospital he had not slept well, and had felt nervous and irritable.

*Physical Examination*.—The face was flushed, and the speech somewhat tremulous. The pupils were unequal; the right was larger than the left. The responses to light were very feeble and sluggish. There was a good reaction on accommodation. A slight sympathetic pupillary response was elicited. There was marked tremor of the face, lips and tongue, and what appeared to be a distinct paretic dysarthria on the repetition of test phrases. Syllable stuttering was quite evident in the attempt to articulate. There was a very marked coarse tremor of the hands and fingers, which was more pronounced on the right side. The cranial nerves were normal; there was no nystagmus. The gait and station were normal, and there was no ataxia of the upper or the lower extremities. The jaw jerk was active, and the tendon reflexes of the upper extremities were present and equal on the two sides. Both knee jerks were diminished, especially the left. The Achilles jerks were active. The abdominal and cremasteric reflexes were present, and the plantar reflex was of the flexor type. Sensation was unimpaired. Mentally the patient showed no evidences of defect. He was, however, somewhat euphoric and inclined to be irritable and resentful of discipline. The tentative diagnosis of incipient paresis was made, and he was admitted to the post hospital for observation. The serum reaction of the blood and spinal fluid was negative. The urine was normal. The heart and the lungs were normal. There was no elevation of temperature.

After a week's rest, the symptoms gradually subsided. The inequality of the pupils disappeared, and the sluggish reaction to light was replaced by a prompt response. The dysarthria and tremor disturbance abated, and the symptoms of excitability and irritability disappeared. The knee jerks were equal and of normal intensity. The case was regarded as one of acute exhaustion, with symptoms suggestive of early paresis.

Case 4.—*History*.—Man, aged 31, single, previously a surveyor, was referred to the post hospital, Sept. 20, 1917, on account of nervousness and insomnia. There was a well marked tremor of the hands, especially the right, and the speech was tremulous. On the man's repeating the test phrases, a dysarthria and syllable stuttering similar to that observed in early paresis was evident. There were also associated movements of the upper facial muscles during articulation. The tongue was somewhat tremulous on protrusion. The pupils were moderately dilated and unequal, and manifested a scarcely perceptible and very sluggish reaction to light. This was true of both the direct and consensual reactions. The response on accommodation was prompt, and the sympathetic reflex was elicited. The cranial nerves were normal. There was no nystagmus. The jaw jerk was active, and the tendon reflexes of the arms were present and lively. The knee jerks and Achilles jerks were active and equal. The abdominal and cremasteric reflexes were present, and the plantar reflex was of the normal type. There was no Babinski reflex. The gait and station were normal, and sensation was unimpaired. The Wassermann test of the blood, taken September 20, was negative, and another specimen, taken Sept. 27, 1917, was also negative. The urine, heart and lungs showed no deviation from the normal. The only subjective symptoms were nervousness and insomnia.

After a few days' rest, the pupillary reflexes to light became active, the speech cleared up and tremors disappeared.

Like the previous patients, this man was unused to active exercise, and had felt the rigors of physical training.

## COMMENT

All of the cases just described were characterized by certain somatic symptoms strongly suggestive of early paresis, namely, the pupillary changes, the tremors, and the disturbances of articulation.

This triad of symptoms was so manifest, and resembled so closely those observed in the early stages of paresis, that the clinical diagnosis appeared reasonably certain, an interpretation which seemed all the more probable as we had already demonstrated cases with apparently similar symptoms in which the diagnosis had been confirmed by serologic tests of the blood and cerebrospinal fluid. It was a surprise, therefore, when the serologic reports were returned negative and the various symptoms gradually subsided under appropriate rest and treatment.

The mental and general cerebral symptoms were not marked in any of the cases, and, considered alone, would not have suggested paresis. Viewed, however, in relation to the somatic symptoms, the slight dulness and apathy in Cases 1 and 2, and the excitement and euphoria in Case 3, appeared significant, which was true also of subjective symptoms, such as headache, vertigo, insomnia, depression and nervous irritability. Alone they would have indicated only extreme fatigue or a functional disturbance; associated, however, with defective and sluggish pupillary responses to light, a paretic speech disturbance and marked facial tremors, they might well suggest the early neurasthenic symptoms of the paretic.

The gradual abatement and final disappearance of all suspicious symptoms at the end of a week's rest would indicate an exhaustion of the cerebral centers as the probable cause. Under still greater provocation of stress and strain, it is not improbable that such fatigue symptoms might even be the forerunner of a more serious type of exhaustion neurosis or neuropsychosis.

It is now held by most observers that fatigue is associated with the production of certain toxins which act on the central nervous system as well as on muscle tissue. Therefore, in addition to nerve exhaustion, the theory of a low grade intoxication of the nerve centers from fatigue products must be considered as a possible explanation of the symptoms. Among these may be mentioned such substances as carbon dioxid, paralactic acid and monopotassium phosphate (Lee[1]). Indeed, Weichardt[2] has long maintained that a specific fatigue toxin exists, and is the essential etiologic factor in the production of its characteristic manifestations, a theory which has been recently questioned by Lee and Aronowitch.[3]

The subject of fatigue has been carefully studied by many observers in different fields of research, and among its recognized mental symptoms are a diminished power of attention, a lack of the ability to concentrate, a slow reaction to sensory stimuli, and slowness in reasoning, as well as errors and slowness in mathematical calculation (Lee[4]). If such symptoms were present in any marked degree and associated with the somatic symptoms mentioned above, they might well lead one into error.

It is well known also that fatigue is a frequent cause of tremor (Pelnar[5]), and a tremor after prolonged muscular activity is known to all from personal experience. In neurasthenic states some tremor, usually a fine tremor, is an almost constant symptom. The unusual degree, wide distribution and persistence of the tremor in these fatigue cases were probably dependent on the prolonged mental and physical strain and a special predisposition to exhaustibility of the nerve centers.

As the mechanism of speech requires a very delicate coordination of higher cortical centers and muscular activity, it is perhaps not surprising that the disturbance of articulation noted in the group of cases should have occurred. Perhaps many have noted a slight lack of precision in articulation under conditions of extreme fatigue.

More difficult of explanation are the pupillary phenomena. It is well known that during the convulsive crises of epilepsy and even hysteria, the pupils dilate and are rigid to light; and Redlich has shown that the same phenomena may occur during violent muscular effort (Bumke[6]).

It is not, however, so generally known that in simple exhaustion states the pupils are dilated and may be sluggish to light, with preservation of the reaction on accommodation, a clinical fact that has been emphasized by Bumke.[7] Perhaps here we have an explanation for the suspicious pupillary phenomena that were noted in these exhaustion cases.

I well recognize the difficulties attending the examination of the pupillary responses to light and the dangerous element of personal equation. Oppenheim[8] has pointed out a possible source of error in the use of the pocket electric light in certain nervous subjects. The sudden illumination causes an emotional dilatation of the pupil which counteracts and resists the normal contraction to light, thus inducing a feeble or sluggish response. In the cases reported, every possible precaution was observed. The electric pocket lamp and daylight were both used and frequent tests made, and I can only repeat that the responses to light appeared to be of a distinctly pathologic type, a view that was reinforced by a quite definite inequality. The only possible explanation that occurs to me is that perhaps the fatigue or the toxins of fatigue had in some way influenced the sympathetic innervation of the pupil, with consequent inequality and retardation of the light reaction.

As I have stated before, I have not observed a similar condition in civil practice, which may be in part due to the special method of approach and the unusual etiologic conditions furnished by life in a training camp. These observations have, therefore, a limited value and significance. Under the same conditions, however, as obtained in these examinations I believe that the formal recognition of a fatigue syndrome simulating early paresis is worthy of consideration.

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[2] Weichardt: Ueber ermüdungs Toxine und deren Antitoxine, München. med. Wchnschr., 1904, **51**, 112; 1906, **53**, 1701.

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[5] Pelnar: Das Zittern, Berlin, 1913, p. 187.

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# THE DISINFECTION OF PNEUMOCOCCUS CARRIERS *

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Recent studies on the epidemiology of lobar pneumonia by Dochez and Avery,[1] Stillman,[2] and Sydenstricker and Sutton[3] have shown, in a considerable proportion of cases, that this disease arises by infection from without, because of the entrance into the upper air passages of virulent pneumococci of the fixed serologic types, contracted from persons suffering with lobar pneumonia or convalescent from this infection. In studies of a large number of healthy persons in contact with cases of lobar pneumonia due to Type I or Type II pneumococci, Avery, Chickering, Cole and Dochez[4] report that about 12 per cent. were found to carry the corresponding types of pneumococci, whereas among healthy persons not in contact with cases of lobar pneumonia, these types were found in but 0.3 per cent. or less. In almost every instance these observers found that the type of pneumococcus in the carrier corresponded with that of the case with which he had been associated. As these investigations have definitely established the existence of the carrier state of disease-producing pneumococci among healthy persons and those recently recovered from lobar pneumonia, and have indicated the means by which lobar pneumonia may be spread, it would appear advisable to attempt the destruction of pneumococci in the mouth secretions, particularly among convalescents and those persons in intimate contact with cases of lobar pneumonia, in an effort to shorten the period of time in which convalescents or healthy carriers harbor pathogenic pneumococci in the mouth. Wadsworth[5] has already tested the disinfecting power of saline solutions and bland alcoholic washes in ridding the mouth of pneumococci with somewhat encouraging results; more definitely pneumococcidal substances were not employed.

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* From the McManes Laboratory of Experimental Pathology of the University of Pennsylvania.

* This investigation was conducted under the auspices of the Pneumonia Commission of Philadelphia, Dr. David Riesman, chairman.

* A more detailed account of the experiments on which this report is based will be published in the Journal of Infectious Diseases.

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As the investigations of Morgenroth and Levy,[6] Wright,[7] Moore,[8] and Cohen, Kolmer and Heist[9] have shown the high pneumococcidal activity of ethylhydrocuprein hydrochlorid and, as found by the latter,[9] that other cinchonics, as quinin and urea hydrochlorid and quinin bisulphate, also possess considerable pneumococcidal powers, we have made our studies on the disinfection of sputum and the mouth with solutions of these various cinchonics in a menstruum of liquor thymolis,[10] our experiments demonstrating that the latter solution alone in dilution of from 1 : 4 to 1 : 10 possesses some germicidal activity for pneumococci and aids in disguising the bitter taste of cinchona compounds. We have approached this problem mainly from the laboratory side, employing both normal mouth secretions harboring Type IV pneumococci and the sputum of pneumonia convalescents harboring Type I pneumococci, the pneumococcidal activity of the disinfectant under study being largely determined by mouse inoculation.

The results of our experiments with sputum have indicated that dilutions of ethylhydrocuprein hydrochlorid as high as 1 : 30,000 and even to 1 : 160,000 had appreciable and frequently well defined pneumococcidal activity, while a 1 : 10,000 dilution almost invariably disinfected sputum containing pneumococci, as determined by intraperitoneal injection in mice; with such cinchonics as quinin bisulphate, dilutions in sputum varying from 1 : 10,000 to 1 : 20,000 were found to possess well defined pneumococcidal activity.

After many trials, we found that 1 : 10,000 dilutions of ethylhydrocuprein hydrochlorid or quinin bisulphate, quinin hydrobromid, and other cinchonics in a 1 : 10 dilution of liquor thymolis, constitute mixtures that may be readily used by persons as mouth washes and gargles. The slightly bitter taste remaining after the use of any of these washes is readily removed by rinsing the mouth with plain water. Experiments consisting in mixing sputum containing Type I or Type IV pneumococci with these solutions, and determining pneumococcidal activity by injecting portions into mice at varying intervals, have demonstrated pneumococcidal activity, particularly in the case of ethylhydrocuprein hydrochlorid.

In view of the established fact that a considerable percentage of persons in contact with cases of lobar pneumonia due to Types I and II pneumococci became carriers of these pneumococci, and that convalescents may carry them for varying intervals of time averaging from three to four weeks, the use of a mouth wash and gargle of ethylhydrocuprein hydrochlorid is suggested as worthy of clinical trial by those persons who have come in contact with cases of lobar pneumonia, and also by the patients themselves and persons suffering with measles or other infections favoring the development of lobar pneumonia. The systematic use of 1 : 10,000 solution of ethylhydrocuprein hydrochlorid in 1 : 10 dilution of liquor thymolis twice or more daily is not dangerous from the standpoint of toxicity due to swallowing portions of the drug, is not unpleasant, and may aid in ridding the mouth of virulent pneumococci, among contacts at least. Since this drug is scarce at present, one of the commoner cinchonics, as quinin bisulphate or quinin hydrobromid, may be substituted, although these are not as powerful pneumococcides. Similar dilutions in undiluted Dobell's solution may be used for douching or spraying the nose, or, incorporated in a dental cream, for cleansing the teeth. For washing the mouth and gargling, a solution is conveniently prepared after the following formula:

| | Gm. or Cc. |
|---|---|
| Ethylhydrocuprein hydrochlorid or quinin bisulphate.... | 0.005 |
| Liquor thymolis ................................ | 5.0 |
| Distilled water, sufficient to make ...................... | 50.0 |

As previously stated, the systematic use of either of these mixtures may serve to destroy or inhibit the multiplication of virulent and disease producing types of pneumococci among contacts and convalescents, and thereby aid in the prophylaxis of lobar pneumonia.

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# SUCCESSFUL TREATMENT OF ANTHRAX BY VARIOUS METHODS

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I have treated anthrax successfully by three different methods. Anthrax is not always fatal. When treated properly, few, if any, patients die. The anthrax bacillus is not difficult to destroy or inactivate, but the spore resists the ordinary antiseptics and disinfectants even in highly concentrated solutions. It also resists boiling for thirty minutes and drying indefinitely. Therefore, if disinfection is done thoroughly before spore development occurs, an epidemic can be avoided; but after spore formation has taken place, the best that can be done is to destroy the bacilli as fast as they form. Spores are derived from the bacillus. Thus, while disinfection of hides and tanneries cannot affect the spore itself, it may prevent the formation of spores by breaking the cycle. In view of the fact that a suitable medium is required for spore formation, and that the spore does not form in the animal's blood, it is reasonable to assume that there are no spores in the hide of an animal dead from anthrax, and that a dry, hairy hide is not a "suitable medium" for the formation of spores. Therefore, it is possible that disinfection of hides is successful owing to the absence of spores. Obviously this should be done before spore formation takes place. One never can be certain that the disease will not break forth even sporadically years after.

Hide handlers who wear gloves are infected on the neck or face, the bacillus frequently gaining entrance by way of dead hairs, abrasions due to the razor, etc. In one case it was possible to trace a case of anthrax to the gloves worn while handling hides two weeks before, the patient in the meantime following another occupation. While shaving, this man broke the skin on the neck; he then put on the gloves which he had worn in the tannery, and inadvertently rubbed the abrasion on his neck. Anthrax developed quickly. The disease has also been traced to shaving brushes and fur boas.

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[8] Moore, H.: Jour. Exper. Med., 1915, **22**, 269.

[9] Cohen, S. S.; Kolmer, J. A., and Heist, G.: Jour. Infect. Dis., 1917, **20**, 272.

[10] This solution, which is used in the Polyclinic Hospital as a substitute for liquor antisepticus, is prepared after the following formula: benzoic acid, 64 grains; boric acid, 128 grains; thymol and menthol, each 16 grains; oil of eucalyptus, oil of wintergreen and oil monarda, each 4 drops; alcohol and glycerin, each 4 ounces; water sufficient for 16 ounces.

At the site of inoculation, a small papule quickly forms. This rapidly develops into a small, dark swelling, not quite as large as a split pea, with an eschar on its summit. Soon a red halo appears, and a "blanched" zone about one-eighth inch in diameter is often present between the dark spot and the halo, resembling the area of anemia that results from the injection of cocain and epinephrin. Often there is a slight "puffiness" of the blanched area. There is no pus present, but as the lesion progresses, the eschar, which resembles burned leather and is of a hard, gummy consistency, enlarges, blebs form all around it, and these pour forth serum. Any attempt to remove the eschar at this time will prove a failure because it is firmly attached to the underlying tissues and is of such consistency that it resists cutting as well as tearing. Within a few hours the tissues become edematous to a degree out of all proportion to the size of the lesion. This edematous swelling is not hard and infiltrated, but soft. It does not pit on pressure, and offers no resistance to pressure.

There are no subjective symptoms, such as pain or itching, nor is there any fever or increase in the pulse rate while the disease is localized.

A successful excision of the lesion, removing an area about 2 or 3 inches in diameter, terminates the case. An unsuccessful attempt at excision is followed in about forty-eight hours by a slight evidence of edema at some angle of the wound, indicating that the disease is spreading in that direction. At about this time infiltration is present, but I believe that this may be due, in large measure, to the preliminary injection of phenol.

The diagnosis is based on the appearance of a papule with an ischemic zone later changing to slight puffiness, a dark, hard, resistant center and no pus, the rapid onset of the characteristic edema, and no itching, burning, pain or tenderness.

## TREATMENT

I shall discuss the treatment under three heads.

1. *Treatment by Excision.*—As soon as the diagnosis is made, the skin is scrubbed gently with soap and rinsed thoroughly with sterile water. The skin is painted with aqueous 8 per cent. phenol (carbolic acid) solution or stronger, and rinsed with alcohol. Next the lesion is painted with collodion to avoid contamination of the incision. Eight per cent. phenol is injected into the tissues all around the lesion to wall off the infective process. From three to five syringefuls of solution (about 60 c.c.) will be sufficient. One-fourth inch outside of this phenolized zone, five or six syringefuls of 25 per cent. alcohol are injected. These injections are usually made within 1½ inches of the center of the lesion. The line of incision is painted with 8 per cent. phenol, and an area from 2½ to 3½ inches in diameter is excised. After the excision, the base and edges of the wound are painted with pure phenol (95 per cent.) and immediately neutralized with absolute alcohol. The surface is cleansed with alcohol, and a wet dressing applied. I have used boric acid, 20 per cent. alcohol, and hypertonic saline solution.

Ordinarily this terminates the case. If, however, in forty-eight hours, slight edema appears at some angle of the wound, and in twelve hours there is reason to believe that there is still some infection present, further steps are necessary.

2. *Treatment When Excision Fails.*—Injecting three or four syringefuls of 8 per cent. phenol into the edematous zone may effect a cure. If not, the tissues are incised freely, the course of the edema being followed, and gauze drains are put in. Phenol is injected into the tissues, due regard being paid to its toxicity, and an ice bag is applied. I am indebted to Dr. John Mansuay of Ralston, Pa., for this follow-up method. I have never known it to fail. I always use the ice bag, although some men claim to have good results from heat.

3. *Antianthrax Serum.*—At this time, serum should be used. I use the serum furnished by the U. S. Bureau of Animal Industry, Washington, D. C. The first dose is 35 c.c. injected intravenously, followed within from eight to sixteen hours by a second dose, given intramuscularly or intravenously. This dose is repeated if necessary. The only cases of chills or fever that I have ever seen in connection with anthrax occurred following this injection. In one case the temperature was as high as 106 F., and the pulse was 160, but I believe that the serum had a very beneficial effect. The patient recovered.

In case the lesion is near the larynx, an attempt should be made to excise the major portion from the side toward the larynx, as patients have been known to be choked to death by the edema.

In conjunction with this treatment, I give salts in full doses, strychnin, one-thirtieth grain, every four or five hours. The patient should have plenty of fresh air, and should keep quiet. A tracheotomy tube should be kept handy in case the edema reaches the larynx.

## REPORT OF CASES

Case 1.—M. P., man, aged 47, American, tannery worker, did not work Thursday, May 24, but worked Friday and Saturday. He shaved Sunday, and at night noticed a small pimple on the nose. He reported at the office, Monday, at 10 a. m. Bacteriologic examination was positive for anthrax. The lesion was typical of anthrax, with a red streak running out under the eye, a sign of a rapidly spreading infection. I have seen two such cases. The streak resembles a burst vein in the leg or dilated capillaries often seen on the nose, Because of its nearness to the eye, it was thought impossible to excise the infected area successfully. Therefore, I injected 8 per cent. phenol into the surrounding tissues, and I made five incisions, inserted a drain in each, and applied the ice bag continuously. Thirty c.c. of antianthrax serum were given intravenously. Fourteen hours later the right eye was closed, owing to the disease and the phenol. The temperature was 101.4 F.

May 29, at 11 a. m., the temperature was 101 F. The swelling extended back to the ear and down on a level with the mouth. Serum was given at 11:30 a. m. At midnight there was no marked change. The glands at the angle of the jaw were enlarged and tender; there was slight edema over the sternum. The temperature was 104.6 F., the pulse, 100.

May 30, there was slight edema of the tissue over the sternum. The glands at the angle of the jaw were diminished in size and less tender. Blebs had formed over the eye. The temperature fell during the day from 104 to 98 F.

May 31, there was no change. Serum was given at 8 p. m. The temperature was 101.8 F.

June 1, the swelling had nearly left the forehead. The temperature was 99 F. The edema over the sternum was the same; there was pitting on pressure. The neck was not swollen markedly; the lips were less swollen; the patient could almost open the eye. The pustule was black; the blebs had burst, and there was a great discharge of serum in which were found numerous bacilli.

A third injection of serum, 20 c.c., was given.

Although the temperature rose to 104, the pulse rate did not exceed 100. No chills or other bad symptoms were observed.

June 2, the swelling had receded, and the browniness and redness were disappearing; the lips and the other side of the face to which the swelling had extended were normal. In two more days the man was pronounced to be out of danger.

July 3, the site of the disease was healed. The patient reported at the office after having ridden 9 miles on the trolley.

Case 2.—G. C., man, aged 40, American, April 30, noticed a small, insignificant papule over the sternocleidomastoid muscle; this case illustrates the importance of excising freely and of painting the surface with phenol. The papule was yellow, hard, and well "blanched." No eschar had formed, although the red halo had appeared. The area of edema was about 1 inch in diameter, and characteristic. Microscopically, the smear was found teeming with anthrax bacilli, more so than any I had ever seen.

The routine incision was made, but we did not swab the wound with phenol, and we sutured it at once, which was an experiment made to reduce the scar.

May 1, there was no change.

May 2, the wound was puffy at the upper angle, owing, perhaps, to the phenol.

May 3, there was edema up on the cheek. The incision looked good. The temperature was 101.8 F. At 9:30 a. m., 30 c.c. of antianthrax serum were injected, and strychnin was ordered, one-thirtieth grain, three times a day; also salts, and an ice bag was applied continuously over a wet dressing. At noon, two syringefuls of 8 per cent. phenol were injected. At 4 p. m. the swelling had not extended beyond the area injected. Multiple incisions were made, and 20 c.c. of serum were injected into the muscle.

May 4, the swelling was less on the right cheek, and it had not extended beyond the area injected with phenol. The swelling in the parotids was not noticeably changed, except that the edema had given away to some infiltration. The temperature ranged from 102 to 104 F., and the pulse from 85 to 108.

May 5, the temperature was 102 F., and the pulse 112.

May 6, the temperature was 99 F., and the pulse 76.

May 18, the patient complained of itching of the feet and legs. The lower lip was swollen, but the swelling receded in a few minutes. It was probably an angioneurotic edema. Dreams also disturbed the patient at this time.

### TREATMENT OF ANTHRAX BY NORMAL BOVINE SERUM AND BY STEAM

According to V. C. Stewart of Woburn, Mass., the steam treatment consists of directing a jet of steam from a croup kettle on the pustule, the surrounding tissues being protected by asbestos. This is done several times a day, and seems to produce good results when the disease is localized. However, Stewart states that in about 70 per cent. of his cases the bacilli were so attenuated that this is not necessary. In these cases he uses a wet dressing. If the lesion is near the eye, the eye is protected with a wet gauze underneath the asbestos. Obviously, we must resort to other treatment if the disease is generalized.

I have never employed the treatment by normal bovine serum as such. I have heated the anthrax serum made at Washington, but have no statistics that would carry weight. In estimating the value of serum treatment, we must take cognizance of the fact that some patients recover spontaneously and that some bacilli are attenuated; yet in a large series of cases treated by Kraus, it would appear that serum has marked therapeutic value.

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# DETERMINATION OF TYPES OF PNEUMOCOCCUS IN LOBAR PNEUMONIA

## A RAPID CULTURAL METHOD *

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In view of the fact that lobar pneumonia is prevalent in military camps in the United States, and that at present it is impossible to obtain white mice in sufficient numbers for carrying out the biologic tests necessary in the determination of types of pneumococcus, a rapid cultural method dispensing with the use of these animals is now proposed.

Experience has demonstrated the importance of determining the immunologic type of pneumococcus concerned in the production of each individual case of lobar pneumonia. A satisfactory method for this consists in inoculating a white mouse intraperitoneally with a small amount of sputum, and in recovering the pneumococcus by cultural methods from the heart's blood after the death of the animal. The type of pneumococcus can be determined in this way in about forty-eight hours. When it became evident that specific type pneumococcus serum has distinct therapeutic value, it was necessary to devise a method by means of which the type of infecting pneumococcus could be determined in a shorter time. It has been found that when a mouse is injected with pneumonic sputum in which other organisms besides the pneumococcus are present, the pneumococci grow quickly, and the contaminating bacteria tend to disappear, or at least to be inhibited in their initial growth. Pneumococci and their products accumulate so rapidly in the peritoneal cavity of the infected mouse that after a few hours the bacterial exudate, collected by washing out the abdominal cavity, may be used in the performance of agglutination and precipitin tests by means of which the specific type of pneumococcus can be determined, often within from six to eight hours. Both of these methods are satisfactory, but both require the use of white mice.

It has long been known that the addition of carbohydrate, such as glucose, and of blood proteins to mediums suitable for cultivation of the pneumococcus greatly accelerates the initial growth of this organism. It is also known that bile causes solution of the pneumococcus and possesses no lytic action for other bacteria. Use has, therefore, been made of these facts in devising a method for the rapid cultivation and type determination of the pneumococcus directly from the sputum of patients suffering from lobar pneumonia. These principles are employed in the following manner:

### METHOD

A selected kernel of sputum, about the size of a bean, is washed, emulsified in broth, and inoculated directly into a centrifuge tube containing about 4 c.c. of special medium—glucose-blood-broth. After incubation in the water bath at 37 C. for five hours, a blood agar plate is streaked with a loopful of culture fluid for the isolation of the pneumococcus in pure culture and the subsequent confirmation of type. The red blood cells are then removed from the culture medium by slow centrifugation. Three c.c. of the

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* From the Hospital of the Rockefeller Institute for Medical Research.

supernatant bacterial suspension are pipetted into a second centrifuge tube containing about 1 c.c. of sterile ox bile and allowed to stand in the water bath at 37 C. until solution of the pneumococcus bodies has occurred, usually about twenty minutes. Five-tenths c.c. portions of the bile solution of pneumococcus are used in precipitin reaction by mixing with an equal volume of immune serums. If bile is not available, determination of the type of pneumococcus may be made directly on the bacterial suspension by macroscopic agglutination.

In carrying out the method, attention should be given to the following details:

1. *Collection of Sputum.*—Care must be exercised in obtaining a specimen of sputum from the deeper air passages, avoiding contamination with nasopharyngeal mucus and saliva. With proper supervision it is possible to obtain a small portion of sputum coughed up directly from the lung. The specimen is collected in a sterile container and sent to the laboratory at once. If, for any reason, delay should occur in the examination of the specimen, it should be kept in the ice box.

2. *Microscopic Examination.*—Direct films are made from the sputum and stained by Gram, Ziehl-Neelsen, and Hiss capsule stain. Microscopic examination of these preparations serves as a control, giving a preliminary idea of the nature of the organism present, and the cleanliness of the specimen obtained. A small portion of sputum is selected, about the size of a bean, and washed through three or four changes of sterile salt solution in sterile Esmarch or Petri dishes to remove surface contamination. The selected kernel of washed sputum is transferred to a small sterile mortar, ground up, and emulsified with from 0.5 to 1 c.c. of broth, and the whole inoculated directly into 4 c.c. of the special medium.

3. *Special Medium.*—The basis of the medium is meat infusion broth[1] 0.3 to 0.5 acid to phenolphthalein, sterilized by the Arnold method, that is, twenty minutes on three successive days in order to avoid excessive heating. To each hundred c.c. of broth are added 5 c.c. of a sterile 20 per cent. glucose solution, and 5 c.c. of sterile defibrinated rabbit's blood. The final enrichment broth contains 1 per cent. glucose and 5 per cent. blood. This medium is distributed in small centrifuge tubes in quantities of about 4 c.c. each.

4. *Incubation.*—The tube of glucose-blood-broth, after inoculation with the emulsion of washed sputum, is shaken and incubated in a water bath for five hours at 37 C. This period of incubation has proved sufficient in cases thus far examined to produce an abundant growth of pneumococcus with a minimum growth of secondary organisms. The number of pneumococci present and the incubation time required in any given case can be determined by direct examination of the culture fluid.

5. *Subcultures.*—After incubation, a loopful of the sputum culture is streaked on a blood agar plate, from which a pure culture can subsequently be obtained for confirmation of the type of pneumococcus found by the rapid cultural method.

6. *Determination of Types of Pneumococcus.*—Precipitin Test: After removal of the red blood cells from the culture fluid by slow centrifugation (two minutes at low speed in order to throw down corpuscles, but not bacteria), the supernatant bacterial suspension is pipetted into a second centrifuge tube containing 1 c.c. of sterile ox bile. The bile causes solution of the pneumococcus bodies, and leaves unaffected other bacteria. Usually after twenty minutes at 37 C., solution has occurred, and is evidenced by clearing up of the bacterial turbidity of the culture fluid. Other organisms, if present, being bile insoluble, may be removed by centrifugation at high speed. The clear supernatant fluid, containing the solution of pneumococcus plus whatever specific soluble substance may have been elaborated by growth of the organism, is used in performing the precipitin test, being mixed with immune serums in quantities of 0.5 c.c. each.

Agglutination Test: If bile is not available, and if other organisms are not present in sufficient numbers to mask the specific reaction, the type of pneumococcus may be determined directly by macroscopic agglutination. The sputum culture in glucose-blood-broth is centrifuged at low speed for about two minutes to remove the red cells contained in the medium. The supernatant bacterial suspension is mixed with immune serums in quantities of 0.5 c.c. each, and incubated in water bath at 37 C. for one hour.

As various lots of immune serum differ in agglutinin and precipitin content, the dilution of serum required to assure specificity and the optimal concentration that will surely identify all type strains may vary. In view of this fact, it is well in employing the dilutions recommended[2] to use only serums, the agglutinin titer of which has previously been determined.

### EXPERIMENTAL

The sputums of sixty patients suffering from lobar pneumonia due to various types of pneumococcus have been studied. Pneumococcus Type I was recovered in 21 instances, Type II in 10, Type II atypical in 5, Type III in 4, and Type IV in 20 instances. To establish the reliability of the method, parallel determinations of the infecting type of pneumococcus have been made in every instance by mouse inoculation and by the rapid cultural method. The results by the method described have corresponded in all cases with those obtained by the intraperitoneal inoculation of mice. In three instances, however, disagreement occurred on the first examination, the mouse method yielding pneumococus Type I, while the direct culture method showed in each case Type IV. Examination of a second specimen of the sputum in these three cases yielded results in agreement with those obtained by mouse inoculation. In the repetition of these tests, care was exercised in the selection and washing of the sputum, precautions that were purposely not taken in the first instance, in order to test the general applicability of the new method. From the results thus far obtained, therefore, it would seem that the possible inaccuracies of this method are reduced to a minimum of error by attention to the details of technic. Care in the collection of sputum from the deeper air passages with the avoidance of saliva, selection of a purulent kernel of such sputum, thorough rinsing in salt solution, and grinding in a mortar facilitate removal of surface contamination with mouth organisms, and serve to free the pathogenic type of pneumococcus from the center of the sputum mass.

Healthy persons in from 50 to 60 per cent. of instances are known to harbor pneumococci in their mouth secretions, and these organisms have been found in most instances to belong to Type IV. Normal persons who habitually carry a Type IV pneumococcus with impunity may acquire pneumonia due to infection with organisms of the more pathogenic Types I or II. This circumstance would seem at first glance to complicate the differential diagnosis of the infecting type of pneumococcus even by the most accurate method available, namely, mouse inoculation. Experience and experimental evidence have shown, however, that in such instances the disease-producing type of pneumococcus, by virtue of its greater invasiveness for animal tissues, rapidly outgrows the less pathogenic variety, and is therefore readily demonstrated in the peritoneal exudate and heart's blood of the infected mouse. On the other hand, the special medium devised for the rapid cultural method is independent of the virulence of pneumococcus, and exhibits, therefore, no selective affinity for disease-producing types. To this fact may be attributed the discrepancies described above, and on account of this fact, special precautions in technic are required. The short incubation time requisite for abundant growth of the pneumococcus in glucose-blood-broth, and the precautions already described in the selection of a suitable specimen of sputum, serve to limit to a considerable extent the growth of secondary organisms. The specificity of the method has been enhanced further by the utilization of the solvent action of bile, a bacterial phenomenon peculiar to the pneumococcus alone.

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[1] Acute Lobar Pneumonia, Monograph 7, Rockefeller Institute, p. 25.

[2] Acute Lobar Pneumonia, Monograph 7, Rockefeller Institute, p. 23.

In many instances, the type of infecting pneumococcus has been determined more rapidly by the direct cultural procedure than by the technic of mouse inoculation. This new method, however, is presented to meet an emergency. When mice are available, the original procedure should still be employed. Only further experience can show whether or not the direct cultural method is the one of choice.

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# DEATH FOLLOWING THE ADMINISTRATION OF THEOCIN

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The value of theocin as a diuretic in certain diseases has been well established. Christian,[1] in a careful analysis of a variety of cases, concluded that in conditions in which there is little edema the drug has no effect, whereas in diseases of the cardiorenal systems in which edema is present theocin is of distinct therapeutic value. No cases of death or untoward symptoms directly following the administration of theocin have come under my personal observation. It frequently produces dizziness and nausea, and vomiting may result from taking it by mouth, but these symptoms may be avoided by exercising greater care in its administration and by dieting the patient at the time the theocin is given.

In the following two cases therapeutic doses of theocin were followed so quickly by signs of heart failure and death that it seems certain that the drug was responsible for the fatal outcome. The powder was obtained from a bottle that had been on the shelves, unopened, for two or three years. The label had the word "Theocin" printed on it; also the name of the firm that manufactured it "Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld." The contents of the same bottle had been given to other patients before and have been given since the cases reported in this article, and without any serious results.

Case 1 (Hospital No. 17-290).—*History.*—F. P. U., Chinaman, aged 32 years, was admitted to the Canton Hospital, April 2, 1917. He complained of edema of the feet and abdomen, indigestion, palpitation of the heart and precordial distress. The patient has taken alcoholic stimulants in moderate quantities. He denied venereal infection. The previous history was otherwise negative. His present illness began about a year ago when he noticed that he had edema of the ankles at various intervals.

*Physical Examination.*—The heart was examined and a loud diffuse double murmur could be heard, being most distinct at the second left intercostal space and thence transmitted over the precordium. There was moderate general anasarca, and the edema of the lower limb was especially marked. Hemoglobin was from 75 to 80 per cent. of normal. There was no albumin and no glucose in the urine, and there were no ova in the feces. Systolic blood pressure was 130 to 135 mm.; diastolic pressure, 60 to 75 mm. April 17, it was noted that the edema had entirely disappeared. The patient's appetite was good. A faint systolic murmur could be heard at the apex. The patient still noticed palpitation on walking, and occasionally there was some return of the edema of the lower limbs.

*Treatment.*—While in the hospital, the treatment consisted of tincture of digitalis, saline laxative and an elixir of iron, quinin and strychnin. May 3, it was decided to give theocin because of scantiness of the urine and some return of edema. One gm. of the powder was divided into three equal parts and one part was given at 8 a. m., another at 10 a. m., and the last dose at 12 noon. At 7 a. m. the pulse was of good volume and the rate was ninety-eight per minute. Soon after taking the powders there was marked dyspnea and precordial distress, and in the afternoon the pulse rate was 135. This condition continued and the patient became progressively worse until death occurred on May 5 at 7:30 a. m. The pulse during these days registered from 135 to 140. The highest rate that it had previously attained was 118 on one occasion. Various cardiac stimulants were vigorously given to sustain the failing heart, but without avail, and the patient died with all the symptoms of cardiac failure.

Case 2. (Hospital No. 17-440).—*History.*—T. C., a Chinaman, aged 30 years, was admitted to the Canton Hospital, May 14, 1917, complaining of edema of the lower limbs and abdomen. Previous history is not relevant. His present illness began in January, when a cough with hemoptysis and dyspnea developed. Then he noticed fulness in the abdomen, and anorexia. Edema of the feet developed which gradually extended to the thighs and abdomen.

*Physical Examination.*—There was marked swelling of the abdomen and edema of the lower extremities. Heart: Apex beat was displaced slightly to the left and below the nipple. Cardiac dulness was increased downward and to the left. There was a diffuse double murmur heard over the precordium, loudest at the apex. Lungs: There was dulness over the base of the right lung posteriorly, and numerous moist râles were heard. The liver extended 2 inches below the costal margin. There was marked irregularity of the pulse. The hemoglobin was 90 per cent. of the normal. The urine contained no albumin or glucose. Blood pressure: The systolic was 105, but it was impossible to register accurately the diastolic pressure. Feces: Ascaris ova were found.

*Treatment.*—This consisted of moderate doses of tincture of digitalis, rest in bed, free purgation with saline laxatives, santonin for the purpose of expelling the ascaris, and stomachic remedies for the anorexia. Improvement soon set in, although at times the patient was disturbed at night by attacks of asthma, which could be relieved only by hypodermic injections of morphin and atropin. May 20, on account of the persistent edema and scanty urine, theocin was given in three doses, each 0.33 gm. at 8, 9 and 10 a. m. The urine increased from 400 to 1,010 c.c. in the twenty-four hours with marked relief to the patient. On June 2, theocin was again given the same as previously. The urine increased from 330 to 1,020 c.c. which brought much relief to the patient. By June 18 all edema had disappeared. The heart action was regular and no murmur was audible. There had been no recent attacks of asthma. The urine was scanty, but the patient felt much better and was planning to leave the hospital in a few days. The pulse was 70 and respiration was 18. June 22 only 250 c.c. of urine were passed, hence 0.6 gm. of theocin divided into three powders to be taken at 8, 9 and 10 a. m., was prescribed. Shortly after taking the first powder the patient noticed some cardiac distress which became much worse after taking the second powder. Free diuresis occurred but the pulse became rapid and feeble and the patient died at 2:30 p. m. with dyspnea and great precordial distress. Intensive cardiac stimulation proved to be of only transient value.

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[1] Christian, H. A.: Some Studies of a Diuretic (Theocin), Arch. Int. Med., November, 1916, p. 606.

## Clinical Notes, Suggestions, and New Instruments

### A DOUBLE LUMEN IN A HUMAN FALLOPIAN TUBE*

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The specimen described was given to me by Dr. Will G. Nichols of Fargo, N. D., in response to a request for human material to be used for class work in histology. The tube was serially sectioned, and only on examination of the finished slides was the double nature of the lumen revealed.

The patient from whom this tube was taken was operated on for a dislocated and adherent ovary that had caused severe pain at intervals for several years. A year and a half before the present operation her appendix had been removed by another physician as being the cause of the trouble, but the removal afforded no relief. Dr. Nichols operated to break up the adhesions around the ovary, and it was found that the ovary was large and inflamed, as was also the tube on that side. The tube had a decidedly tuberculous appearance when examined microscopically, so that both tube and ovary were extirpated, and immediately preserved in liquor formaldehydi. Later tests showed that the tube was not tuberculous.

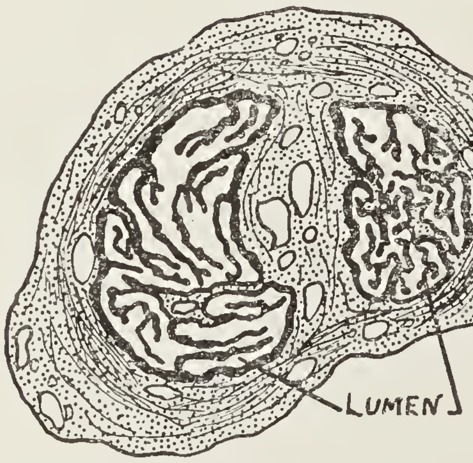

Fig. 1.—Section of fallopian tube midway between uterus and ovary.

Serial sections show a very interesting double nature of the lumen. At the proximal or uterine end, the tube seems to be normal; but a swelling starts about half way to the fimbriae, and for the rest of its length it is about twice the normal size. Sections in this enlarged portion show a complete double lumen, each one about the same size (Fig. 1). Toward the uterine end the lumen is single, and gradually changes into two by the formation of a partition as the ovary is approached. This condition persists for a short time, and then one of the lumina gradually becomes smaller, and as it does so draws away from the other or main opening, and ends in one of the fimbriae some distance away from the main opening of the fallopian tube (Fig. 2).

The explanation of this double character is somewhat difficult. In the middle part of the tube it may be explained by the adhesion of the two sides of the tube from continued traumatism during several years; but this is not quite so clear in the distal portion, where the two openings are rather widely separated. It is quite probable, however, that the continued traumatism due to displacement down behind the uterus for a number of years had caused the union of the two sides of the lumen, and then further pressure caused the gradual increase in distance between the two lumina, thus causing them to open at rather widely separated points at the end of the fallopian tube.

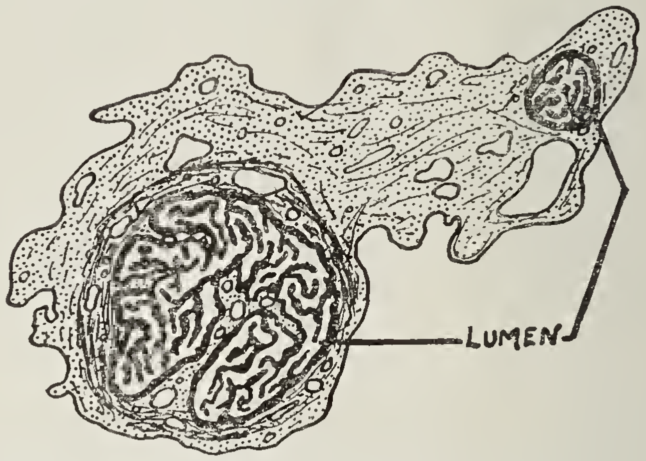

Fig. 2.—Section of fallopian tube near ovary, showing main lumen and smaller one somewhat apart from the main duct.

### ABORTION DUE TO SUPERFETATION

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There would be no way of controlling or of preventing abortion in the event of the implantation of a second fetus in a uterus already occupied by one in a process of development, even if the condition were known to exist. The case herewith reported is of great interest, nevertheless, as demonstrating that abortion or miscarriage may be produced by superfetation. It might even be a frequent, though often overlooked, cause.

Mrs. M. G., aged 22, of previous healthy condition, menstruated regularly and normally prior to marriage. The first child, born May 7, 1916, and the second child, born April 10, 1917, were delivered normally. Following the birth of the second child, menstruation began during the latter part of May, continued for fifteen days, and was irregular in quantity. During the latter part of July the patient began to menstruate again, and complained of a severe pain over and on both sides of the uterus. The pain was very severe, and lasted fifteen or twenty minutes. She menstruated all that night quite profusely, but menstruation ceased the following day. She menstruated almost continuously thereafter, never stopping for a period of more than twenty-four hours at a time, and the menstruation was rather erratic, sometimes profuse and then again often slight in amount. During all this period, she complained of extreme tenderness on external palpation of the uterus. The blood discharged was fresh and bright red, no clots coming from the uterus.

Sunday, September 16, the patient complained of a peculiar sensation in the region of the lower abdomen which she described as "being similar to the fluttering of a chicken whose head has just been cut off." This lasted only a short time, and no further sensations were felt. This was followed by a slight chill, and the blood discharged now became dark brown, and began to have a slightly abnormal odor.

Tuesday, September 18, as the condition of the patient was becoming gradually worse from the continued loss of blood, Dr. F. M. Sanger of Oklahoma City, who is stationed here as Captain in the Medical Reserve Corps, was called in consultation. He concurred in the opinion that, owing to her extremely weakened condition and the fact that all ordinary therapeutic remedies and rest in bed had been applied during the past month, without improvement in the condition of the patient, it was necessary to assist Nature in more rapidly emptying the uterus of its contents. The uterus was packed, and the previous slight labor pains that she had been suffering for the past two days were greatly augmented.

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* From the Zoological Laboratory of the North Dakota Agricultural College, Proceedings No. 2.

In the afternoon of September 21, the patient delivered a fetus of about four months' development and in appearance indicating that death had taken place at about the time she mentioned having felt the peculiar sensation, the preceding Sunday. The placenta was expelled along with the larger fetus, showing that it had been entirely detached. I introduced the speculum to make a thorough examination after the contents of the uterus had been expelled, and in the mouth of the cervix discovered some white tissue protruding, which I extracted. This proved on examination to be a fetus of about fifty days' development, corresponding closely to the time when menstruation began in the latter part of July.

My theory for the possibility of the second fetus' being the cause of the continued menstruation and abortion is that this fetus developed near the margin of the placenta of the older fetus; in its development it gradually detached more and more of the original placenta from the uterine wall, causing the almost continued bleeding from the uterus; and the profuse hemorrhages came on as the larger vessels were involved. I desire also to call attention to the extreme tenderness and sensitiveness on external palpation of the uterus. This may be a diagnostic symptom in threatened abortion due to superfetation, and is probably explained by the traumatism produced by the gradual detachment of the placenta from the uterine wall.

Had the second fetus been discharged later on, it would probably have been embedded in a blood clot and thrown away without its presence having been discovered. I have no hesitancy in stating that I believe the continued hemorrhage and abortion in this particular case were due entirely to the implantation of the second fetus too close to the site of the original fetus.

Dr. F. M. Sanger, who rendered valuable assistance in the case, having been present with me at the time of the delivery of both the embryo and the fetus, suggested that perhaps many cases of abortion occurring in a similar manner with continued menstruation for some period before the expulsion of the fetus may have been caused by superfetation, the second embryo being undiscovered.

The patient made an uneventful recovery, and her general improvement was very rapid.

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## ARTIFICIAL RESPIRATOR

Frank C. Dudley, M.D., Brooklyn

The apparatus consists essentially of an inhaler with inflated mouthpiece, to which a heavy rubber bulb is attached. Air and oxygen are forced into the lungs when the bulb is compressed, and withdrawn by suction when the bulb is released.

This apparatus is very simple; there are no valves or complications to get out of order. The valve in the instrument is simply a small hole. When air or oxygen is being forced into the lungs, the finger is placed over the hole and held there until the air is drawn out; then the finger is removed, and the bulb compressed and released, drawing into the bulb a fresh supply of air or oxygen. Then the finger is replaced over the hole, and the air is forced into the lungs and then withdrawn by the suction of the bulb.

The bulb contains the proper amount of air for an adult; but smaller amounts may be given by compressing the bulb less in case of children or in asphyxia neonatorum. The sense of touch shows how much air can be forced safely into the lungs. By connecting the oxygen tube to a generator or tank of oxygen, any desired mixture of air and oxygen may be given to the asphyxiated patient. One person can operate the respirator and hold it tightly to the patient's face at the same time.

The inhaler part when used alone makes a very satisfactory one for ether and chloroform. Gauze is placed in the chamber above the wire screen, and the anesthetic applied to the gauze by the drop method. The opening is large, permitting plenty of air for the open method; and oxygen may be administered simultaneously when desired.

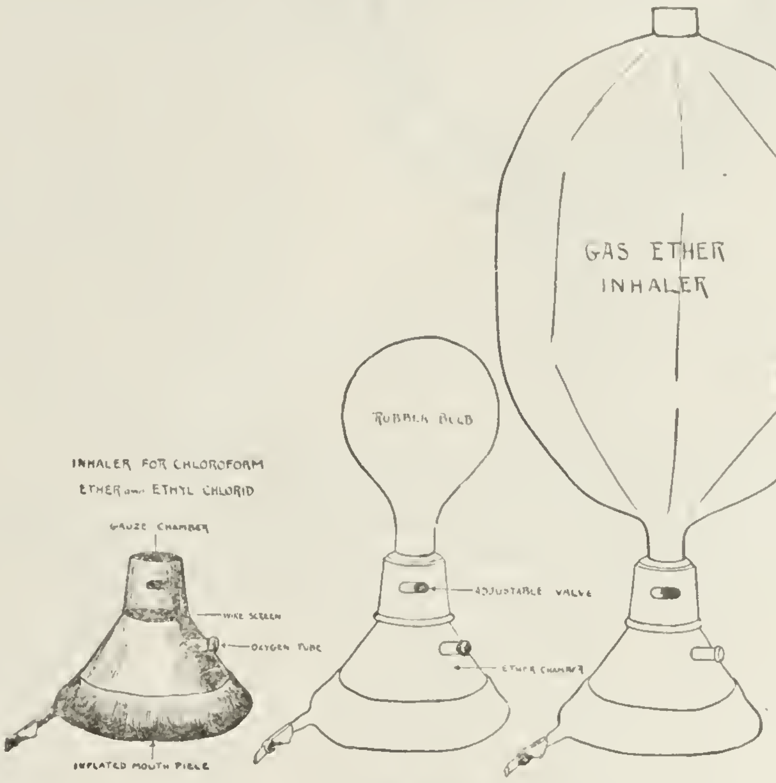
By attaching a gas bag to the inhaler instead of the heavy rubber bulb, one has a gas-ether apparatus that is simple and effective. When the patient is anesthetized with nitrous oxid gas, a twist of the connection opens the valve to any desired size, and ether is dropped on the gauze through the opening. When desired, the gas bag is removed and ether continued by the drop method as usual. Oxygen may be administered with nitrous oxid either through the gas bag or through the oxygen tube in the inhaler.

By using the gas bag alone, one has an ideal closed method inhaler for ethyl chlorid or ether.

The advantages of this new apparatus are:

1. It is an inexpensive apparatus that will perform artificial respiration successfully. The price will not be over $25 for the complete outfit.

2. It is light and can be carried in the physician's bag. As it is simple, there is nothing to get out of order.



Artificial respirator.

3. The sense of touch, better than mechanical adjustments, shows how much air and oxygen should be forced into the lungs.

4. The one apparatus serves for four instruments: (*a*) an artificial respirator; (*b*) an inhaler for ether and chloroform by the open method; (*c*) an inhaler for ether and ethyl chlorid by the closed or rebreathing method, and (*d*) a simple gas-ether apparatus that works.

This new instrument, on account of its lightness and combination of uses, should be especially valuable to the general practitioner and the obstetrician. It will prove a great aid in all cases of collapse after anesthesia, poisoning from gases in mines and on the battlefield, shock by electricity, drowning, and asphyxia from any cause.

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**Tuberculosis and Pregnancy.**—The tuberculous married woman should be instructed concerning the danger of pregnancy, as it is an important factor in lighting up a quiescent tuberculosis. Pregnancy should be avoided until the pulmonary lesion has been arrested for several years. When conception has taken place, pregnancy should be terminated before the fifth month in all active cases of early and moderately advanced pulmonary tuberculosis, and in all cases of advanced tuberculosis, when the process is quiescent. It is for the best interest of both mother and child to prohibit the tuberculous mother from nursing her child.—S. A. Douglass and J. E. J. Harris, *Am. Rev. Tuberc.*, 1917, **1**, No. 8.

## A COMBINATION FINOCHIETTO AND STEINMANN PIN TRACTION STIRRUP

George W. Hawley, M.D., Bridgeport, Conn.

Traction, either temporary or continuous, is one of the forces constantly utilized in fracture treatment, and while the moleskin straps applied to the surface of the limb still have their place in practice, the introduction of methods in which a direct pull is obtained on the bone structure itself is a step in the right direction. The advantages of the direct traction are its efficiency (and there is no denying that a comparatively light weight of from 5 to 15 pounds usually provides effective extension) and its peculiar usefulness in fractures associated with extensive injuries of the soft tissues when surface traction is impossible. As is so often the case, there are some who carry direct traction too far, and others who have gone to the other extreme. They serve the natural purpose of indicating the middle ground.

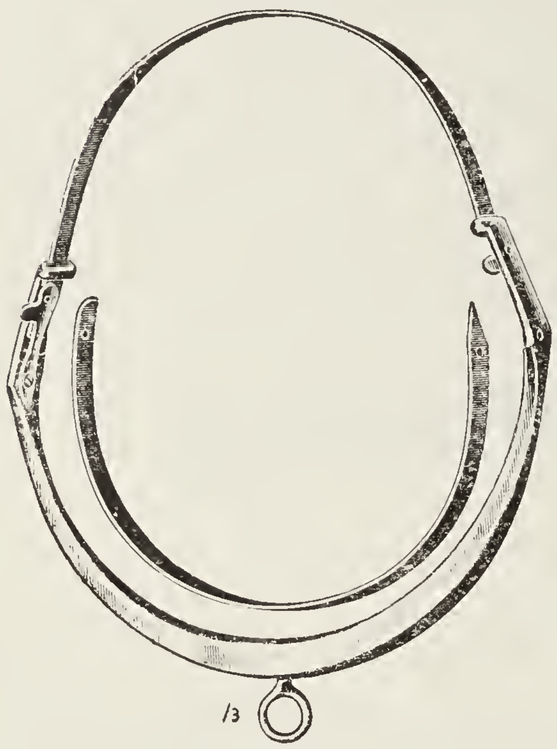

Fig. 1.—Finochietto stirrup showing steel band alone and attached to rigid semicircular bar.

The Codavilla and Steinmann pins were designed and have been almost entirely used for continuous traction. In their application the pin is driven through the substance of the bone, and the various ice-tong modifications effect extension in it; only the pins, instead of being driven clear through the bone, penetrate only part way into the bone substance.

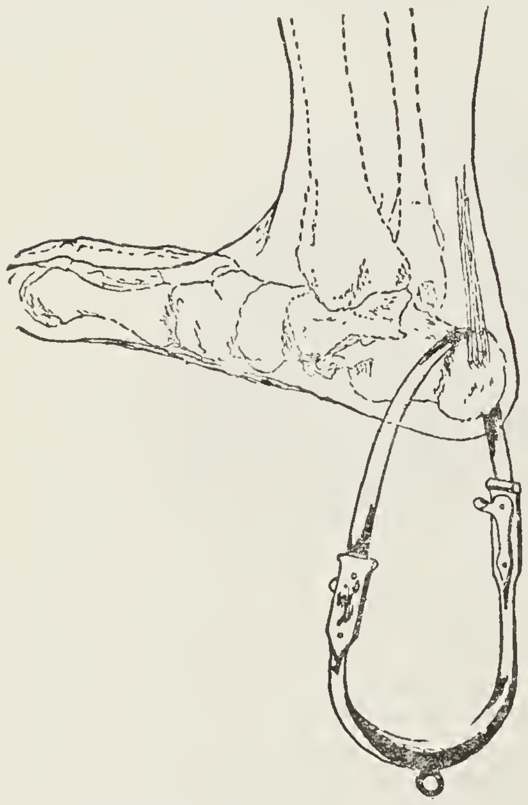

Fig. 2.—Finochietto stirrup looped over the superior surface of the os calcis in the concavity in front of the Achilles tendon.

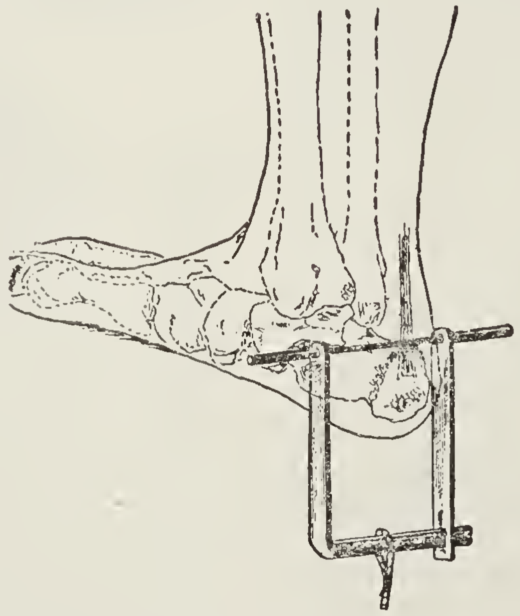

Fig. 4.—Author's stirrup, showing pin resting on upper margin of os calcis and rigid adjustable frame which covers the exposed ends of the pin and fits against the sides of the ankle, holding the pin from tilting.

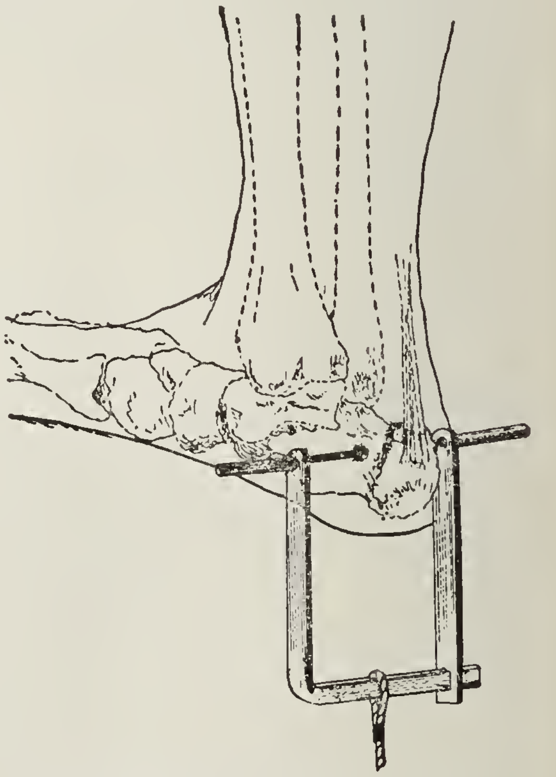

Fig. 5.—Same as Figure 3, with pin passing through substance of os calcis.

The Finochietto stirrup (Fig. 1), on the other hand, was designed for temporary traction only. In order to obtain efficient traction in the operative reduction of fractures of the long bones of the lower extremity, Finochietto devised a steel band which he looped over the upper surface of the os calcis (Fig. 2). This proved to be a very successful method of pulling down and holding the fragments during the process of plating fractures. Chutro, an associate of Finochietto in Buenos Aires, appreciating its usefulness as a means of continuous traction, has since utilized it for that purpose, and I have had the opportunity to observe its practical application in a large number of cases on the service of Dr. Chutro at the Hospital Buffon in Paris. It was surprising what an effective means it was in the control of the fracture in those cases of military fractures associated with extension surface wounds.

Since then I have used this instrument in a number of cases. In every instance the traction has been satisfactory. The only difficulties experienced have been in passing the steel band so as to form a proper curve over the os calcis and the pressure of the band on the points of exit through the skin. In order to avoid these, I have combined the principles of both the pin and the steel loop. The Steinmann pin is employed to pass through the soft tissues just above the os calcis (Fig. 3) or through the substance of the bone (Fig. 4). To the pin as it emerges from the skin on each side is fitted a rigid stirrup. This serves to enclose the ends of the pin and prevent it from rocking or tilting. The stirrup is adjustable so that it will fit snugly against the sides of the foot. The exposed ends of the pin are kept sterile by the closed tubes which cover them.

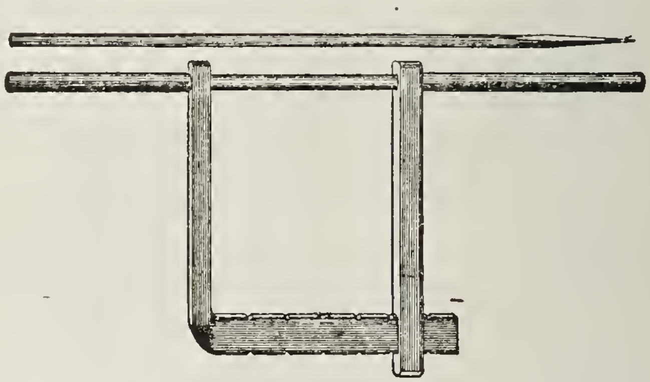

Fig. 3.—Author's device, showing Steinmann pin with adjustable rigid stirrup.

This apparatus is useful for continuous traction, especially in military fractures requiring open wound treatment. It is also useful for temporary extension in the reduction of both bones of the leg, in which it is so difficult to obtain effective traction and control. It may be employed as well in the operative reduction of fractures.

It has the advantage of being quickly and easily applied. To pass the sharp pointed pin directly through the tissues in front of the Achilles tendon is identical with the introduction of a large trocar. The tissues in this region are skin and connective tissue only, and if no incision is made, the skin fits the pin tightly like elastic rubber dam, so that bacterial invasion is difficult.

When this instrument is used for simple reduction of fractures under ether, or as an aid in operation, the pin may be withdrawn after the plaster cast is applied. When it is employed for continuous traction, it is wise to enclose the *entire* apparatus in a voluminous gauze and cotton dressing, which acts as a bacterial filter. This is the method of Chutro and in contrast to the scanty protection frequently seen.

Two sizes of pins are used, the shorter one for the os calcis and a longer one for the femur or tibia.

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## THYROIDECTOMY BANDAGE

Henry J. John, M.D., Cleveland

The usual bandage used after thyroidectomies goes around the neck and crosses in front under the arms. It is a bandage *par excellence* for use in the operating room. After the first dressing, however, it has two defects: 1. It is uncomfortable, and patients complain of its cutting under the arms. 2. At each dressing the patients must be exposed, which is a still more weighty objection. It was with these two points in view that I devised a way to use a bandage which would be comfortable and stable, and would require no unnecessary exposure of the patient.

The bandage in itself is simple and needs no description. A width of an inch and a half makes a convenient size. While the plain circular bandage often used in cases of thyroidectomy may look satisfactory when it is first put on, it becomes loose in a short time and, slipping up on the patient's neck, exposes the wound. If the spiral is reversed in front and brought down in the center, the incision lies squarely in the middle of the finished bandage. The important step in the process is to anchor the bandage securely in front by placing the adhesive plaster in the median line below the point of the bandage. The adhesive strip thus secures all the individual turns and keeps them from pulling upward. The bandage will be quite secure, if the end of the adhesive plaster below it is sufficiently long.

In redressing incisions of this type it is not necessary for the operator to change the adhesive plaster but merely to peel it off the bandage, turn it down and use it again and again.

St. Vincent's Charity Hospital.

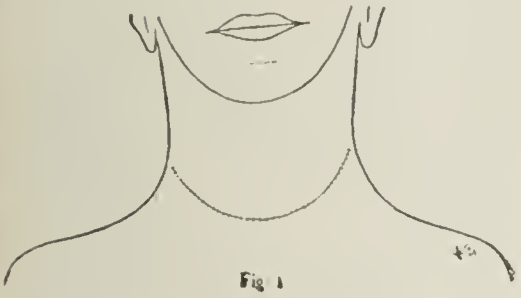

Fig 1

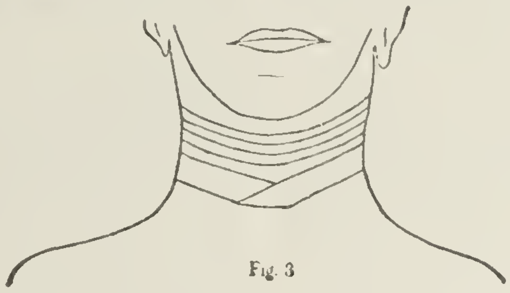

Fig. 3

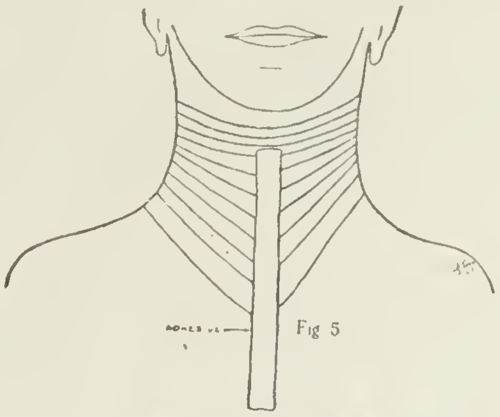

Fig 5

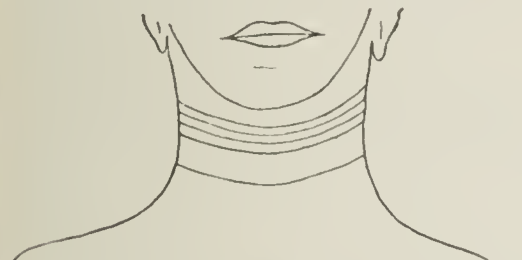

Fig. 2

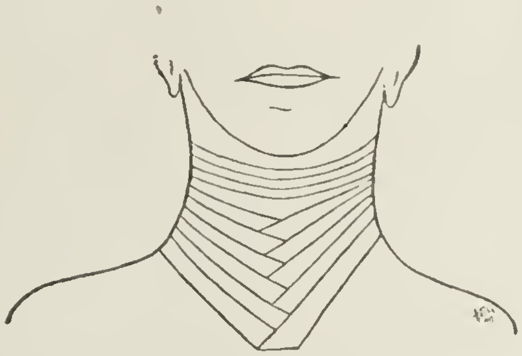

Fig. 4

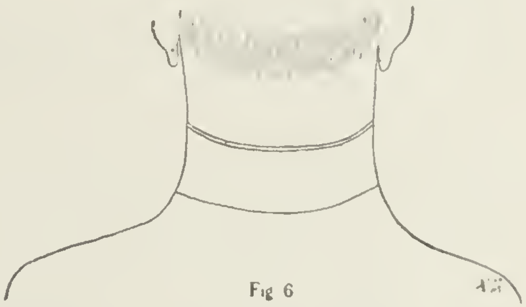

Fig 6

Fig. 1.—Usual low goiter incision.

Fig. 2.—Three rounds of circular 1½-inch bandage.

Fig. 3.—Starting the spiral reversed.

Fig. 4.—Bringing the spiral reversed low down on the chest.

Fig. 5.—Anchoring with adhesive plaster. It is very important that the adhesive plaster should extend well below the bandage.

Fig. 6.—Rear view.

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**Health a National Duty.**—Universal Public Health Service is the duty of the nation.—Connecticut *Health Bulletin.*

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## AN UNUSUAL CASE OF MALPOSITION OF THE APPENDIX

H. T. Miller, M.D., Springfield, Ohio
Captain Medical Reserve Corps, U. S. Army

I was called, in this very unusual case, on the night of July 28. A boy, aged 4 years, with a good previous history, was found to be suffering from a typical acute attack of appendicitis, and was removed to the hospital for immediate operation. Under anesthesia the mass over McBurney's point was not only palpable but readily discernible by all present.

When the abdomen was opened, there was a slight flow of brownish fluid; the mass, which was discovered to be the head of the cecum, persistently protuded itself within the field of operation, so that it was necessary to enlarge the incision. Diligent and painstaking search for the appendix revealed only a perfectly formed cecum and ileum, but not a vestige of an appendix, not even a dimple on the cecum that might have revealed a possible collapsed or inverted appendix. The cecum and ileum could easily be defined; both were as smooth as any part of the adjacent intestine; there were absolutely no adhesions that might have buried a shrunken or shriveled appendix. In the mass, however, which was mobile within the abdominal cavity, and which could be grasped with the hand and easily brought within the boundaries of the incision, could be defined a smaller movable mass with its base attached to the cecum opposite the point usually occupied by the appendix. This I concluded to be the diseased appendix.

Believing that Nature would do what I had intended the operation to accomplish, I closed the abdomen after establishing sufficient drainage to guard against any possible outpouring of pus into the peritoneal cavity.

For the first three days following the operation, the patient was very ill; the pulse, temperature and respiration remained high, and for a while the patient's life was despaired of. On the fourth day, however, there was a copious discharge of a very offensive thick yellowish matter containing some blood, which was immediately followed by a drop to normal of all the symptoms.

From now on the patient's recovery was uneventful, save that, August 8, the day preceding his discharge from the hospital, there was found in the stool a yellowish-green slough about 2 inches long. This I took to be the sloughing gangrenous appendix.

An examination of the patient at his home in the country later found him well, and the mass entirely gone.

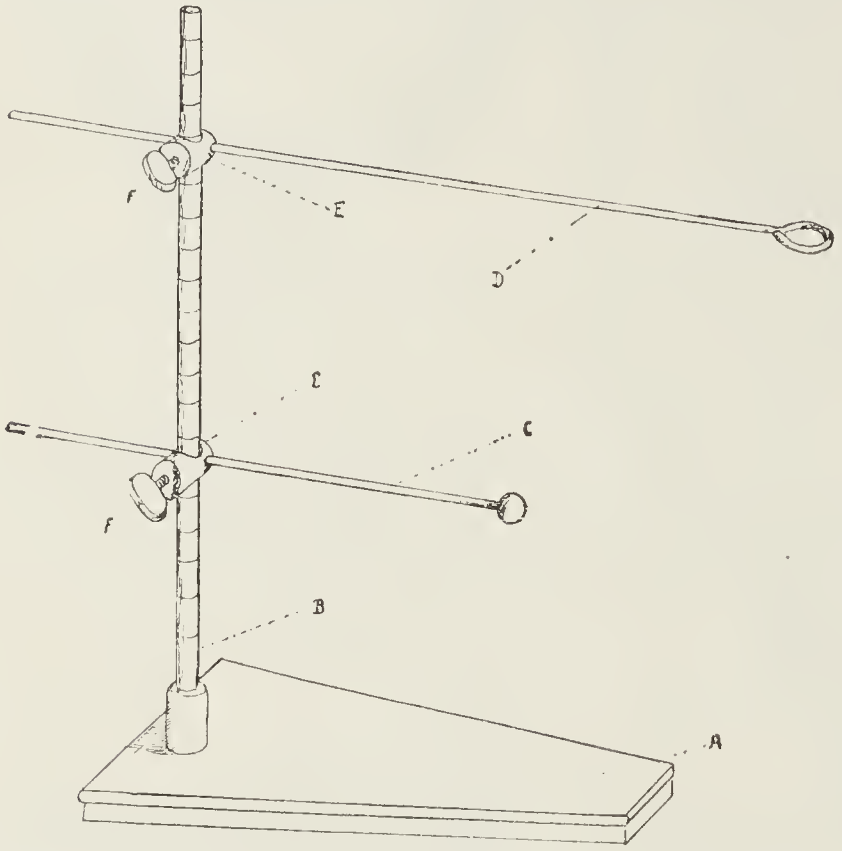
### COMMENT

Adhesions around obliterating appendixes I have found to be common, and in some instances they have given the impression of nonexistence of the appendix. There are also cases on record of the entire absence of the organ; but in these cases either the patient was operated on for some other disease, or investigation was made postmortem.

## A SIMPLE METHOD OF LOCALIZATION OF FOREIGN BODIES

J. S. Young, M.D., Lieutenant, Hospital 22, B. E. F., France
Late Radiologist, Washington University Medical School, St. Louis

One of the most important tasks in hospitals here is the localization of foreign bodies. Many methods are being used. The one which I am employing is to my mind the most simple and the most accurate. It involves the use of a small apparatus with an aluminum base which rests underneath the part of the patient which contains the foreign body, and an upright standard which rests on the broad end of the aluminum base. This standard has two adjustable cuffs through which pass two rods, an upper and a lower. The upper rod has a loop on its end; the lower, a small metallic ball. These rods are adjustable in two directions, and are secured by two set screws.



Apparatus for localization of foreign bodies: *A*, aluminum base; *B*, standard; *C*, lower adjustable rod with ball; *D*, upper adjustable rod with ring; *E*, lower cuff (adjustable); E, upper cuff (adjustable); *F*, lower set screw; *F*, upper set screw.

A patient is placed on the aluminum base (the tube, of course, being underneath the table), the foreign body is located, and by the central rays the loop is placed directly over the foreign body. After the loop on the upper rod has been placed close to the skin so that there will be no motion, the diaphragm is opened and the tube moved to and fro. The ball is then adjusted so that it moves in the same plane with the foreign body. The foreign body is thus localized in two directions, the ball locating it at the base line and the loop locating it in the upper plane.

There may be others who are using this method without the aluminum base on which the patient rests, but there is always a chance of slight displacement unless the localizer is held in position by the patient.

With this method one can, of course, make mistakes. But it is perfectly simple and is absolutely correct if the operator is careful, first, in posing his patient, and secondly, in observing the foreign body and ball until he is sure that they move in the same plane; otherwise he will find that there is a variation of from half an inch to 2 inches in the lower plane of his localization.

# *Military Medicine and Surgery*

## SOME OF THE ACCOMPLISHMENTS OF ITALIAN MEDICAL MEN IN THE WAR

VICTOR G. HEISER, M.D.
Member, American Red Cross Commission to Italy
NEW YORK

It is generally understood that the Italian army at the present time consists of at least 4,000,000 men, and that the number of hospital beds is approximately 1,000,000. Just what it means in two years to expand a country's hospital service to these huge proportions can be better appreciated when it is recalled that in the entire United States, with a population almost three times as great as that of Italy, there are only 300,000 beds. Yet in spite of this vast achievement, the work accomplished by the Italian medical profession since the beginning of the war has attracted to itself but little attention in this country. The reasons for this are obvious. While probably none of the Allies who are fighting in Europe have received less aid other than financial help from outside their own borders, the medical men of Italy almost invariably were loath to speak of their achievements. There was no boastfulness anywhere. It is charateristic of the Italian medical service to achieve results and then perhaps talk about them. Nowhere did we hear of what the medical service was going to do. It was only of the things they had done of which they could be induced to speak. The equipment necessary for preventing disease and for the care of the sick and wounded has been provided almost entirely in Italy. In many instances establishments for the production of hospital and medical supplies did not exist at the outbreak of the war, and had to be created. Large institutions for the reeducation of the injured, that will compare favorably with the best, are in full operation. Hospitals rendering excellent service exist near the front-line trenches. New types of hospital construction have been evolved. Mobile hospitals of 100 bed capacity, which can be taken down and transferred 75 miles and set up and put in service again within twenty-four hours, are in use; the entire equipment, including the hospital furniture, instruments, operating room appliances, and roentgen-ray plant, is transported on five camions (motor trucks) and three touring cars. New operations, particularly in dental and lung surgery, new instruments and devices without number, have been developed. The following statement, although very incomplete, may convey some idea of what had been accomplished by the Italian medical profession prior to Oct. 1, 1917.

### ORGANIZATION

The Italian medical service is presided over by an official who has his office with the minister for war at Rome. The service, however, is not so highly centralized as is the case in this country. There is a chief medical officer, common to all the armies, who has his headquarters near the front, at a point which is the principal center for the storage and distribution of supplies, not only for the medical department, but also for the entire army. Representatives of the quartermaster's and commissary departments, of the signal corps, ammunition department, Red Cross, and other branches of the army, are located there. They dine together in a common mess hall and have ample opportunity for cooperation. Under the chief medical officer there is stationed with each army a principal medical officer who has almost determining powers in directing the medical work pertaining to the army with which he is stationed.

The care of the wounded at the front, as well as throughout Italy, is undertaken jointly by the Italian Red Cross and the Sanitare Militare, or Army Medical Service, medical aid being rendered through the following seven classes of agencies, which cooperate in passing back the wounded with a remarkable degree of efficiency, and may be considered in the order of their relative distance from the front-line trenches.

1. *The Posti Medicazione.*—These are the most advanced dressing stations for emergency services, and are located usually in dugouts in trenches very close to the front.

2. *The Sezione Sanita.*—From 1 to 2 kilometers behind the front, usually at a point which can be reached by an ambulance, are the Sezione Sanita, or dispensaries. They are more fully equipped than the preceding.

3. *Ambulancia di Montagna.*—These are located from 2 to 5 kilometers behind the front, and are the most advanced point reached by the Italian Red Cross.

4. *The Stazione di Sanita.*—These are somewhat larger and better equipped than the preceding. Tetanus antitoxin is usually given here.

5. *The Ospedale di Campo, or Field Hospitals.*—These are located in convenient and accessible points somewhat farther back. At the outset of the war these were of 50 bed capacity, but experience soon showed that it was frequently necessary that they be of 500 bed capacity. They are now also used as Smistamento, or distributing centers, at which patients are classified and sent to the various special hospitals.

6. *Ospedale di Tappa.*—These are base hospitals, and may be located several hundred kilometers behind the lines. They are usually grouped, so that in one village or town or area there may be a bed capacity varying from 20,000 to 40,000.

7. *Ospedale di Reservo.*—These hospitals are institutions or other large buildings located throughout the cities of Italy which have been made available for the reception of soldiers.

The whole question of handling the wounded is still in a transitional state. Many hospitals, however, have been actually brought near the front-line trenches.

For each army there are a number of large quarantine or disinfecting stations, equipped for the treatment and detention of soldiers that have come from areas in which dangerous communicable diseases have prevailed, as, for instance, cholera, malaria, dysentery and typhoid. These stations are provided with steam disinfecting apparatus or sulphur dioxid chambers, or other means for disinfecting clothing and equipment. Special effort is made to sterilize textiles that have become infected, and particularly those that may have become infested with body lice or their eggs. Every patient, before being admitted to one of the general hospitals, is detained at a quarantine station for a sufficient time to permit several microscopic examinations of the stool. All prisoners, likewise, are passed through stations of this kind.

### HOSPITALS

*Construction.*—The hospital accommodation afforded by the Italian Red Cross consists largely of converted tourist hotels, schools and other large buildings that could be adapted to the purpose. The hospitals provided by the medical service of the army consist of existing army hospitals, many of which have been expanded, converted military buildings, or entirely new buildings erected for hospital purposes. The latter are usually one-story pavilions about 14 feet high, 18 feet wide, and of any desired length, constructed of angle iron placed on 6 foot centers, with the intervening space filled in with hollow tile. The tile resembles that used in fireproof construction in this country. The roofs also are of tile. Buildings of this type can be rapidly constructed, and hundreds of beds can be provided in a week or two. Over the course of a year or more, they are much cheaper than tentage. They are cool in summer and can be kept warm in winter. It is noteworthy that one seldom sees patients cared for in tents in Italy.

The decreased use of cavalry in this war has made available large numbers of cavalry barracks. These, when renovated, lend themselves to hospital purposes. At Udine, for instance, one of the cavalry barracks has been made into a single hospital ward with 300 beds. The proportions of this ward are immense. From one end of the room it is almost impossible to see a bed located at the other.

*Hospital Locations.*—Hospitals are being located nearer and nearer the front, as it has been deemed advisable to risk the occasional danger from shells, in view of the great advantage in having immediate treatment available for the injured. One finds these hospitals in most unusual positions. It was a novel experience to be taken 30 or 40 feet underground, and there, at a point directly over which a battle was raging, to see the regular hospital routine going on in good operating rooms supplied with artificial ventilation and modern hospital furniture, and, in general, admirably adapted to the purpose. To go to the other extreme, at an elevation of 6,000 feet in the Dolomites, we came on a hospital of 30 bed capacity hewn out of the side of a cliff. The two sides and back wall were of stone, and the mountain range at this point was so narrow that through a hole bored in the back wall of the hospital it was possible to look into the Austrian trenches on the other side of the mountain. This hospital may be said to be on the front-line trenches. The wounded that were able to travel after receiving emergency treatment were sent to the rail head on the marvelous teleferica, which often go from mountain-top to mountain-top over chasms thousands of feet deep.

*Hospital Specialization.*—Specializing has been carried to a high degree. For instance, at Udine we saw 1,500 fracture patients in a single hospital. At other hospitals we saw under treatment only patients with gunshot wounds of the chest. One hospital had 70,000 admissions during the month of August, which corresponded to a period of active offensive operations. Some of the hospitals are so large that a motor car is required to visit the various buildings.

Great progress has been made in developing the technic. We were told, for instance, that at the hospital in charge of Dr. Bastanelli, Professor Morelli has invented an improved aspirator for draining fluid from the chest. Pressure within and without the lungs can be accurately read on a gage, and through the development of special technic, which among other things permits the lungs to remain collapsed during definite periods, he has been able to produce some startling results in connection with lung surgery. Professor Morelli informed us that he had recently completed 100 cases with no mortality. He believed it to be entirely feasible to keep the mortality well under 5 per cent. in all gunshot wounds of the chest.

*Roentgen-Ray Apparatus.*—At the time Italy went to war few factories existed for the production of hospital and medical supplies. There was, for instance, scarcely a roentgen-ray apparatus in the country that had not been manufactured in Germany. At present, practically every hospital throughout Italy has one or more roentgen-ray machines, all manufactured in Italy. Not only is the apparatus as good as that formerly imported, but many competent observers believe it to be far superior.

### TRANSPORTATION

*Ambulance Service.*—A remarkably efficient ambulance service has been established. With the exception of a few cars furnished through the British Red Cross, all of the ambulances have been supplied by the Italian Red Cross of the Italian government. Owing to the mountainous character of the service required, heavier cars have been found to be most practical. During active engagement the empty ambulances going to the front carry many additional stretchers. These are filled and placed in the empty camions that have taken ammunition or other supplies to the front. As a modern war is largely a problem in transportation, this reduces the number of vehicles, prevents congestion of the roads, and affords prompt service for returning the wounded from the most advanced points at the front.

*Hospital Trains.*—The smooth organization of the hospital train service was one of the most striking features that we saw in Italy. Both the Italian Red Cross and the Army Medical Service provide such trains. There is, indeed, considerable rivalry between these two organizations as to which can furnish the most prompt and efficient evacuation. In a number of instances we saw a train back into a side track next to a hospital, take on board fully 350 wounded, and in less than thirty minutes proceed on its way. There was no confusion, and everything seemed to work with clocklike precision.

### NEW INVENTIONS

One is particularly impressed by the large amount of new apparatus that has been invented. Formerly Zander or similar apparatus mostly came from Germany. Not only are all these now manufactured in Italy, but a large number of new machines have been invented to meet the needs of war cripples. We saw an ingenious pneumatic tourniquet, new apparatus for jaw surgery, improvements in artificial limbs, and many other things too numerous to mention.

*Reeducation Institutions.*—The Rizzoli Institute in Bologna, created many years before the war, had considerable distinction for its prosthetic appliances and methods of reeducation for lost functions. Almost unbelievable progress in these directions has been made. The Regina Margherita Hospital, or institute for physical reeducation, in Rome, will compare favorably with the best of similar institutions anywhere. This institution has a capacity of 1,200 patients. Of these, 700 are in the physical therapy division. About 600 patients are discharged per month. Some of the passive exercise machines that have been developed are very ingenious. Great stress is laid on specialized forms of physical drill for rehabilitating nerve function. We were shown some truly remarkable results in this direction. The Villa Fiore, which belongs to the American Academy in Rome, has been set aside as an institute for mutilated soldiers. It is directed by Dr. Guali, who has devised most excellent improvements in artificial limbs. It is said that at the outset of the war practically all the limbs had to be purchased in America, but that now almost all are manufactured in Italy, at a great saving in cost. Dr. Guali has invented likewise an ingenious apparatus for registering the pressure of the artificial foot. This apparatus enables him so to modify the limb construction as to bring the pressure to bear similarly to that of the human foot. Certainly some of his results were most striking. At the Rizzoli Institute, in Milan, we saw a soldier who had been blinded in both eyes and had lost both hands, yet who, by the use of an apparatus devised especially for him, was able to use a knife, fork and spoon. At other institutions, after the lost function has been partially restored, a trade suitable to the condition of the individual patient is taught. Typewriting, printing, wood carving, lathe work, tinsmithing, basket making, and even primary education, are taught at these various places.

### QUARANTINE STATIONS

In addition to the quarantine stations heretofore mentioned as being located in northern Italy directly in connection with the various hospitals at the front, there are in southern Italy huge quarantine stations which for size will probably long hold world records. Equipment for steam and sulphur fumigation, as well as detention barracks, have been provided. For instance, the French, in order to take care of the soldiers returning from the Saloniki and eastern fronts, have in southern Italy built a quarantine station for 40,000 persons. The British constructed a station for 20,000 soldiers for the same purpose. At these stations careful examinations are made for cholera, typhoid and dysentery carriers. Blood examinations also are made in order to detect malaria. Soldiers found infected are treated before being allowed to return to Great Britain or France. Italy has established huge stations for the return of her soldiers from Saloniki and Albania. When it is stated that over 100,000 malaria patients have been invalided back, the importance of these huge quarantine stations is at once manifest.

### LABORATORIES

Laboratory work on a gigantic scale, and especially on the preventive side, has become an intimate part of the medical system in the present war. The examination of the stools for cholera, typhoid and dysentery has entailed an enormous amount of work. With the exception of the cholera imported into Italy at the beginning of the war through Austrian prisoners, that disease has not since made its appearance. Yet cholera carriers are constantly detected. This gives one an idea of the wonderful protection afforded by a modern health service.

### TUBERCULOSIS

Considering the size of the Italian army, a comparatively small amount of tuberculosis has been encountered. It is stated that about 5,000 cases appeared among the 4,000,000 troops. However, it is said that more than 30,000 tuberculous Italian prisoners had been returned from Austria. The care of these patients is now receiving much earnest attention. Almost from the beginning roentgen-ray diagnosis was used in the detection of incipient tuberculosis. This form of diagnosis has now become a routine procedure. New recruits are carefully examined before being admitted to the army, and as rapidly as facilities permit, those suspected of being infected are examined with the roentgen ray.

### RECLAMATION

Among other activities with which the medical service is associated is an active reclamation department. The variety and quantity of articles removed from a modern battlefield is almost unbelievable; it includes shoes, clothing, gas masks, first-aid packages, brass, shells, parts of guns, motor trucks, and almost every other conceivable thing. As soon as practicable after a battle, all this paraphernalia, or as much of it as possible, is collected from the field and taken to a central depot. Here it is sorted and sent to the various factories for repairs. Gas masks, for instance, are sent to a gas-mask repair factory, where the necessary mending is done and the masks reissued. Shoes are disinfected, cleaned and reissued. If in need of cobbling, two pairs of shoes are often made into one. The same obtains with regard to clothing. There are huge disinfecting plants and laundries in connection with these reclamation stations, for the treatment of articles for personal use. Most of the workers in these establishments are women, many of whom are recruited from among the fallen classes.

### FIRELESS COOKERS

One of the striking features in connection with the provision of suitable food for the soldiers in the front-line trenches is the very general employment of huge fireless cookers. This enables the food to be prepared in permanent kitchens well behind the lines, and assures to the soldier absolutely hot meals, no matter how advanced the position in which he finds himself. Huge shops for repairing and retinning these cookers form part of the system.

### PRISON CAMPS

The prison camps at the front consist of barbed wire enclosures with good tents and excellent cooking arrangements. They are divided into three sections. The first is the reception enclosure in which the prisoners are bathed and their clothing disinfected. They are then passed into the second enclosure, where stool specimens are taken for cholera, dysentery and typhoid. After three days' detention in the second enclosure, those whose stools are negative are sent into the third, where they remain perhaps several weeks until arrangements can be made to transfer them to permanent locations in the interior. For the officers, houses of a semipermanent character are provided. One is greatly impressed by the kindliness and consideration that are shown to the prisoners of all classes. The food is the same as given to the Italian officer or soldier of corresponding grade. No work is required of officers.

### VENEREAL DISEASE

No actual official records dealing with venereal disease in the army were available. At the front, however, in each army there are special hospitals for the treatment of these patients. The officers and men are not permitted to associate with any women that are not under governmental supervision. The medical officers stated that venereal disease had been reduced to almost negligible proportions.

### MEDICAL SCHOOL AT THE FRONT

Among many other novelties introduced by the Italian medical service is the establishment of a complete medical school near the front-line trenches. The character of the fighting up to the present winter has made this possible. From the beginning of the war to the autumn of 1917, practically all of the active military work was done between April and November. During the remaining months when the army was comparatively inactive, all the medical students that were serving in the hospital corps or other branches were ordered to San Giorgio di Nogaro, at which point professors from the various medical schools who are in the army also assembled. These professors were assigned to look after the sick in the vicinity of the school. This enabled them to use the clinical material for the benefit of the students. The buildings were mostly of temporary construction, but well adapted to the purpose. Enormous collections of bones and pathologic material generally, which had accumulated as a result of the war, were assembled here.

### EFFICIENCY

Finally, it may be stated that we were much impressed by the excellent care given to the wounded, and the spirit of service manifested by the medical officers. They were on duty early and late, never sparing themselves, quick to meet emergent needs, and through it all a wonderful fellowship and mutual helpfulness prevailed.[1]

61 Broadway.

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[1] Note.—The American Red Cross Commission to Italy was composed of George F. Baker, Jr., John Morron, Nicholas F. Brady, Dr. Thomas W. Huntington and Dr. Victor G. Heiser. It sailed July 28, 1917, and returned to this country Oct. 22, 1917. After visiting institutions in England and France connected with the war, the commission was given unusual facilities for visiting the French and British fronts in France. It then spent five weeks in Italy studying the conditions to determine how the American Red Cross could render the most efficient aid in Italy. Several weeks were spent at the Italian front. Later visits were made to practically all the centers in Italy and Sicily at which the wounded were cared for. These extended visits enabled the members to gain personal first hand information and to form an idea of the value of the work of the Italians, compared to that seen on the French and British fronts

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SATURDAY, JANUARY 5, 1918

## THE RENAL FUNCTION AND GOUT

At the conclusion of a comprehensive review of the subject, Lusk[1] has written that "present-day doctrines concerning metabolism in gout may shortly become entirely obsolete through new and far-reaching discoveries." Until recently, gout has been discussed primarily as a phenomenon of faulty metabolism. "Faulty metabolism of purins and their precursors" has been the offhand explanation of the mystery of gout with its manifestations of unusual retention of uric acid in the blood, its occasional deposits of urates in the tissues, leading sometimes to the formation of specific gouty nodules, and its acute inflammatory disturbances in the neighborhood of these tophi. Trauma, toxicity and infection are familiar detrimental agencies that have been called on at times to explain the gouty manifestations. Affinity of the tissues for uric acid (whatever that may mean precisely), increased formation of uric acid (which is now regarded as unlikely), and abnormal chemical union of uric acid and its consequent masked presence and retention in the blood are hypotheses that have vied with the contention of other anomalies in the purin metabolism of the gouty for recognition as causative factors.

Only a few years ago, Minkowski,[2] a competent worker in this field, wrote, "The ultimate cause of the unusual behavior of uric acid in gout is probably an abnormal metabolism within the nuclei of cells, where the nucleic acid content is the means of solution and conveyance not only of the purin bases but also of uric acid." In the same period, Garrod[3] was pointing out a different aspect of the subject. The occasional coincidence of nephritis (particularly contracted kidneys) and gout had already suggested that the cause of "uric acid stagnation" may reside in the kidneys. "If the fault is in the kidneys alone," Garrod incisively expressed it, "gout must be removed once and for all from the category of metabolic disorders and placed among the sequelae of renal inadequacy, at least so far as the uric acid phenomena of the disease are concerned."

At the Medical Clinic of the Peter Bent Brigham Hospital in Boston, McClure[4] has made further studies of the renal function in gouty patients with tophi in whom either the diagnosis of chronic nephritis was not made, or its presence was questionable. The newest technic permitting the detection of even incipient changes in excretory power, such as are indicated by very slight rise in nonprotein nitrogen in the blood, by the index of urea excretion, by the phenolsulphonephthalein test and by the relative fixation of the urinary constituents, was employed. From the cases thus carefully studied by McClure, it seems clear that the gouty kidney is often functionally deficient. The faulty elimination of exogenous uric acid and of other nitrogenous substances by gouty persons may be the result of depression of the functional power of the kidneys.

From these facts—they are not theories—it is evident, to quote McClure, that many of the findings that have heretofore been considered due to disturbances of nuclein metabolism in gout may be explained as the result of renal inadequacy, and that the theories concerning the etiology of gout remain hypotheses without satisfactory experimental bases. On the other hand, it must be admitted in all fairness, as McClure confesses, that while renal retention explains many of the anomalies occurring in the excretion of uric acid and of other nitrogenous substances in gout, nevertheless this does not explain the nature of gout, nor does it preclude the possibility of there being an underlying perversion of metabolism.

## DEATHS OF PHYSICIANS IN 1917

During 1917, the deaths of 2,300 physicians in the United States and Canada were noted in The Journal. On an estimate of 160,000 physicians, this is equivalent to an annual death rate of 14.37 per thousand. For the fifteen previous years the mortality rates were: 1916, 14.08; 1915, 15.71; 1914, 14.41; 1913, 14.64; 1912, 14.13; 1911, 15.32; 1910, 16.96; 1909, 16.26; 1908, 17.39; 1907, 16.01; 1906, 17.20; 1905, 16.36; 1904, 17.14; 1903, 13.73, and 1902, 14.74. The average annual mortality for the period from 1902 to 1917, inclusive, was, therefore, 15.53 per thousand.

*Ages.*—Of the decedents, 55 were between the ages of 21 and 30; 178 between the ages of 31 and 40; 367 between 41 and 50; 449 between 51 and 60; 503 between 61 and 70; 431 between 71 and 80; 170 between 81 and 90, and 27 between 91 and 100. The greatest mortality occurred at the age of 61, when 63 deaths were recorded.

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[1] Lusk, Graham: Elements of the Science of Nutrition, Philadelphia, W. B. Saunders Company, 1917, p. 552.

[2] Minkowski, O.: Von Leyden's Handbuch der Ernährungstherapie, 1904, 2.

[3] Garrod, A. E.: The Chemical Pathology of Gout, Brit. Med. Jour., 1904, 2, 741.

[4] McClure, C. W.: The Renal Function in Gout, Arch. Int. Med., November, 1917, p. 641.

*Causes of Death.*—There were 191 deaths assigned to general diseases; 246 to diseases of the nervous system; 296 to diseases of the circulatory system; 208 to diseases of the respiratory system; 86 to diseases of the digestive system; 115 to diseases of the genito-urinary system; 388 to senility; 31 to suicide; 111 to accident; 23 to homicide, and 66 after surgical operation. Among the principal assigned causes of death are senility, 388; heart diseases, 202; cerebral hemorrhage, 195; pneumonia, 189; accident, 111; nephritis, 86; surgical operation, 66; tuberculosis, 44; malignant disease, 40; suicide, 31; arteriosclerosis, 30; angina pectoris, 29; septicemia and homicide, each 23; diabetes, 22; uremia, 17; gastritis, myocarditis and appendicitis, each 16; intestinal disease (unclassified) and influenza, each 14; anemia and typhoid fever, each 13; meningitis and brain disease (unclassified), each 11; influenza, nervous disease (unclassified) and kidney disease (unclassified), each 10; erysipelas, 8; endocarditis, cholelithiasis and peritonitis, each 7; embolism, asthma and respiratory diseases (unclassified), each 6; neuritis, gastric ulcer and liver disease (unclassified), each 5; rheumatism, leukemia, bronchitis, cirrhosis of the liver and dilatation of the heart, each 4; dysentery and spinal disease (unclassified), each 3; malaria, diphtheria, paresis, general paralysis of the insane, pleurisy, hernia, intestinal obstruction, duodenal ulcer, prostatitis and dropsy, each 2, and 1 death each from anthrax, pellagra, chronic articular rheumatism, insanity (unclassified), paralysis agitans, anterior poliomyelitis, ear disease (unclassified), mastoiditis, aneurysm, lymphatic disease (unclassified), pulmonary emphysema, and purpura hemorrhagica. One physician died in prison, and seven medical officers lost their lives in battle.

The causes assigned for the 111 deaths from accidents were: automobile, 41; falls, 11; railway-automobile (grade crossing), 9; railway, 9; drowning 10; firearms, 8; poison, 4; burns, 6; sunstroke, 4; freezing, 1; lightning, 1; explosion, 1; electricity, 1; machinery, 1; horses and vehicles, 1; other accidental traumatisms, 3, and suffocation, 1. The 31 physicians who ended their lives by suicide selected the following methods: firearms, 15; poison, 5; hanging, 2; cutting instruments, 3; drowning, 1; jumping from high places, 1, and other means, 4. Of the 16 homicides, 11 were due to firearms; 2 to cutting instruments, and in 3 the method was not reported.

The chief death causes in the order named were senility, heart disease, cerebral hemorrhage, pneumonia, accident, nephritis and surgical operations. The age at death varied from 21 to 100, with an average of 60 years, 8 months, 13 days. The general average of age at death since 1902 is 59 years, 9 months and 2 days. The number of years of practice varied from 1 to 70 years, the average being 32 years, 7 months and 1 day. The average for the past thirteen years is 31 years, 2 months and 11 days.

*Military Service.*—During the year, 215 physicians died who had served in the Civil War; of these, 59 had followed the fortunes of the Confederacy, and 61 had been medical officers of the United States Volunteers. The Medical Corps of the Army lost 10 officers; the Medical Reserve Corps, 20; 15 had been contract or acting assistant surgeons, and 2 were medical cadets. The Navy lost 14 medical officers; the Public Health Service, 7; the Indian service, 3, and the organized militia, 31, of whom 5 had attained the grade of Surgeon-General.

*Civil Positions.*—Of those who died, one had been a member of Congress; one, the governor of a state; one, an ambassador; 11, members of state senates; 34, members of the lower houses of legislatures; 38 had been mayors.

*Association Fellowship.*—Of the 689 Fellows of the American Medical Association who died during 1917, two had been vice presidents; one, a member of the House of Delegates; two, members of the Committee on National Legislation; one, a member of the Council on Pharmacy and Chemistry, and one, a member of the Board of Trustees.

## HAMSTRINGING THE ARMY

The forces arrayed against scientific medicine are many and various. They range from the honest but deluded crank with an obsession through the various cults and 'pathies to the downright quacks and medical fakers. The American Medical Association as representative of scientific medicine in this country has, naturally enough, been the target for many of the verbal poison-gas attacks made by these different interests. In general, the Association and the profession have ignored such outbursts, for in many instances one of the obvious objects of the attackers has been to obtain, through a reply, a publicity they could never get through the avenues normally open to them. In this matter, as in many others, war brings about changed conditions. Vilifying scientific medicine in times of peace was a matter that affected chiefly only the physician, and he, knowing its source, ignored it. With the entry of our country into war, medicine, in common with other sciences, was called on to do its "bit" in successfully prosecuting the gigantic task the nation had undertaken. How well it has responded we will leave others to say. The facts are that the lives and health of the hundreds of thousands of young Americans who form the new National Army have been entrusted to the care of the representatives of scientific medicine.

During the past few months there has been an especially virulent effort on the part of the opponents of modern medical science to discredit that science in the eyes of the American public. Not only has it been openly charged that the physicians in the Army are incompetent to care for the health of the soldiers, but the villainous accusation has also been made that much of the sickness in the camps is the result of the prophylactic inoculations given the men at the time they entrain. These charges, of course, emanate chiefly from ignoramuses of the "drugless healer" type. Such a campaign may be counted on not only to weaken the confidence of the American public in the medical department of the Army, but also to arouse unfounded suspicions in the very integrity of the military organization.

These thoughts are suggested by a recent article appearing in the Los Angeles *Times*. While the advertising pages of the *Times* are a notorious haven for quackery, the paper generally is supposed to have some influence. One of the departments of the Sunday editions of the *Times* is entitled "Care of the Body," and is conducted by one Brook who calls himself a "Doctor of Naturopathy." It would probably be difficult to put in the same space more misinformation regarding the human body and its processes than Brook manages to condense into his "department." The *Times* seems to have two obsessions, an undying hatred of labor unions and a deep-seated antipathy to the medical profession and medical science. This may explain why its alleged "health department" is turned over to a quack who also advertises his trade in the same paper.

In the *Times* for December 16, Brook suggests, both directly and by inference, that the cases of measles and pneumonia that have occurred in the various Army camps are "in part at least . . . due to the fact that their [the soldiers'] blood has been poisoned with injections of diseased animal matter . . ." In the same article Brook denies that medicine has progressed since the days of Hippocrates; he declares that "all disease has one cause, the accumulation of waste matter in the blood, due to surplus by-products of food"; that epidemics "occur when atmospheric conditions are favorable to them"; that "tertiary syphilis is mainly due to mercurial poisoning"; that physicians "of the regular school do not understand disease"; that pathogenic bacteria are never the cause, but always the result, of disease; that "the percentage of deaths from diphtheria is as large as it ever was"; that the "increase in cancer is attributed by some medical men to the general use of serums"— and so on *ad nauseam.*

The article can have only a pernicious and disquieting effect, not alone on the soldiers themselves, but also on their families and friends. Had the *Times* falsely charged that our soldiers were being sent to fight Germany armed only with old-fashioned muskets or blunderbusses; or had it charged that the warships of the United States Navy are so obsolete and old-fashioned as to imperil the lives of our sailors, that paper would have played into the hands of our enemy no more effectively than it does when it spreads broadcast ignorant slanders regarding the efficiency of modern medical science and attempts to discredit the modern physician and challenge the value of the service rendered by the Army Medical Corps.

If modern medical science is a pretense and a sham, if inoculations against typhoid and smallpox are mere dangerous fads, if the health and lives of our brothers and sons who have been called to the colors are not in safe hands, then, in the name of common sense let us abolish the medical department of the Army and substitute instead a corps of chiropractors, naturopaths, mental healers and what-not in its place. If, on the other hand, the value and effectiveness of antityphoid inoculation and vaccination have been demonstrated and if everything is being done that modern science can do for the health of the Army, then those sheets that are attempting to disseminate falsehood to undermine the morale, not only of the Army, but of the public, and in other ways give aid and comfort to the enemy, should be promptly suppressed by the government.

## INTESTINAL BACTERIA IN CHILDHOOD

The harm that some bacteria can bring about when they find their way into the organism by way of the digestive tract is so indisputable and emphatic that there has resulted a tendency to view all micro-organisms in the gastro-intestinal canal with some suspicion. Our readers are familiar with the widespread attempts in recent years to implant one type of micro-organism in the alimentary tract in the hope that it may lead to the repression or exclusion of a less desirable type. If the strictly scientific evidence for the success of such an undertaking as the implantation of the *Bacillus bulgaricus* or the *Bacillus acidophilus* on the intestinal mucosa has not been convincing, certainly the semipopular literature and the advertising propaganda have almost sufficed by mass action to enforce a respectful attitude or even a favorable impression toward the situation.

The feces literally swarm with bacteria. Osborne and Mendel[1] have oberved, for example, that 70 per cent. of the nitrogen in the feces of animals may be attributable to bacteria. Obviously it is important to know how this omnipresent flora is modified by diet alone, and what changes the bacteria inevitably ingested with food may occasion, before emphasis is placed on a single factor responsible for the type of alimentary bacteria found under any given condition. This is particularly true of children, in whom special bacterial conditions are often held responsible for the pathogenesis of various disorders. Only lately, for example, Hess[2] has maintained that infantile scurvy is an intestinal intoxication or an autointoxication due to the overgrowth of harmful bacteria in the intestine. It is the product of an unbalanced flora that is no longer controlled by a proper dietary. Furthermore, the comparatively simpler character of the diet of children makes it easier at their age to inquire to what extent differences in the bacterial flora of children can be correlated with the type of food forming the sole or the chief ingredient of the diet.

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[1] Osborne, T. B., and Mendel, L. B.: The Contribution of Bacteria to the Feces after Feeding Diets Free from Indigestible Components, Jour. Biol. Chem., 1914, **18**, 177.

As the result of a study of the dejecta of children and their foods at the Johns Hopkins medical laboratories by Ford, Blackfan and Batchelor,[3] it was found that the bacteria with which the food is infected are almost the same as those found in the dejecta of the children fed on these foods. *Bacillus cereus* and *B. albolactus* are the most common, while *B. mesentericus* and *B. pseudotetanus* also appear. The relative proportion of the species encountered in the food is also strikingly similar to that established for the dejecta. Pasteurized milk, protein milk, buttermilk and farina were used extensively in the children's hospital. All these articles of diet were found to be infected with aerobic, spore-bearing bacteria, the spores of which are capable of withstanding the heat employed in ordinary cooking. The bacteria found in protein milk and in buttermilk were especially abundant, *B. cereus* and *B. albolactus* being the predominant types. In the heated milk they were somewhat less common, the same species predominating. Farina was relatively free from bacteria, and in the samples examined contained chiefly pseudotetanus bacilli.

The Baltimore investigators incline to the opinion that the presence of aerobic spore-bearing bacteria, gram-positive in character, in the dejecta of children is to be attributed to their mechanical introduction with the richly infected food. They state that the presence of normal, constipated or loose stools in cases in which there is a great increase in aerobic spore-bearers indicates that these organisms may be regarded as practically harmless in the alimentary canal, even if they are present there in large numbers. Hence the warning that one should be extremely cautious in drawing any conclusions that have a clinical bearing from a bacteriologic examination of the dejecta, unless a study of the bacteria in the ingested food is made at the same time.

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[2] Hess, A. F.: Infantile Scurvy, V, A Study of Its Pathogenesis, Am. Jour. Dis. Child, November, 1917, p. 337.

[3] Ford, W. W.; Blackfan, K. D., and Batchelor, M. D.: Some Observations on Intestinal Bacteria in Children, Am. Jour. Dis. Child., November, 1917, p. 354.

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**Hookworm in Siam.**—For the six months ending Aug. 31, 1917, Dr. M. E. Barnes of the International Health Board reports that 7,577 persons in Siam were examined for hookworm, of whom 5,669 were found to be infected. Of these, 3,614 were treated. Lectures on sanitation have been given and literature distributed. The work has had the approval of the Siamese director of health.—*Commerce Reports.*

# Current Comment

## THE PAPAW AND ITS FOOD VALUE

In magazines and newspapers, on billboards and street car signs, in fact, everywhere, we are being told that food will win the war. While it will, of course, take something more than food to accomplish this purpose, at the same time this is an immediate need; consequently more thought is being given to food than ever before, and a general survey is being made of the fruits of the earth to learn whether any food substances have been overlooked. Langworthy and Holmes[1] of the Department of Home Economics have made an investigation of the American papaw, a fruit which they state has heretofore been used as a food only in certain localities in which it has grown practically wild. They believe that it deserves further consideration. The name papaw is applied to two distinctly different fruits, both grown in the United States—one, the native American papaw and the other, the fruit of the tropical American tree. From the earliest times, *Asimina triloba,* the native American papaw, has been used as a food in this country in those regions where it is grown. The fruit is little known, however, at any distance from these regions. This, Langworthy and Holmes point out, is because it is not considered edible until fully ripe, the flesh being very soft and easily bruised, thus interfering with its shipment. The fruit ripens in September, remains in good condition only a short time after it is picked, and, as stated, does not stand well either transportation or storage. It has generally been considered a wholesome fruit, although some cases of poisoning (none of them fatal or even very serious) have been reported. Barber[2] believes that these cases represent an idiosyncrasy to the fruit, as the poisoning was accompanied by urticaria and other symptoms of that type. Langworthy and Holmes have considered it worth while to make a determination of the dietetic value of this fruit, to test its table and culinary qualities in order to find out whether it offers possibilities for more extensive use. They find that the protein content is noticeably high, while the content of food carbohydrates and ash is within the range for other fruits. The fuel value, as ordinarily calculated, is 445 calories per pound, about the same as that of bananas and more than that of plums, prunes, apples and similar fruits. Samples of the papaw were eaten freely by members of the laboratory staff of the office of home economics, and were found to cause no digestive disturbances whatever. The fruit was cooked in several ways in the laboratory. It was found that heating methods do not yield satisfactory results, as cooking develops a pronounced and not agreeable flavor which differs from that of the fresh fruit. Frozen and chilled dishes made with the papaw were quite satisfactory and agreeable. Concerning the latter, the authors are of the opinion that, considering the composition of the fruit, its distinctive flavor and pleasing texture, it seems to deserve the good opinion in which it is quite commonly held in regions where it is abundant. It is certainly worth further consideration as an addition to the restricted diet which may become general during the war.

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[1] Langworthy, C. F., and Holmes, A. D.: The American Papaw and Its Food Value, Jour. Home Economics, 1917, 9, 505.

[2] Barber, M. A.: Poisoning Due to the Papaw (Asimina Triloba), The Journal A. M. A., Dec. 30, 1905, p. 2013.

## HOMICIDES IN THE UNITED STATES

The United States has anything but an enviable reputation as regards its homicide record, especially in large cities. That the evil is increasing is evident. It has been estimated that no fewer than 7,500 deaths occur annually in this manner in the United States. According to newspaper reviews for 1917, there were over 9,000 such deaths during the past year. Frederick L. Hoffman[1] has recently made an analysis of the records for the last decade in thirty-one American cities, and he shows that the tendency has been to increasing numbers of such deaths rather than toward any lessening either in the total number or the rate. As has been the case in former years, the highest homicide rate prevails in Memphis, Tenn., the rate having increased from an average of 74 per hundred thousand in 1906-1910, to 89.9 in 1916. How bad this record is may be seen from the fact that the city with the next highest rate, Atlanta, Ga., has a record of 31 per hundred thousand. The five American cities with high records are all in the South; two, Memphis and Nashville, are in Tennessee, the others being Atlanta, Ga., New Orleans, La., and Charleston, S. C. For this reason it is naturally of interest to know to what extent the negro population is concerned. Hoffman calculates that the average white homicide rate in the Southern States is 6.3 per hundred thousand population, against 30.4 for the colored. This does not mean, however, that the excessive homicide rate of Memphis is entirely attributable to the negro element, since an analysis of these figures for Memphis shows that the white rate during the last five years was 26.7 per hundred thousand population, contrasting with the homicide rate of the city of New York of 5.4 for the same time. However, the colored rate in Memphis is steadily increasing, from 99.9 in 1912 to the well-nigh incredible figure of 178.4 in 1916. Even Nashville, which approximates it in population and location, has rates of but 17.7 for the white and 66.3 for the colored as averages for the last five years. An analysis of homicides by method showed that 13,579 of the homicides for 1911-1915 were by firearms, 3,260 by cutting or piercing instruments, and 5,106 by all other methods. The male homicide rate during the period was 10.7, as against a female rate of 2.9, and the male rate for firearms was 6.9, against a rate of 1.5 for females. It is possible to draw a number of conclusions from these figures. Certainly they indicate, as Hoffman says, "the practical value of more effective restrictions on the use and possession of firearms, and the urgency of more drastic methods of police supervision and control." It is generally known that the supervision over the sale of firearms in most American communities is negligible. The laws governing their sale are not sufficiently stringent in their requirements, and the enforcement of the laws is so inadequate as to make the laws practically worthless. The second conclusion is that murder trials are unduly prolonged in this country, that the public gives the weight of its endorsement to wrongful actions, and thus the tendency to murder in American cities is greatly encouraged.

## LAXATIVE FOOD PREPARATIONS

Tradesmen, as a rule, are quick to grasp any opportunity for profit offered by the changes in habits and tastes and likewise by the more common physical ailments of the population. The "patent medicine" business bears eloquent witness to the truth of this remark. Modern dietary habits, accentuated by the increase in sedentary occupations, have brought the manifestations of constipation into prominence. The American is prone to seek relief in some familiar laxative prescription; and the manufacturer has been equally quick to provide a ready purchaser with the object of his desires. Thus has come about the great profusion of laxative pills and potions advertised in glowing terms to bring the sought relief and to avert an alleged impending doom. There are fashions in laxatives as in many other features of life. When the rôle of the diet in the movement of the bowel became better understood, dietary regulation of this function came into vogue more conspicuously. The part played by the indigestable "roughages" in the ration served to direct attention to the intentional use of such materials. Within a surprisingly short time, bran, the poorly utilized milling residue of wheat, has achieved a popularity as well as scientifically fostered reputation as an aid in combating constipation. Beside bran, used either alone or in combination with other materials, agar-agar and possibly other substances containing indigestible polysaccharid carbohydrates, likewise used either alone or combined with some cereal food, are now on the market. Bran, bran biscuits, laxative biscuits, "health biscuits" are terms employed in the exploitation of the products, some of them not without merit. According to analyses made by Street,[1] at least half a dozen agar-containing products are now being offered for sale, and an even larger number whose name clearly indicates the presence of wheat bran. These, says Street, show a considerable range in composition. All are clean and suited for human consumption. The content of crude fiber on which their laxative efficiency primarily is assumed to depend, ranged from 3.8 to 8.5 per cent. By way of criticism, Street remarks that the majority of these laxative preparations are relatively expensive. The cost of the samples analyzed ranged from 8 cents to $2.76 per pound, and there was no evidence that the higher priced brands are any more effective than the cheaper ones. The wheat brans examined showed a range of cost from 6.5 to 20.5 cents per pound, showing — to quote Street—either the one to be an extremely reasonable purchase or the other a grossly extravagant one.

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[1] Hoffman, F. L.: Homicide in American Cities, 1916, the Spectator, Dec. 20, 1917.

[1] Street, J. P.: Laxative Food Preparations and Their Composition, Mod. Hosp., December, 1917, p. 398.

# *Medical Mobilization and the War*

## MEDICAL PROMOTIONS ANNOUNCED BY GENERAL PERSHING

The War Department announces the following recommendations for promotions, cabled by General Pershing: Lieut. M. P. Lane, M. R. C., to be captain; Lieuts. C. W. Presnall, M. C., E. B. Maynard, M. C., and A. Freer, M. C., to be captains; Lieuts. H. E. Ross, M. C., and A. W. Kenner, M. C., to be majors.

## ROYAL COLLEGE OF PHYSICIANS OF IRELAND WELCOMES AMERICAN MEDICAL OFFICERS

At a stated business meeting of the president and fellows of the Royal College of Physicians of Ireland, held on Friday, Dec. 7, 1917, it was unanimously resolved that all the officers of the United States Medical Service while stationed in Dublin and its neighborhood should be cordially invited to make use of the college library. The president and fellows expressed a sincere hope that the officers of the United States Army Medical Service will make as free use as they desire of this invitation.

## NAVY MEDICAL DIRECTORS PROMOTED TO REAR ADMIRALS

In recognition of their distinguished services, President Wilson will recommend to Congress the promotion of Medical Directors George H. Barber and Edward R. Stitt to the rank of rear admiral, according to an announcement by Secretary Daniels. Dr. Barber, noted for his work in tuberculosis, is a graduate of the College of Physicians and Surgeons of Columbia University, and entered the Navy as assistant surgeon in 1889. He has served many years at sea and has had service at training stations and hospitals both in the United States and the Philippines. He has for the past several years been head of the naval hospital at Las Animas, Colo. Dr. Stitt, author of a text and known for work in bacteriology, pathology and tropical medicine, is a graduate of the University of South Carolina, and received his degree of M.D. from the University of Pennsylvania. He also entered the Navy as assistant surgeon in 1889 and has since held several important government positions, being at present a member of the National Board of Medical Examiners. He has been connected with the Naval Medical School at Washington since it was established in 1902, and is at present president of that institution.

## THE MEDICAL BULLETIN

The first number of a new publication entitled *The Medical Bulletin*, to be a review of war medicine, surgery and hygiene, published by the American Red Cross Society in France, has just appeared. It is dated November, 1917, and opens with the announcement of the appointment of a research committee of the American Red Cross in Europe. This committee consists of Capt. Walter B. Cannon, chairman; Capt. Kenneth Taylor, secretary; Majors Joseph A. Blake, G. W. Crile, H. Cushing, H. T. Nichols, Richard P. Strong and Alexander Lambert, Col. M. W. Ireland and Drs. James A. Miller, Homer Swift and William C. White. The address of the secretary of the research committee is 6, Rue Piccini, Paris, XVI. A central laboratory in Paris has been established at the Red Cross Military Hospital at the same address, which will cooperate with the present laboratory there established under the Robert Walton Goelet Research Fund.

In order to provide for meetings, a research society has been founded to meet once a month in Paris, and the *Medical Bulletin* has been established to review medical literature. The *Bulletin* will contain abstracts of papers read at the monthly meeting of the society and also of articles appearing in English, French and American medical journals. A library of current medical journals has also been established at the office of the *Bulletin*. The publication will be issued monthly, and will be available for the physicians and surgeons with the American Army in France, and for those of our allies who may find it helpful. It will be furnished without charge to the officers mentioned.

The matter appearing in the *Bulletin* is classified under surgical, medical, radiologic, bacteriologic, nervous and mental, and skin and genito-urinary. It contains a translation of the conclusions adopted by the Inter-Allied Surgical Conference held in Paris in April, 1917, fourteen surgical abstracts, one radiologic, two medical, one bacteriologic, two nervous and mental and two skin and genito-urinary abstracts. Of these abstracts, two are from The Journal, eight from the *British Medical Journal*, three from the *Lancet*, one from the *Archives of Radiology*, three from the *British Journal of Surgery* and five from the *Archives de médecine et de pharmacie militaires.*

## REGULATIONS GOVERNING ENLISTMENT OF MEDICAL STUDENTS AND HOSPITAL INTERNS

### Medical Students

Medical students should enlist in the Medical Enlisted Reserve Corps before the time expires for filing their questionnaires with the local boards. For the purpose of expediting this matter, authority has been granted to recruiting officers of the Army to accept properly accredited medical students from well recognized schools and to enlist them in the Medical Enlisted Reserve Corps. The Surgeon-General's Office has notified the deans of medical colleges that it would facilitate matters if a supply of enlistment papers were obtained from the nearest recruiting station. Physical examination of students may be made by any medical officer of the Army, and if satisfactory, the student would then present himself with his application, the dean's affidavit and the report of his physical examination, to the nearest recruiting officer, who will enlist him. If the physical examination is not satisfactory, all the papers should be sent at once to the Surgeon-General for the consideration of the waiving of minor physical impairments.

#### NECESSARY PAPERS

The application should be a written application for enlistment in the Medical Enlisted Reserve Corps, addressed to the Surgeon-General. It should give the student's full name and address, the name of the medical school and the class of which he is a member, the address and number of his local board and his "order number" in the draft. It should be accompanied by an affidavit from the dean or his authorized agent, which must be duly executed before a notary. This should state that the student is a bona fide student in the school, and must specifically mention the class of which he is a member for the session of 1917-1918.

#### PROCEDURE

After enlistment in the Medical Enlisted Reserve Corps, the student may fill out the questionnaire when it reaches him, placing a cross in column "A" opposite "D" in Class V on the first page, and specifically claim deferred classification by answering the question at the bottom of the first page. He will then complete the required parts of the questionnaire, especially paying attention to Series VI—military or naval service. Members of the Medical Enlisted Reserve Corps are entitled to place in Class V. The effect of such classification is to grant exemption or discharge from the draft.

### Hospital Interns

A hospital intern who is a registrant and therefore liable to call to military service by his local board, may either apply for a commission in the Medical Reserve Corps directly to the nearest examining board for the Medical Reserve Corps; or, if he has an "order number" low enough to make him liable to early call, he should apply at once for enlistment in the Medical Enlisted Reserve Corps. Such enlistment, if accomplished before he receives and answers his questionnaire, will enable him to state on the questionnaire that he is in the military service, and he will in consequence be placed in Class V. This enlistment will be equally effective as a commission in enabling him to continue his intern service, and will not prejudice his right to apply for commission at a later date.

#### NECESSARY PAPERS

In the case of interns, the application for enlistment in the Medical Enlisted Reserve Corps should be made directly to the Surgeon-General and not to an enlisting officer (as in the case of medical students). The application should include the full name of the intern, his age, the name and address of the hospital in which he is serving his internship, the date when such intern service began, the medical college from which he received his degree of M.D., and the date of graduation, the number and address of his local board, and his "order number" before such board. This application must be accompanied by an affidavit from the executive officer of the hospital which gives the following information: the position held by said executive officer; the name and address of the hospital; a statement that the intern (giving full name) is a bona fide intern in said hospital, and that he is devoting his entire time to this work; the date on which said intern began his service, and the date when his service as intern will end; the daily average number of patients in the hospital; the total number of interns in the hospital; and the number of interns who are already in the military or naval service of the United States, either as commissioned officers or enlisted men.

The affidavit shall further contain this agreement: "At the termination of the intern service of (name), whether on or before the date mentioned as the termination of his appointment, I agree to notify the Surgeon-General by letter."

### QUALIFICATIONS OF INTERNSHIP

Internships are limited to one year. An intern who has already served one year or more as such will not be approved for enlistment in the Medical Enlisted Reserve Corps. He may, if he wishes, apply for a commission in the Medical Reserve Corps, but with the expectation that he will be called to active duty as soon as needed. An intern who, when he is commissioned or enlisted, has already served as an intern for part of a year, will be authorized to remain on inactive duty only for the balance of the period of one year, and may be called to active duty thereafter, if needed, irrespective of the duration of his appointment as intern.

The internship should begin as soon as possible after graduation. In the following provisions the reckoning of time shall be from the last day of that month in which the degree of M.D. is conferred. For one month from that time a free choice from available internships in approved hospitals will be allowed. No internship will be approved which begins later than four months from that time. If the internship begins between one and four months from that time, approval will be given only when the Surgeon-General is satisfied that the time intervening between graduation and the internship will be spent in a way that will improve the training of the graduate for Army purposes.

In the execution of these regulations the department will not recognize internships in hospitals, sanatoriums or other institutions conducted for profit; or in small private hospitals (50 beds or less); or new internships at any hospital, if established or added since May 18, 1917, to those previously existing, unless such new internships are necessitated by and are proportional to an increase in the bed capacity of said hospital.

Within the restrictions set forth in the above regulations, a commissioned officer of the Medical Reserve Corps, or an enlisted man in the Medical Enlisted Reserve Corps, may apply for a position as intern, and may accept such position subject to the later approval of the Surgeon-General. In making such engagement with the hospital authorities, it should be clearly understood that the applicant for internship is in the military service; that he is subject to orders of the Surgeon-General; and that he may be called to active duty at any time, should the exigencies of the service demand such action.

### PERMISSION FOR INACTIVE DUTY

On receiving such appointment as intern, the commissioned officer or enlisted man should at once apply to the Surgeon-General for permission to be continued on inactive duty during the period of his internship, giving his address, and stating the name and location of the hospital from which he has received his appointment, and the date when the internship will begin.

On the receipt of this request, the Surgeon-General will forward to him three affidavits—one a formal application blank to be completed by himself, the second to be filled out by the executive officer of the hospital, and the third to be filled out by the dean of the medical school or by his authorized agent. These should be completed and returned together by the applicant to the Surgeon-General as soon as possible. When the time of appointment and of beginning service are near together, the applicant may apply to the Surgeon-General in season to receive these forms early enough to have them completed and forwarded immediately after the appointment is made.

If the application is approved, two certificates will be sent to the applicant, authorizing him to remain on inactive duty during his internship. He will retain one copy and deliver the other copy at once to the executive officer of the hospital.

The continuance of this permission to remain on inactive duty is conditioned on the performance of his duties in a manner satisfactory both to the Surgeon-General and to the authorities of the said hospital.

### INTERNS MUST REPORT

During his internship reports shall be made to the Surgeon-General by the intern as follows: a report of the fact, when he begins his service, this report to be countersigned by the executive officer of the hospital; a report at the end of each period of three months thereafter, with a statement of the character of the work for that period, and an affidavit from the executive officer of the hospital that he has given his entire time to his duties as intern and that his work has been satisfactorily performed; a notice of the termination of said services as intern whenever it may occur.

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## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Dec. 21, 1917

1. Annual admission rate per 1,000 all troops in U. S. (disease only) .......... 1586.4
   Noneffective rate per 1,000 on day of report .......... 41.9
2. National Guard—
   Admission rate per 1,000 all divisions (disease only) .......... 1621.8
   Noneffective rate per 1,000 on day of report .......... 47.8

Divisions showing admission rate for disease higher than average: Camps Doniphan, Bowie, Kearny, Cody, Wheeler, Beauregard and Shelby.

Divisions showing noneffective rates higher than average: Camps Bowie, Kearny, Beauregard, Wheeler, Doniphan, Shelby, Cody and MacArthur.

3. National Army—
   Annual admission rate per 1,000 all divisions (disease only) .. 1786.6
   Non-effective rate per 1,000 on day of report (all divisions) .. 41.8

Divisions showing admission rate for diseases higher than average: Camps Travis, Pike, Funston, Zachary Taylor, Gordon and Dix.

Divisions showing non-effective rate higher than average: Camps Funston, Pike, Travis, Zachary Taylor, Lee, Dodge, Lewis and Jackson.

4. Venereal Disease—
   Annual admission rate Regulars in United States .......... 88.6
   Annual admission rate National Guard (Divisions in U. S.) .. 46
   Annual admission rate National Army (Divisions in U. S.) .. 66.9

National Guard Divisions having rate above average: Camps Logan, Wadsworth, Wheeler, Doniphan, Hancock and Sevier.

National Army Divisions having rate above average: Camps Dix, Travis, Lee, Dodge, Jackson.

5. Number of cases of Pneumonia .......... 608
   Highest number in any one Division (31st) .......... 102
   Number of cases of Meningitis .......... 94
   Highest number in any one Division (81st) .......... 37

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING DEC 21, 1917

| Divisions | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffective per 1,000 on day of report |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 27th, Wadsworth... | 4 | .. | .... | 45 | .. | .. | ... | .. | .. | 0 | 33.3 |
| 28th, Hancock...... | 5 | ... | ... | 35 | .. | .. | 1 | 1 | .. | 2 | 24.6 |
| 29th, McClellan..... | 3 | 1 | 1 | 5 | .. | .. | 30 | .. | 5 | 3 | 27.5 |
| 30th, Sevier......... | 3 | ... | 1 | 28 | .. | .. | 1 | 2 | .. | 8 | 30.5 |
| 31st, Wheeler....... | 102 | 1 | 2 | 31 | .. | .. | 5 | 1 | .. | 13 | 67.4 |
| 32d, MacArthur... | 4 | ... | ... | 21 | .. | .. | 17 | .. | 5 | 4 | 48.1 |
| 33d, Logan....... | 5 | ... | 1 | 57 | .. | .. | 61 | 1 | .. | 1 | 37.2 |
| 34th, Cody.. | 60 | ... | ... | 16 | .. | .. | 107 | .. | 3 | 16 | 52.1 |
| 35th, Doniphan..... | 22 | ... | 2 | 30 | .. | .. | 271 | 10 | 7 | 7 | 60.7 |
| 36th, Bowie... | 53 | ... | ... | 20 | .. | .. | 9 | 2 | 1 | 34 | 77.0 |
| 37th, Sheridan.. | 2 | ... | ... | 7 | .. | .. | 27 | .. | .. | 0 | 15.9 |
| 38th, Shelby.. | 17 | ... | 3 | 18 | .. | .. | 41 | .. | .. | 7 | 59.7 |
| 39th, Beauregard... | 8 | ... | 5 | 12 | .. | .. | 8 | 4 | .. | 14 | 73.6 |
| 40th, Kearny...... | 35 | ... | ... | ... | .. | .. | 240 | .. | 7 | 11 | 75.6 |
| 76th, Devens........ | 1 | ... | ... | 16 | .. | .. | 26 | 1 | .. | 1 | 27.9 |
| 77th, Upton......... | 10 | ... | ... | 57 | .. | .. | 8 | .. | 2 | 0 | 20.8 |
| 78th, Dix............ | 2 | ... | ... | 63 | .. | .. | 6 | .. | 1 | 1 | 33.7 |
| 79th, Meade......... | 16 | ... | ... | 27 | .. | .. | 33 | 2 | 2 | 2 | 21.2 |
| 80th, Lee............ | 14 | ... | ... | 81 | .. | .. | 101 | .. | .. | 5 | 52.6 |
| 81st, Jackson....... | 15 | ... | 3 | 28 | .. | .. | 87 | 37 | .. | 21 | 49.4 |
| 82d, Gordon....... | 4 | ... | 1 | 21 | .. | .. | 269 | 2 | .. | 2 | 33.0 |
| 83d, Sherman...... | 5 | ... | ... | 27 | .. | .. | 29 | 2 | 4 | 3 | 24.4 |
| 84th, Taylor....... | 27 | ... | ... | 21 | .. | .. | 77 | 3 | .. | 6 | 57.4 |
| 85th, Custer........ | 3 | ... | ... | 16 | .. | .. | 68 | 1 | .. | 2 | 23.6 |
| 86th, Grant......... | 6 | ... | ... | 12 | .. | .. | 9 | 1 | 1 | 2 | 21.5 |
| 87th, Pike........... | 6 | ... | ... | 22 | .. | .. | 514 | 8 | 76 | 30 | 68.6 |
| 88th, Dodge......... | 9 | ... | ... | 33 | .. | .. | 48 | 2 | .. | 4 | 50.4 |
| 89th, Funston...... | 11 | ... | ... | 9 | .. | .. | 269 | 3 | 1 | 13 | 78.0 |
| 90th, Travis........ | 80 | ... | ... | 100 | .. | .. | 220 | 4 | .. | 21 | 66.0 |
| 91st, Lewis......... | 7 | ... | 1 | 35 | .. | .. | ... | 5 | 3 | 4 | 50.2 |

7. ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

| | Regulars, U. S. Army, in U. S. only, 1916* | Regulars in U. S., Week Ending Dec. 21, 1917 | National Guard, All Camps, Week Ending Dec. 21, 1917 | National Army, All Camps, Week Ending Dec. 21, 1917 | American Expeditionary Forces, Week Ending Dec. 20, 1917 |
|---|---|---|---|---|---|
| Pneumonia | 2.59 | 13.9 | 45.7 | 25.6 | 43.7 |
| Dysentery | 3.97 | 0.2 | 0.2 | 0.0 | 0.7 |
| Malaria | 12.52 | 1.0 | 2.1 | 0.6 | 0.3 |
| Venereal | 91.23 | 88.6 | 46.0 | 66.9 | 94.9 |
| Paratyphoid | 0.31 | 0.0 | 0.0 | 0.0 | 0.0 |
| Typhoid | 0.21 | 0.0 | 0.0 | 0.0 | 0.0 |
| Measles | 20.28 | 52.6 | 115.9 | 207.8 | 34.9 |
| Meningitis | 0.29 | 0.4 | 2.9 | 8.3 | 5.5 |
| Scarlet fever | 0.59 | 2.9 | 3.9 | 10.6 | 18.4 |

* Enlisted men only, both white and colored.

## NEWS OF THE CANTONMENTS

### Thirty-First Division, Camp Wheeler, Macon, Ga.

Dec. 22, 1917.

Measles has about disappeared at last. No cases have been reported for three days. Mumps are the fashion now, with from fifty to seventy new cases a day. Pneumonia has decreased greatly, but is still with us.

Major Zinsser, M. R. C., who has been making a special study of pneumonia, is leaving for another camp. He will make a special report on the disease as he saw it here.——Major Ralph Greene has gone to Washington on a short leave.——Colonel Duncan will go home to Fort McPherson for Christmas, returning next day.——Major Staley of the Veterinary Corps is inspecting the camp and remount depot.

The tuberculosis board has completed its work, and may be expected to leave soon. About 500 men were discharged for tuberculosis. The board on cardiac and nervous diseases discharged almost as many more; this, after all recruits had been examined by local boards, and again at Camp Gordon or elsewhere. The number of men weak either physically or mentally that were caught in the draft net is astonishing. Many connot read or write. The limit was reached in two who, it is said, on reaching the base hospital did not know that they had surnames. When asked his name, one said "Bill." The next question was, "Bill what?" and he replied, "Just Bill."

BASE HOSPITAL NOTES

The installation of plumbing and sewerage is progressing rapidly, though the contractor said it will take two months to complete the job.——The twenty nurses who came to our relief when the hospital was overcrowded have been ordered to Fort McPherson for duty.

Major Cole has been attending the meeting of the Southern Surgical Association at Jacksonville, Fla., during the week, but is expected to return today.

The surgical section has two lectures each Sunday afternoon, as a part of the preparation for overseas service.

ONE HUNDRED AND SIXTH SANITARY TRAIN

Major George F. Keenan, our popular and efficient train commander, has today departed on ten days' leave to visit relatives in Boston. Major Job C. Patterson assumes command of the train, and Capt. Robert F. Ashworth, commanding Ambulance Company No. 121, is acting director of ambulance companies during Major Keenan's absence.

Lieutenant Mallon, Field Hospital No. 123, who was taken ill with pneumonia while in Atlanta, is reported doing fairly well.

### Eighty-Fifth Division, Camp Custer, Battle Creek, Mich.

Dec. 30, 1917.

The general health of the camp is above the average. Contagious diseases have fallen off markedly. The epidemic of measles seems to be well in hand. The report of the development of new cases shows relatively few in number. Fortunately, the outbreak of measles was particularly light and untoward sequelae were not encountered.

Prior to Christmas the Red Cross had furnished every man with a knitted helmet, sweater, scarf, wristlets and socks and a comfort kit. The expenditure for equipment of this sort has amounted to many thousands of dollars.

Although the weather is cold, the thermometer registering down around zero most of the time, work is being accomplished with the same spirit as formerly.

The commanding general has announced that the division first prepared will go to France first, and as a consequence the desire to be quickly prepared has resulted in a marked stimulation in the work. The number of hours of work has been increased by utilizing Saturday morning, the usual inspection morning, for hikes; 10 to 15 miles must be done. Sunday morning is set aside for the usual weekly inspection. Immediately after the holidays much more strenuous work will be done by every organization.

BASE HOSPITAL

Many of the medical officers have been away during the holidays visiting their homes. Every department of the hospital is now in excellent working order, and the men of this camp are receiving the best there is in scientific treatment.

There are relatively few venereal disease cases in the hospital and relatively few in camp. There may be an increase in venereal infection following the numerous leaves that have been granted. This remains to be seen. Our venereal report is much less than is usually expected.

THREE HUNDRED AND TENTH SANITARY TRAIN

The cold weather seems to have but little effect on the work in these organizations. Drills, hikes and general work as would be expected under actual combat conditions are carried out daily.

Two new officers have been assigned to Field Hospital No. 339—Lieuts. Clarence Lee and George Steeley. These officers were sent from Fort Riley.

NOTES

Major Vosburg, assistant to the division surgeon, is spending a few days' leave in New York.

Major Edward, sanitary inspector, spent his Christmas leave at his home in Pittsburgh.

Major E. C. Jackson, director of ambulance companies, visited friends in Grand Rapids, Mich., and went goose hunting. From the description the major gave on his return, it consisted mostly in hunting, as the geese had hidden themselves very completely. The only game spotted was one poor, half-starved rabbit. The major had buck-fever so badly that the rabbit escaped only the worse for his fright.

Lieut. J. R. Longley, commanding officer of Field Hospital No. 337, was the only officer in camp who received any season's greetings from the medical societies of which they are members. Lieutenant Longley received a substantial check together with one for his wife from the physicians of Fond du Lac, Wis.

It certainly would be an excellent proposition if the various medical societies of the country would keep in touch with their members and at least show some interest in men who have given up so much to do their "bit" for their country.

Major Lewis Wine Bremerman, director of field hospitals, spent December 21 in Flint, Mich., as the guest of the Genesse County Medical Society. He addressed the society on "What the Medical Man Owes His Country." This society is known as the singing society of Michigan, as all of their meetings are preceeded and closed by the singing of patriotic airs by the entire membership. Whether it is this fact or something else, there seems to be great interest shown by the membership, and they turn out in large numbers.

### Eighty-Seventh Division, Camp Pike, Little Rock, Ark.

Dec. 27, 1917.

Christmas at Camp Pike did not dawn "cold and clear," according to the story books. It began to rain on Christmas eve, and was still raining in the morning when the medical officer turned over in his cot at the sound of reveille, and wondered what the children were doing back home about that time. A great deal had been done to make Christmas a pleasant day for the enlisted man in the Army. This scheme did not include the officers, who are in many instances many times more isolated, lonesome and homesick than are the men.

The division surgeon ruled that all but two of the commissioned personnel from each unit might go home for Christmas. This resulted in a large exodus of officers. Among those who took this holiday leave were Captains Carstophen of North Carolina and Slack of Mississippi, and Lieutenants Mason and Summerville of Alabama, Ingram of Tennessee, McLean of North Carolina, Thorpe of Illinois, Yeagle of Missouri and Whittle of Florida.

A convalescent camp has been opened in the Three Hundred and Twelfth Sanitary Train, with a personnel picked from all four field hospital companies. The object of the camp is to take care of the overflow from the base hospital, principally those recovering from measles. One hundred and twenty-seven patients were admitted the first day, with a possibility of over 400 within a few days. Within forty-eight hours of the opening of the camp, four cases of pneumonia had developed, and the patients had to be returned to the base hospital. Each patient is to be kept under observation ten days before being allowed to be returned to his original organization. It is the intention of the division surgeon at an early date to open a field hospital in the sanitary train that will take over the work of the convalescent camp. Field Hospital Company No. 345 is to have this work, which will give an opportunity to study a field hospital in actual operation.

The lyceum for medical officers was concluded last week with two lectures. The first was by Lieut.-Col. Kyle Rucker, judge-advocate general of the Eighty-Seventh Division. Colonel Rucker's lecture was very practical, and emphasized the necessity for medical officers to familiarize themselves with the basic points of military law and to discipline promptly for offenses under it. The last lecture in this course was by Col. N. W. Williams, commander of trains in the Eighty-Seventh Division, of which the Three Hundred and Twelfth Sanitary Train will form a part. Colonel Williams said that one reason he delivered the lecture was to give the officers of the train an opportunity to become acquainted with their future "boss." He urged the necessity of concerted action in the management of trains, and said that trains in general were one of the trouble makers in compaigns. One of the prime requisites in a good train commander, he said, was a "large vocabulary."

Lieut. W. S. Howard of Ambulance Company No. 346 recently received word from the Surgeon-General that he had passed successfully the examination for a commission in the Regular Army Medical Corps.

Lieut. T. R. Ayers of St. Louis, battalion surgeon in the Three Hundred and Thirty-Fifth Field Artillery, recently received his promotion to captain.

Capt. Nolan Stewart of Mississippi, commanding Ambulance Company No. 345, has been made acting director of the ambulance companies, Three Hundred and Twelfth Sanitary Train.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Takoma Park, D. C.,* Walter Reed General Hospital, for duty, Lieut. EDGAR A. BOCOCK.

*To Washington, D. C.,* for instruction in connection with the establishment of a hospital, Col. FRANK R. KEEFER.

*To Camp McClellan,* Anniston, Ala., for temporary duty, Major CONDON C. McCORNACK.

*To Camp Kearny,* Linda Vista, Calif., for duty, Lieut. ROBERT P. WILLIAMS.

*To Pontiac, Mich., Watertown, N. Y., Washington, D. C., Chicago, Ill.,* to inspect the production and equipment of motor ambulances, and on completion *to his proper station,* Major JOHN P. FLETCHER.

*To Philadelphia, Pa.,* Philadelphia General Hospital, for intensive training in his specialty, Lieut. WILLIAM L. STARNES

*To Camp Cody,* Deming, N. M., *Camp Kearny,* Linda Vista, Calif., to make special sanitary inspections, and on completion *to his proper station,* Col. WILLIAM F. LEWIS.

*To Fort McPherson, Ga.,* for duty, for ten days, and on completion *to Camp Gordon,* Atlanta, Ga., for temporary duty in the base hospital for ten days, and on completion *to his proper station,* Lieut. JOSEPH M. GREER.

*To Highland Park, Ill.,* to inspect properties offered as sites for hospitals, and on completion to his proper station, Major JOHN R. McKNIGHT.

*To Excelsior Springs, Mo.,* to inspect properties offered as sites for hospitals, and on completion *to his proper station,* Major FRANK N. CHILTON.

*To Milwaukee, Wis.,* for temporary duty, Lieut. THOMAS L. GORE.

*To Wernersville, Pa.,* to inspect a sanatorium in regard to its adaptability for military purposes, and on completion *to Camp Dix,* Wrightstown, N. J., and *Camp Upton, L. I., N. Y.,* to make inspection, and on completion *to his proper station,* Col. FREDERICK P. REYNOLDS.

*To Washington, D. C.,* for duty, Lieut. SHANNON L. VAN VALZAH.

*To Camp Fremont,* Palo Alto, Calif., for duty, Major GEORGE R. CALLENDER.

*To Philadelphia, Pa.,* for instruction, and on completion *to his proper station,* Lieuts. FRED L. EYESTONE, MATHEW C. HUNTER, HENRY B. SMITH, WALTER C. TILDEN.

*To Pittsburgh, Pa.,* for instruction, and on completion *to his proper station,* Capts. CHARLES B. GUTELIUS, GEORGE D. HAYWORTH, Lieuts. RICHARD T. ARNEST, JOSEPH R. BLOOMER, DON P. CLAYPOOL, HAROLD B. DISBROW, CHARLES R. EDWARDS, NORRIS W. GILLETTE, J. WARREN KNOPP, DUKE LEE, CHARLES S. LEHNER, LECKY H. RUSSELL.

*To Chicago, Ill.,* for instruction, and on completion *to his proper station,* Lieuts. HENRY N. BLACKBURN, R. T. COOKSEY, AMOS V. COOPER, A. A. MITTEN, CHARLES PATTERSON, ORLANDO W. PICKARD.

*To New Orleans, La.,* for instruction, and on completion *to his proper station,* Majors WILLIAM F. LORENZ, CLARENCE E. YOUNT, Capt. W. W. JOHNSTON, Lieuts. ROBERT H. BRYANT, DAVID ADIGER, WILLIAM G. LIEFERT, L. A. WOODLOCK.

*To New York City,* for instruction, and on completion *to his proper station,* Capt. CHARLES C. SMITH, Lieuts. HOWARD E. BOUCHER, CHARLES S. DRYER, CLAUDE D. GREEN, ALBRO L. PARSONS, JOHN S. CONROY, LEWIS P. JONES, ROBERT H. NOELL, HERMAN C. RUSSELL, FRANK STEINKE, GEORGE R. CLAYTON, CHARLES J. HUFNAGEL, CLARENCE C. NESBITT, WILLIAM E. TRUAX.

*To report in person to the Surgeon-General of the Army* for duty in his office, Major HENRY J. NICHOLS.

*To Camp Sevier,* Greenville, S. C., *Camp Beauregard,* Alexandria, La., *Camp Bowie,* Fort Worth, Tex., *Camp Pike,* Little Rock, Ark., *Camp Funston,* Fort Riley, Kan., *Camp Doniphan,* Fort Sill, Okla., to inspect, and on completion *to his proper station,* Col. DEANE C. HOWARD.

Leave of absence for five days, effective Dec. 16, 1917, Lieut. CLARENCE P. BAXTER.

*To Chanute Field,* Rautoul, Ill., *Excelsior Springs, Mo.,* and *Highland Park, Ill.,* to inspect properties offered as sites for hospitals, and on completion will comply with further instruction, Col. WESTON P. CHAMBERLAIN.

## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Belleville, Ill.,* Signal Corps, Aviation School, Scott Field, for assignment to squadrons, from Fort Riley, Lieut. ALEXANDER W. GRAVES, Ashland.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. MODIE E. CUNNINGHAM, Birmingham.

*To Camp Hancock,* Augusta, Ga., base hospital, from Evans Dental Institute, Philadelphia, Capt. MACK ROGERS, Birmingham.

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieuts. EDWARD D. McADORY, Cullman; ZADOC L. WEATHERFORD, Red Bay.

*To Camp Wadsworth,* Spartanburg, S. C., base hospital, from Fort Oglethorpe, Lieut. LEMUEL B. NICHOLSON, Gadsden.

*To Fort Riley,* for instruction, from Chicago, Capt. ROBERT D. BROWN, Mobile.

*To New York City,* for instruction, and on completion to his proper station, from Camp Gordon, Lieut. ARTICE B. CULBERSON, Birmingham.

### Arizona

*To Camp Sherman,* Chillicothe, Ohio, base hospital, from New York City, Capt. CHARLES T. STURGEON, Globe.

*To Fort Riley,* for instruction, from Los Angeles, Lieut. FRANCIS F. MALONE, Phoenix.

*To South San Antonio,* Kelly Field, for duty, Capt. GRANT S. MONICAL, Phoenix.

### Arkansas

*To Camp Fremont,* Palo Alto, Calif., for duty, from Fort Oglethorpe, Lieut. LOREN WALLIN, Pine Bluff.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for temporary duty, from Fort Oglethorpe, Lieut. JOHN E. BURNS, Black Rock.

*To Camp Pike,* Little Rock, Ark., base hospital, Lieut. ROBERT B. MOORE, Little Rock.

*To New York City,* for instruction, and on completion to his proper station, from Camp Gordon, Lieut. ARCH S. CHAPMAN, Mammouth Springs.

*To San Antonio, Texas,* Aviation Section, Signal Corps, Kelly Field, for duty, Lieut. ROBERT C. MEADERS, Marvell.

### California

*To Camp Belvoir,* Belvoir, Va., for duty, from Fort Leavenworth, Capt. JAMES M. FISHER, Gilroy.

*To Camp Lewis,* American Lake, Wash., base hospital, from Los Angeles, Capt. WILLIAM H. ROBERTS, Pasadena; from Presidio, San Francisco, Lieut. CHARLES E. SCHOFF, Davis.

*To Chicago, Ill.,* for instruction, and on completion to his proper station, from Camp Dodge, Capt. HARRY X. CLINE, Burbank.

*To Fort Oglethorpe,* for instruction, from Philadelphia, Lieut. ROBERT P. STURR, San Francisco.

*To Fort Riley,* for instruction, from Los Angeles, Lieuts. WALLACE A. REED, Covina; KARL M. BONNOFF, RAY A. CARTER, JAMES P. GILLIS, JAMES L. MILLER, Jr., PAUL B. ROEN, Los Angeles; JOHN P. BYRNES, Oakland; BENJAMIN E. MERRILL, Santa Paula.

*To Fort Sam Houston, Texas,* for duty, from San Francisco, Capt. JAMES G. CUMMING, Berkeley.

*To New Orleans, La.,* for instruction, and on completion to his proper station, from Camp Kearny, Lieut. JOHN H. FRANKLIN, Guadalupe.

*To New York City,* for duty, from Fort McDowell, Capt. MARK A. WILLIAMSON, Lone Pine; for duty in connection with the course of military roentgenology at Cornell Medical College, from Los Angeles, Capt. WILLIAM B. BOWMANN, Los Angeles.

*To Presidio of San Francisco*, Calif., for orthopedic duty, from Presidio of San Francisco, Capt. MAYNARD C. HARDING, San Diego.

*To San Antonio*, Aviation Section, Signal Corps, Kelly Field, for duty, Lieut. FRANK A. LOWE, Blythe.

*To San Francisco, Calif.*, for temporary duty, Lieut. FRANK J. DINGEMAN, San Diego.

## Canal Zone

*To United States* and his home and honorably discharged, Lieut. FORREST M. EVANS, Balboa.

## Colorado

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Dodge, Lieut. LAWRENCE C. COOK, Ouray.

*To South San Antonio, Texas*, for duty, Major FRANCIS H. McKAUGHT, Silver Plane.

*To Washington, D. C.*, and on completion *to Camp Travis*, Fort Sam Houston, Texas, for examination of command for tuberculosis, Capt. ALEXIUS M. FORSTER, Colorado Springs.

## Connecticut

*To Boston, Mass.*, for instruction, and on completion to Fort Oglethorpe for instruction, Capt. ROBERT D. ROLLER, Jr., Bridgeport.

*To Camp Sevier*, Greenville, S. C., base hospital, from Evans Dental Institute, Philadelphia, Lieut. WATERMAN LYON, New Britain.

*To Fort Oglethorpe*, for instruction, Lieut. JAMES F. MacNISH, New Haven.

*To Lakewood, N. J.*, base hospital, from Camp Upton, Capt. JOHN A. MURPHY, New Haven.

## Delaware

*To New York City*, for instruction, and on completion to his proper station, from Camp Lee, Lieut. JOSEPH M. BARSKY, Wilmington.

## District of Columbia

*To Camp McClellan*, Anniston, Ala., for duty, from Fort Oglethorpe, Capt. EDGAR D. THOMPSON, Washington.

*To Camp Meade*, Admiral, Md., for duty, from Camp McClellan, Capt. EDGAR D. THOMPSON, Washington; from Fort McPherson, Lieut. JOHN CHESTER BRADY, Washington.

*To Lancaster, Pa.*, for temporary duty in connection with Aviation, and on completion to his proper station, from Washington, D. C., Major EDWARD G. SEIBERT, Washington.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. WILLIAM H. NORTON, Washington.

## Florida

*To Aberdeen, Md.*, for duty, from Fort Oglethorpe, Lieut. HENRY P. BEVIS, Arcadia.

*To Boston, Mass.*, for instruction, and on completion to his proper station, from Camp Dix, Lieut. HAROLD M. BEARDALL, Orlando.

*To Camp Devens*, Ayer, Mass., Base Hospital No. 38, from Boston, Lieut. LAURENT L. LAROCHE, Cocoa.

*To Camp Gordon*, Atlanta, Ga., Aviation Section, Signal Corps, for temporary duty, from Camp Gordon, Capt. ALBERT H. FREEMAN, Starke.

*To Camp McClellan*, Anniston, Ala., for duty, from Fort Oglethorpe, Capt. WILLIAM B. MOON, Lakeland.

*To Camp Travis*, Fort Sam Houston, Texas, base hospital, Lieut. THOMAS J. BUSSEY, Pensacola.

*To Fort Oglethorpe*, for instruction, Lieut. JOSEPH P. SCHELL, Chipley; from Philadelphia, Lieut. HARRY B. McEUEN, Quincy.

## Georgia

*To Camp Hancock*, Augusta, Ga., base hospital, from Washington University, St. Louis, Capt. JAMES W. ROBERTS, Jr., Atlanta.

*To Camp McClellan*, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. GORDON S. SUMNER, Poulan.

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Pike, Lieut. BURTON P. BRADLEY, Folsom.

*To New York City*, for instruction, and on completion to his proper station, from Camp Sevier, Lieut. NORTHEN O. TRIBBLE, Atlanta; from Camp Gordon, Lieuts. EDWIN W. ALLEN, Milledgeville; LOWNDES W. SHAW, Savannah.

*To Philadelphia, Pa.*, for instruction, and on completion to his proper station, from Camp Gordon, Lieut. JAMES F. PITMAN, Decatur.

## Hawaii

*To Fort Riley*, for duty, from Camp Kearny, Major JOHN B. LUDY, Honolulu.

## Illinois

*To Belleville, Ill.*, Signal Corps, Aviation School, Scott Field, for assignment to squadrons, from Fort Oglethorpe, Lieut. JOHN W. DUNN, Dietrich.

*To Boston, Mass.*, for instruction, and on completion to his proper station, from Camp Devens, Lieuts. FRANK E. BROWNING, Chicago; from Camp Dix, HORATIO P. FREEMAN, Chicago; Harvard Medical School, for instruction, Lieut. GEORGE I. RIVARD, Jr., Chicago.

*To Camp Grant*, Rockford, Ill., base hospital, Lieut. CHARLES E. WEST, Decatur.

*To Camp Greene*, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. LUCIEN N. LINDSEY, Forsyth.

*To Camp Lewis*, American Lake, Wash., for duty, Lieut. WILLIAM H. STUTSMAN, Chicago.

*To Camp Logan*, Houston, Texas, for duty, Lieuts. MELBOURNE MABEE, Chicago; GROVER C. BILLINGTON, Nokomis.

*To Camp MacArthur*, Waco, Texas, for duty, from Camp MacArthur Lieut. WILLIAM H. HOLMES, Chicago.

*To Camp Sevier*, Greenville, S. C., for duty, Capt. ARTHUR F. STOTTS, Galesburg; Lieut. ALFRED A. WILLANDER, Rockford.

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Pike, Lieut. JOHN W. THORPE, Chicago.

*To Cleveland, Ohio*, for instruction, and on completion to his proper station, from Camp Custer, Lieut. EDGAR A. SMITH, Chicago.

*To Fort Oglethorpe*, for instruction, from Chicago, Major JOHN A HORNSBY, Chicago; Lieuts. THOMAS D. CANTRELL, Bloomington; EDWARD W. WAHL, Sterling; LEO M. CZAJA, Chicago.

*To Fort Riley*, for instruction, Capt. OSCAR A. HANSON, Chicago; Capt. DANIEL W. YOUNG, Paris; Lieuts. ARTHUR E. ROGERS, Bloomington; HARRY C. KARIHER, Champaign; NORMAN COPELAND, MICHAEL V. GUTHRIE, EDWARD W. JOHANNES, CHARLES E. PETERS, CHESTER M. PETERS, HAROLD SWANBERG, Chicago; AUSBY L. LOWE, Robinson; from duty as a private, at Camp Dodge, Lieut. WYNN F. HAIG, Le Roy.

*To New York City*, for duty in connection with the course of military roentgenology at Cornell Medical College, from Chicago, Capt. EDWARD S. BLAINE, Chicago.

*To Philadelphia, Pa.*, for duty, and on completion to his proper station, Major HARRY E. MOCK, Chicago; for duty as instructor, from Philadelphia, Lieut. MANDEL A. I. COHEN, Chicago.

*To Rockefeller Institute, N. Y.*, for instruction, and on completion to Fort McHenry, Md., for temporary duty, from Fort McHenry, Lieut. ROBERT S. SALK, Chicago.

*To San Antonio*, Aviation Section, Signal Corps, Kelly Field, for duty, Lieut. CHARLES P. CHAFFIN, Chicago.

*To Washington, D. C.*, for duty in the Surgeon-General's office, Major ALBERT J. OCHSNER, Chicago; for duty, from Camp Sherman, Major CASEY A. WOOD, Chicago.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. ELIOT C. DU MARS, Peoria.

## Indiana

*To Camp Fremont*, Palo Alto, Calif., for duty, from Fort Oglethorpe, Major FRANK F. HUTCHINS, Indianapolis.

*To Camp Funston*, Fort Riley, Kan., base hospital, from St. Louis, Lieut. FRED G. EBERHARD, South Whitley.

*To Camp McClellan*, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. GROVER A. SMITH, Bryant.

*To Cleveland, Ohio*, for instruction, and on completion to his proper station, from Camp Sherman, Capt. RUFUS J. DANNER, West Terre Haute.

*To Fort Clarke, Texas*, Sanitary Train, Third Division, from Fort Oglethorpe, Lieut. RAYMOND A. BUTLER, Beech Grove.

*To Fort McPherson, Ga.*, Hospital Unit "L," Capt. JAMES McC. STODDARD, Anderson.

*To Fort Oglethorpe*, Sanitary Train, Third Division, from Fort Oglethorpe, Lieut. RAYMOND A. BUTLER, Beach Grove.

*To Fort Riley*, for instruction, from Chicago, Lieuts. BYRLE R. KIRKLIN, Muncie; ROBERT W. REID, Union City.

*To Hoboken, N. J.*, for duty, from Fort Benjamin Harrison, Lieut. SCOTT R. EDWARDS, Indianapolis.

*To Pittsburg, Pa.*, for instruction, and on completion to his proper station, from Camp Sherman, Capt. MALCOLM B. FYFE, Wheatfield.

## Iowa

*To Aberdeen, Md.*, for duty, from Fort Oglethorpe, Lieut. Milton J. Freeman, Carroll.

*To Boston, Mass.*, for instruction, and on completion to his proper station, from Camp Upton, Lieut. LEO A. GOODMAN, Dubuque.

*To Camp Greene*, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. GEORGE W. FRANK, Sunbury.

*To Camp MacArthur*, Waco, Texas, for duty, Capt. BEN S. WALKER, Corydon.

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Dodge, Capt. FRANCIS J. SAVAGE, Des Moines

*To Fort Oglethorpe*, Evacuation Hospital No. 7, from Fort Riley, Lieut. JOHN A. MATSON, Purdy.

*To Fort Riley*, for instruction, from Chicago, Lieuts. MILTON A. GIVEN, Des Moines; JUDD C. SHELLITO, Independence; for duty, from Fort Riley, Lieut. FREDERICK H. LAMB, Davenport; for instruction, from Kansas City, Lieut. JOHN R. CHRISTENSEN, Eagle Grove

*To his home* and honorably discharged on account of being physically disqualified for active service, Capt. GEORGE M. JOHNSON, Marshalltown.

## Kansas

*To Aberdeen, Md.*, for duty, from Fort Oglethorpe, Lieut. FELIX COHEN, Kansas City.

*To Camp Fremont*, Palo Alto, Calif., for duty, from Fort Riley, Major JOHN W. TURNER, Fort Riley.

*To Camp Pike*, Little Rock, Ark., base hospital, from Washington University, St. Louis, Lieut. CLARENCE C. HARVEY, Emporia.

*To Camp Taylor*, Louisville, Ky., base hospital, from Kansas City, Lieuts. JAMES A. H. WEBB, Stafford; GEORGE I. THACHER, Waterville.

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Pike, Capt. CHARLES H. LERRIGO, Topeka.

*To Fort Riley*, for instruction, Capt. ROBERT M. BENNETT, Mound Valley; from Chicago, Lieut. HARRY L. GOSS, Horton; from Kansas

City, Lieuts. FRANCIS J. MOFFATT, Clyde; LEWIS G. ALLEN, Lenexa; JAMES MILTON MOORE, Madison; ARTHUR K. OWEN, Topeka.

*To New Orleans, La.,* for instruction, and on completion to his proper station from Camp Travis, Lieut. RICHARD C. YOUNG, Arkansas City.

*To Philadelphia, Pa.,* for instruction, and on completion to his proper station, from Camp Lee, Lieut. JOHN H. COOPER, Topeka.

*To San Antonio, Texas.* Aviation Section, Signal Corps, Kelly Field, Lieut. CHARLES CHAPIN, McCune.

### Kentucky

*To Boston, Mass.,* Harvard Medical School, for instruction in orthopedic surgery, from Camp Meade, Lieut. MICHAEL P. LINK, Louisville.

*To Camp Bowie,* Fort Worth, Texas, base hospital, from Fort Oglethorpe, Lieut. ROBERT T. PIRTLE, Louisville.

*To Camp Gordon,* Atlanta, Ga., to examine the command for tuberculosis; from Camp Jackson, Capt. HORACE LUTEN, Fulton.

*To Camp MacArthur,* Waco, Texas, for duty, Lieut. WILLIAM A. CALLIS, Louisville.

*To Camp Sevier,* Greenville, S. C., for duty, Lieut. JAMES M. STAUGHTON, Covington.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. JOHN D. GRANT, Maysville.

*To Fort Oglethorpe,* for instruction, from Camp Taylor, Major WALLER O. BULLOCK, Lexington; from Boston, Lieut. OTTO P. HODGE, Grants Luck.

*To New Orleans,* La., for instruction, and on completion to his proper station, from Camp Beauregard, Lieut. WILLIAM A. KRIEGER, Newport.

*To New York City,* for instruction, and on completion to his proper station, from Camp Lee, Lieut. LAWRENCE F. BOLAND, Stone.

*To Philadelphia, Pa.,* for instruction, and on completion to his proper station, from Camp Wheeler, Lieut. SEPTIMUS T. TAYLOR, Central City.

*To his home* and honorably discharged, Lieut. WADE H. JEFFERSON, Cadiz.

### Louisiana

*To Camp Beauregard,* Alexandria, La., for duty in base hospital, from Camp Sevier, Lieut. WILLIAM H. HAMLEY, Lake Providence.

*To Camp Sheridan,* Montgomery, Ala., to examine the command to eliminate the mentally unfit, from Camp Sheridan, Major ROY McL. VAN WART, New Orleans.

*To Chicago, Ill.,* for instruction, and on completion to his proper station, from Camp Dodge, Lieut. ROYAL C. DANLEY, Hamburg.

*To New Orleans, Camp Beauregard, La., Camp Bowie,* Fort Worth, Texas, *Camp Pike,* Little Rock, Ark., Major ISADORE DYER, New Orleans.

*To New York City,* for instruction, and on completion to his proper station, from Camp Sevier, Lieut. GUY A. BROOKS, New Orleans.

*To San Antonio, Texas,* Aviation Section, Signal Corps, Kelly Field, for duty, Lieuts. ENOCH S. FULTON, New Iberia; HOUSTON C. CHAMBERS, New Orleans; HARRY W. SCOFIELD, Shreveport.

### Maryland

*To Fort Barrancas, Fla.,* for duty, from Camp Wheeler, Lieut. RICHARD E. YELLOTT, Fallston.

### Maine

*To Boston, Mass.,* for instruction, and on completion to his proper station, from Camp Sevier, Lieut. PHILIP P. THOMPSON, Portland.

*To Fort Oglethorpe,* for instruction, from Boston, Lieut. HERBERT W. HALL, Hallowell.

### Massachusetts

*To Boston, Mass.,* for instruction, and on completion to his proper station, from Camp Devens, Capt. NATHANIEL POPE BREED, Lynn; Lieuts. HARRY J. TATE, Pittsfield; MELVIN H. WALKER, Westboro; for instruction in orthopedic surgery, Lieut. PATRICK H. O'CONNOR, New Bedford.

*To Camp Wadsworth,* Spartanburg, S. C., base hospital, Lieut. FRANK A. MILLETT, Greenfield.

*To Chicago, Ill.,* for instruction, and on completion to his proper station, from Camp Pike, Lieut. WALTER A. JILLSON, Westboro.

To Fort Oglethorpe, for instruction, Capts. JOSEPH SEGAL, Boston; FORREST F. PIKE, Melrose; Capt. JOHN H. LINDSAY, Fall River; Lieuts. ELPHEGE A. BEAUDET, ROY S. PERKINS, Lowell; CHARLES L. M. JUDKINS, Lynn; FRANK W. WHEATLEY, North Abington; BENJAMIN F. JANES, North Cambridge; JOHN W. LEDBURY, Uxbridge.

*To Fort Riley,* for duty as instructor, from Boston, Major ARIAL W. GEORGE, Boston.

*To Pittsburgh, Pa.,* for instruction, and on completion to his proper station, from Camp Taylor, Capts. RALPH W. DENNEN, Waltham; WILLIAM E. DENNING, Worcester.

### Michigan

*To Boston, Mass.,* for instruction, and on completion to his proper station, from Camp Devens, Capt. JULIUS H. POWERS, Iodia.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. MARTIN W. CAVENEY, Highland Park.

*To Chicago, Ill.,* for instruction, and on completion to his proper station, from Camp Custer, Lieuts. CLAUD B. RAY, Detroit; FREDERICK J. BURT, Goodrich; HOWARD B. KINYON, Trenton; from Camp Dodge; Lieut. MAHLON R. SUTTON, Adrian.

*To Cleveland, Ohio,* for instruction, and on completion to his proper station, from Camp Custer, Lieuts. RALPH A. NORRIS, Detroit; HERBERT W. LANDON, Monroe; from Camp Sherman, Lieut. LEWIS N. TUPPER, Redford.

*To Fort Oglethorpe,* for instruction, Lieut. VERSILE M. GATES, Central Lake.

*To Fort Riley,* for instruction, from Chicago, Lieut. JOHN D. STEWART, Hartford.

*To New York City,* for instruction, and on completion to his proper station, from Camp Taylor, Capt. FLOYD A. ROBERTS, Flint; from Camp Sevier, Lieut. WILLARD F. VAUGHAN, Plainwell.

*To Pittsburgh, Pa.,* for instruction, and on completion to his proper station, from Camp Sherman, Lieut. JOE DEPREE, Zeeland.

*To South San Antonio,* Kelly Field, for duty, Capt. MYRON S. GREGORY, Eureka.

### Minnesota

*To Camp Kearny,* Linda Vista, Calif., base hospital, Capt. HUGH S. WILLSON, Minneapolis.

*To Chicago, Ill.,* for instruction, and on completion to his proper station, from Camp Dodge, Lieut. WILLIAM P. O'MALLEY, St. Paul; from Camp Grant, Lieut. HARRY M. LOWELL, Rochester.

*To Fort Oglethorpe,* for instruction, from Boston, Lieut. RICHMOND FAVOUR, Jr., Red Lake.

*To Fort Riley,* for instruction, Lieut. PAUL S. EPPERSON, Crosby.

*To Gerstner Field,* Lake Charles, La., for duty, from New York City, Lieut. ALBERT D. CORNIEA, St. Paul.

*To New Orleans, La.,* for instruction, and on completion to his proper station, from Camp Travis, Capt. WILLIAM H. HENGSTLER, Osakis.

*To Park Field,* Memphis, Tenn., for duty, from New York City, Lieut. ALBERT J. WENTWORTH, Mankato.

*To South San Antonio,* Texas, Kelly Field, for duty, Lieut. LEO L. ELLIOTT, Redlake.

### Mississippi

*To Boston, Mass.,* for instruction, and on completion to his proper station, from Camp Dix, Lieut. CARLOS R. McKEE, Wesson.

### Missouri

*To Camp Devens,* Ayer, Mass., base hospital, from Kansas City, Lieut. PAUL V. ANNADOWN, Kansas City.

*To Camp Fremont,* Palo Alto, Calif., for duty, from Fort Oglethorpe, Capt. OSCAR F. BAERENS, St. Louis.

*To Camp MacArthur,* Waco, Texas, for duty, Lieut. ADOLPH M. WOOD, Lentner.

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. ABRAM E. PLATTER, Memphis.

*To Chicago, Ill.,* for duty, and on completion to his proper station, from Washington, D. C., Major H. GABRIEL SEALIG, St. Louis.

*To Fort Riley,* base hospital, from Fort Riley, Lieut. WELCOME B. TILTON, Grant City; for instruction, Lieuts. CLARENCE P. HARRIS, Daisy Cape; URAL A. V. PRESNELL, Mennett; SCHUYLER C. HARBOUR, St. Louis; from Kansas City, Lieuts. REX L. DIVELY, FRANK McCLUNY POSTLETHWAITE, JOHN T. SWANSON, Kansas City; from Camp Grant, Lieut. E. STANTON STOFER, Kansas City.

*To New Orleans, La.,* for instruction, and on completion to his proper station, from Camp Travis, Lieut. FRANK N. GORDON, St. Louis.

*To New York City,* for duty in connection with the course of military roentgenology at Cornell Medical College, from Kansas City, Capt. EDWARD H. SKINNER, Kansas City; for instruction, and on completion to Fort Oglethorpe, for duty with an evacuation hospital, from Camp Sevier, Capt. DOUGLAS HAGGARD, Navada; from Camp Gordon, Lieut. LOUIS J. BIRSNER, Ste. Genevieve.

*To Waco, Texas,* Aviation Field, for duty, Lieut. DAILEY APPLEBARRY, Iron Mountain.

Honorably discharged on account of being physically disqualified for active service, Lieut. ROBERT E. HOGAN, West Plains.

### Nebraska

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, FRANK J. STODDEN, Omaha.

*To Cleveland, Ohio,* for instruction, and on completion to his proper station, from Camp Taylor, Lieut. LYNN T. HALL, Omaha.

*To Fort Riley,* for instruction, Lieut. WILLIAM EDMONDS, Nebraska City; from Chicago, Lieuts. OSCAR E. COLEMAN, Ainsworth; HANS C. PEDERSEN, Dannebrog; from Kansas City, Lieut. JOSEPH ANTONY, Omaha.

*To New Orleans, La.,* for instruction, and on completion to his proper station, from Camp Beauregard, Lieuts. UEN S. HARRISON, Neligh; from Camp Travis, LEO D. HARMAN, Table Rock.

*To Rockefeller Institute, N. Y.,* for instruction, and on completion *to Fort McHenry, Md.,* for temporary duty, from Fort Oglethorpe, Lieut. GROVER C. RICE, Bayard.

### Nevada

*To Camp MacArthur,* Waco, Texas, for duty, Lieut. DAVID R. BEDINGER, East Ely.

### New Hampshire

*To Fort Oglethorpe,* for instruction, from Boston, ERNEST W. LOWE, Fremont.

### New Jersey

*To Boston, Mass.,* for instruction, and on completion to his proper station, from Camp Dix, Lieut. JACOB BLUMBERG, Jersey City; from Camp Upton, Lieuts. FRANK BORTONE, Jersey City; ORVILLE R. HAGEN, Paterson.

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieuts. MARTIN W. CURRAN, Chatsworth; HENRY B. DORR, Ocean Grove.

*To Camp Wheeler,* Macon, Ga., for duty, from Camp Wheeler, PHILIP DuB. BUNTING, Elizabeth.

*To Chicago, Ill.,* for instruction, and on completion to his proper station, from Camp Pike, Capt. THOMAS S. McCABE, Newark.

*To Fort Oglethorpe,* for instruction, Lieut. HERMAN TRAEGER, Atlantic City; from Newport News, Va., Lieut. WILLIAM L. CORNWELL, Bridgeton; from Philadelphia, Lieuts. LESLIE H. EWING, Berlin; ALEXANDER C. MOON, Camden; CHARLES B. KAIGHN, Stratford.

*To Langley Field,* Hampton, Va., for duty, from New York City, Lieut. HUGH S. CHIDESTER, Hoboken.

*To Neurological Institute, N. Y.,* for intensive training, from Camp Mills, Lieut. NICHOLSON W. PINTO, Hoboken.

*To New York City,* for instruction, and on completion to his proper station, from Camp Jackson, Lieut. FLOYD C. SHUGART, Orange.

*To Philadelphia, Pa.,* for instruction in orthopedic surgery, Capt. FREDERICK W. MARCY, Camden; University of Pennsylvania, for instruction, from Evans Dental Institute, Lieut. THOMAS A. CLAY, Paterson.

*To San Antonio,* Aviation Section, Signal Corps, Kelly Field, for duty, Lieut. EDMUND EASTWOOD, High Bridge.

*To Selfridge Field,* Mount Clements, Mich., for duty, from New York City, Lieut. IRVING S. INGBER, Secaucus.

### New Mexico

*To South San Antonio, Texas,* Kelly Field, for duty, Lieut. JESSE G. HOLMES, Alamegorodo.

### New York

*To Army Medical School,* Washington, D. C., for duty, Lieut. WILLIAM J. CARROLL, Brooklyn.

*To Aviation Camp,* Houston, Texas, for duty, from New York City, Lieut. ALBERT VALENSI, New York City.

*To Brooklyn, N. Y.,* for duty, Major HENRY M. MOSES, Brooklyn; from Camp Dix, Major CHARLES D. NAPIER, Brooklyn.

*To Boston, Mass.,* for instruction, and on completion to his proper station, from Camp Devens, Capt. WILMARTH S. BUCK, Plattsburg; Lieuts. CHARLES A. SMITH, New Rochelle; BENJAMIN F. COLEGROVE, Van Ettena; from Camp Meade, Lieut. HOMAN R. MARVIN, Lyon Mt.; from Camp Upton, Lieut. WILLIAM A. MORGAN, New York City; Harvard Medical School, for instruction, Lieut. RAYMOND B. MORRIS, Olean.

*To Call Field,* Wichita Falls, Texas, for duty, from New York City, Lieut. BARNETT ARONSON, Brooklyn.

*To Camp Cody,* Deming, N. M., base hospital, from Ann-Arbor, Lieut. ABRAHAM M. RABINER, Albany.

*To Camp Fremont,* Palo Alto, Calif., for duty, from Fort Oglethorpe, Major FREDERICK W. LOUGHRAN, Lieut. PAUL E. McCHESNEY, New York City.

*To Camp Gordon,* Atlanta, Ga., to examine the command for tuberculosis from Camp Jackson, Lieut. EPHRAIM GOLDMAN, New York City.

*To Camp Grant,* Rockford, Ill., base hospital, Lieut. HENRY R. LESSER, New York City.

*To Camp Greene,* Charlotte, N. C., base hospital, from Camp Greene, Capt. DAYTON C. WIGGIN, Staten Island.

*To Camp Jackson,* Columbia, S. C., base hospital, from Evans Dental Institute, Philadelphia, Capt. HARRY B. HUVER, Williamsville; base hospital, Lieut. MAXWELL BOOXBAUM, New York City.

*To Camp Kelly,* San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. LAWRENCE D. CREMIN, Ossining.

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieuts. ALFRED H. VOGT, Buffalo; JOHNSTON MacLEOD, Flushing; FRED VOSBURGH, Standish.

*To Camp Sevier,* Greenville, S. C., base hospital, from New York City, Lieut. ISAAC REITZFIELD, New York City.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, from Concentration Camp, Lieut. ROBERT H. FOWLER, New York City.

*To Camp Sherman,* Chillicothe, Ohio, base hospital, from Camp Sherman, Capt. CLARKE S. GOULD, Walton.

*To Canal Zone,* for duty, from Fort Oglethorpe, Lieut. PERCIVAL D. BAILEY, Cleveland.

*To Chandler Field,* Essington, Pa., for duty, from New York City, Lieut. RUSSELL C. PARSON, Brooklyn.

*To Chanute Field,* Rantoul, Ill., for duty, from New York City, Lieut. LINN V. H. REED, New York City.

*To Chicago, Ill.,* for instruction, and on completion to his proper station, from Camp Grant, Capt. JAMES W. BEVERIDGE, New York City; Lieut. VICTOR G. BOURKE, Livingston Manor; from Camp Custer, Lieut. CARL V. TYNER, Newport.

*To Cleveland, Ohio,* for instruction, and on completion to his proper station, from Camp Custer, Capt. LEON M. KYSOR, Hornell.

*To Fort McPherson, Ga.,* Hospital Unit II, Lieut. JOHN CUNNING BRADY, Buffalo.

*To Fort Oglethorpe* for instruction, Lieuts. BERNATH WEISS, Brooklyn; MILTON A. BROEMSER, JOSEPH BROOWITZ, JESSE D. HAND, HERMAN B. PHILIPS and HENRY K. SCHNEIDER, New York City.

*To Love Field,* Dallas, Texas, for duty, from New York City, Lieut. MAX MENSCH, Brooklyn.

*To New Orleans, La.,* for instruction, and on completion to his proper station, from Camp Beauregard, Lieuts. ROBERT W. HELM, New York City; STANLEY S. INGALLS, Parish.

*To New York City,* Neurological Institute, for intensive training, from Camp Mills, Capts. GEORGE A. SHARP, Beacon; JOHN F. W. MEAGHER, Brooklyn; EDWIN G. ZABRISKIE, Lieuts. JOHN T. MacCURDY, WILLIAM M. SCRUGGS, New York City; Aviation Section, Signal Corps, for duty, Lieut. JOHN DUNNINGTON, New York City; for instruction, and on completion to his proper station, from Camp Meade, Lieut. CHARLES H. YOUNG, New York City.

*To Pittsburgh, Pa.,* for instruction, and on completion to his proper station, from Camp Sherman, Capt. CLINTON E. GOODWIN, Weedsport.

*To Rockefeller Institute* for instruction in the serum therapy of pneumonia, from duty as a private at Camp Upton, Lieut. HOWELL K. BABCOCK, Brooklyn.

*To Scott Field,* Belleville, Ill., for duty, from New York City, Lieut. WARREN P. KORTRIGHT, New York City.

*To Taliaferro Field,* Fort Worth, Texas, for duty, from New York City, Lieut. ALBERT G. COOK, Brooklyn.

*To Wilbur Wright Field,* Fairfield, Ohio, for duty, from New York City, Lieut. SAMUEL TRIPLER, New York City.

*To his home* and honorably discharged from the Medical Reserve Corps, Lieut. GEORGE H. SHAW, Camillus; Lieut. ARTHUR P. POWELSON, Walden.

### North Carolina

*To Boston, Mass.,* for instruction, and on completion to his proper station, from Camp Dix, Lieut. LEIGHTON W. HOVIS, Charlotte.

*To Camp Greene.* Charlotte, for duty, from Fort Oglethorpe, Lieut. THOMAS H. ROYSTER, Tarboro.

*To Camp Kelly,* San Antonio, Texas, for duty, from Fort Oglethorpe, Lieut. JOHN B. POWERS, Wake Forest; from Richmond, Lieut. ROBERT P. NOBLE, Raleigh.

*To Fort Clarke, Texas,* Sanitary Train, Third Division, from Fort Oglethorpe, Lieut. WILLIAM T. RUARK, Wilmington.

*To Fort Oglethorpe,* for instruction, Lieut. JAMES G. BRASWELL, Jr., Wilson; Sanitary Train, Third Division, from Fort Oglethorpe, Lieut. WILLIAM T. RUARK, Wilmington.

*To New York City,* for instruction, and on completion to his proper station, from Camp Sevier, Capt. RAYMOND POLLOCK, Newbern; from Camp Lee, Lieut. NEAL G. NICHOLSON, Powelton.

*To Philadelphia, Pa.,* for instruction, and on completion to his proper station, from Camp Jackson, Lieut. ALFRED MORDECAI, Raleigh.

*To Richmond, Va.,* base hospital, from Camp Meade, Lieut. JAMES M. COVINGTON, Jr., Wadesboro.

### North Dakota

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. HOWARD L. SAYLOR, Cogswell.

*To Fort Riley,* for instruction, from Kansas City, Lieut. LESLIE G. EASTMAN, Hazen.

*To New Orleans, La.,* for instruction, and on completion to his proper station, from Camp Travis, Capt. THOMAS J. STRONG, Williston.

### Ohio

*To Army Medical School,* Washington, D. C., for duty, from Camp Sevier, Capt. ELMER A. KLEIN, Norwood.

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. NEVILLE E. STEWART, Ashtabula.

*To Camp Sevier,* Greenville, S. C., for duty, Lieuts. GEORGE E. FLINN, Coolville; ROBERT W. SCHILLING, Toronto.

*To Chicago, Ill.,* for instruction, and on completion to his proper station, from Camp Grant, Lieut. FREDERICK S. COOPER, Lakewood.

*To Cincinnati, Ohio,* Aviation Section, Signal Corps, for duty as medical member of examining board and recruiting officer, Lieut. EDWARD KING, Cincinnati.

*To Cleveland, Ohio,* for instruction, and on completion to his proper station, from Camp Sherman, Lieut. HAROLD WILSON, Conneaut.

*To Fort Oglethorpe,* for instruction, Lieuts. GEORGE T. MEHAN, Cincinnati; CHALLIS R. DAWSON, Portsmouth; CHARLES SCOFIELD, Rock Creek.

*To New York City,* for instruction, and on completion to his proper station, from Camp Dix, Capt. WILLIAM A. QUINN, Portsmouth; from Camp Taylor, Lieuts. EDWIN F. WAKEFIELD, Chagrin Falls; CHARLES H. BAILEY, East Liverpool.

*To his home* and the inactive list, Capt. ORR A. DICKSON, Jefferson.

### Oklahoma

*To Fort Riley,* for instruction, from Evacuation Hospital No. 7, Lieut. SIMS D. BEVILL, Poteau; from Fort Riley, Lieut. CHARLES C. GARDNER, Ashland; from Kansas City, Lieut. DANIEL E. LITTLE, Eufaula.

### Oregon

*To Camp Lewis,* American Lake, Washington, base hospital, Lieut. CHARLES R. McCELL, Portland.

*To Fort Riley,* for instruction, from Los Angeles, Lieut. CLYDE O. WAINSCOTT, Hermiston.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. RALPH L. SHARKEY, Portland.

### Pennsylvania

*To Boston, Mass.,* for instruction, and on completion to his proper station, from Camp Dix, Lieuts. ASBURY C. STROUP, Philadelphia; ABNER H. BAUSCHER, Temple; from Camp Meade, Lieuts. JESSE C. STILLEY, Erie; JOHN G. STRIEGEL, Pottsville; from Camp

Upton, Lieuts. RALPH E. BUCKLEY, Hazelton; WILLIAM F. MORRISON, FRANK McC. RAMSEY, Philadelphia; AUGUST G. HINRICHS, Pittston; Harvard Medical School, for instruction, Lieut. WILLIAM O. MARKELL, Pittsburgh.

*To Camp Devens*, Ayer, Mass., base hospital, from Evans Dental Institute, Philadelphia, Lieut. HARRY S. CARMANY, Philadelphia.

*To Camp Jackson*, Columbia, S. C., base hospital, Lieut. GEORGE P. PILLING, Jr., Philadelphia.

*To Camp Lee*, Petersburg, Va., base hospital, from Philadelphia, Lieut. SCOTT D. GLEETON, Erie.

*To Camp MacArthur*, Waco, Texas, for duty, Capt. JOSEPH J. CLARKE, Pittsburgh.

*To Camp McClellan*, Anniston, Ala., for duty, from Fort Oglethorpe, Lieuts. WILLIAM WEISS, Philadelphia; JAMES G. G. STRICKLAND, Shamokin.

*To Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. EDWARD J. MELEY, Turtle Creek.

*To Camp Taylor*, Louisville, Ky., for duty, Capt. PATRICK J. McDONNELL, Archibald.

*To Canal Zone*, for duty, from Fort Oglethorpe, Lieut. VAN C. DECKER, Nicholson.

*To Chickamauga Park, Ga.*, Eleventh Infantry, from Fort Oglethorpe, Lieut. EDWARD J. MELEY, Turtle Creek.

*To Fort McPherson, Ga.*, Hospital Unit L, from Jenkins Arcade, Pittsburgh, Lieut. JOHN L. NURKHOLDER, Mount Pleasant.

*To Fort Oglethorpe*, for duty as instructor, from Philadelphia, Major WILLIS F. MANGES, Philadelphia; base hospital, from Fort Oglethorpe, Lieut. ALFRED COWAN, Philadelphia; for instruction, Lieuts. DAVID A. BOGGS, SAMUEL S. PEARCE, Pittsburgh; from Philadelphia, Lieuts. GEORGE E. ALLEMAN, Altoona; FRANCIS H. McCASKEY, Freedom; GEORGE A. BROWN, RAYMOND F. W. CAMPBELL, LEON S. COHEN, AGNEW F. FRANKHAUSER, BOOKAR E. RHUDY, HAROLD E. WESCOTT, Philadelphia; OSCAR E. SALTER, Shamokin.

*To Fort Riley*, to select medical officers for service with the Food Division of the Surgeon-General's Office, and on completion to his proper station, Capt. CASPER W. MILLER, Wallingford.

*To Leon Springs, Texas*, for orthopedic duty, from Oklahoma City, Capt. CARSON COOVER, Harrisburg.

*To New York City*, for duty, from Camp Pike, Capt. PERCY DeLONG, Philadelphia; for instruction, and on completion to his proper station, from Camp Taylor, Capt. CHARLES R. PALMER, West Chester; from Camp Gordon, Lieut. CARL K. WAGENER, Swissvale; from Camp Jackson, Lieut. JOSEPH McFATE, Meadville; from Camp Meade, Lieut. HENRY A. CARSKADDEN, Mont Alto; Neurological Institute for intensive training in brain surgery, from Camp Gordon, Lieut. STEPHEN S. LANDIS, Pittsburgh.

*To Philadelphia, Pa.*, as medical member of the examining board and recruiting officer, from Camp Jackson, Capt. BURTON K. CHANCE, Philadelphia; for duty, Lieut. SETH A. BRUMM, Philadelphia; from Fort Oglethorpe, Lieut. MARSHALL W. SINCLAIR, Philadelphia; for instruction, and on completion to his proper station, from Camp Gordon, Lieut. RUSSELL H. KING, Pittsburgh; from Camp Lee, Lieut. WILLIAM C. HENSYL, Berwick; University of Pennsylvania for duty, from Chickamauga Park, Lieut. GEORGE K. STRODE, West Chester.

*To Rockefeller Institute, N. Y.*, for instruction, and on completion to Camp Grant, Rockford, Ill., base hospital, from Fort Oglethorpe, Lieut. CAMILLE J. STAMM, Philadelphia; to Fort Oglethorpe, for instruction, Lieut. RANDALL ZIMMERMAN, Wilmerding; to his proper station, from Camp Hancock, Lieut. FRANK P. STROME, Scranton; for instruction in the serum therapy of pneumonia, and on completion to his proper station, from Camp Wheeler, Lieut. VINCENT J. FENERTY, Philadelphia.

### Rhode Island

*To Boston, Mass.*, for duty, Capt. JOHN L. FISHER, Providence.

*To Fort Oglethorpe*, for instruction, from Boston, Lieut. MALFORD W. THEWLIS, Wakefield.

*To Fort Riley*, for instruction, Lieut. GEORGE WATT, East Providence.

### South Carolina

*To Boston, Mass.*, for instruction, and on completion to Fort Oglethorpe, for instruction, Capt. WILLIAM H. JOHNSON, Charleston.

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Grant, Lieut. WILLIAM A. WHITLOCK, Kitchings Mills.

*To Neurological Institute, N. Y.*, for intensive training in brain surgery, from Camp Wheeler, Capt. SAMUEL C. BAKER, Sumter.

*To Philadelphia, Pa.*, for instruction, and on completion to his proper station, from Camp Jackson, Lieuts. JAMES A. NORTON, Conway; BAYLIS F. SLOAN, Walhalla.

### Tennessee

*To Boston, Mass.*, for instruction, and on completion to his proper station, from Camp Dix, Lieut. JOSEPH R. SHELTON, Oliver Springs.

*To Camp Fremont*, Palo Alto, Calif., for duty, from Fort Oglethorpe, Lieut. WILLIAM A. CASHION, Puryear.

*To Camp McClellan*, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. ERNEST V. EDWARDS, Knoxville.

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Pike, Capt. JOHN B. STEELE, Chattanooga; Lieut. THOMAS H. INGRAM, Memphis.

*To Fort Oglethorpe*, for instruction, Capt. THOMAS A. P. R. JONES, Knoxville.

*To Fort Riley*, for instruction, from Chicago, Lieut. LEON M. LANIER, Nashville.

*To New York City*, for instruction, and on completion to his proper station, from Camp Johnson, Lieut. JUSTIN E. LACY, Jasper; from Camp Lee, Lieut. MARCUS G. SPINGARN, Memphis; from Camp Meade, Lieut. LLEWELLYN H. DYKES, Johnson City.

*To Philadelphia, Pa.*, for instruction, and on completion to his proper station, from Camp Sevier, Lieuts. GEORGE E. WILSON, Cardiff; HERBERT ACUFF, Knoxville; KYLE C. COPENHAVER, Mascot.

### Texas

*To Camp Greene*, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. VINNEY L. SMITH, Jewett.

*To Fort Oglethorpe*, for instruction, Lieut. THOMAS P. McLENDON, Worthan; from Kansas City, Lieut. MELVIN O. REA, Galveston.

*To Fort Riley*, for instruction, from Chicago, Lieut. GUSTAVE E. HENSCHEN, Georgetown; from Kansas City, Lieuts. WILLIAM H. CADE, Jr., Galveston; RUPERT K. McHENRY, Georgetown.

*To New Orleans, La.*, for instruction, and on completion to his proper station, from Camp Travis, Lieuts. HARRY A. LOGSDON, YOUNG J. MULKEY, Fort Worth.

*To New York City*, for duty, from Washington, D. C., Capt. CLAUDE C. CODY, Jr., Houston; from Camp Travis, Lieut. FREDERICK R. LUMMIS, Houston.

*To Philadelphia, Pa.*, for instruction, and on completion to his proper station, from Camp Meade, Lieut. NORMAN A. BUSSEY, Port Arthur.

*To South San Antonio, Texas*, Kelly Field, for duty, Lieut. CHARLES B. GANT, Graham; MARVIN L. TURNEY, San Antonio.

### Vermont

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Grant, Capt. HERBERT B. HANSON, East Berkshire.

*To Cleveland, Ohio*, for instruction, and on completion to his proper station, from Camp Taylor, Capt. CHARLES E. LIBBEY, Danville.

*To Fort Oglethorpe*, for instruction, from Boston, Lieuts. CHESTER L. SMART, Burlington; FRANK C. ANGELL, Randolph.

### Virginia

*To Camp Gordon*, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. LUCIUS G. GAGE, University.

*To Camp Meade*, Admiral, Md., base hospital, Lieut. ROBERT S. PRESTON, Richmond.

*To Camp Travis*, Fort Sam Houston, Texas, base hospital, Lieut. RAY C. BLANKENSHIP, Marion.

*To Neurological Institute, N. Y.*, for intensive training, from Camp Mills, Frank H. Redwood, Richmond.

*To Philadelphia, Pa.*, for instruction in orthopedic surgery, Lieut. WILLIAM L. POWELL, Roanoke.

*To Richmond, Va.*, base hospital, from Camp Lee, Capt. THOMAS C. FIREBAUGH,, Harrisonburg; from Camp Meade, Lieut. ROBERT A. DAVIS, Newport News.

### Washington

*To Camp Kearny*, Linda Vista, Calif., base hospital, Capt. COPELAND PLUMMER, Seattle.

*To Camp Lewis*, American Lake, Wash., for duty, Capt. EDWARD R. PERRY, Raymond.

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Lewis, Lieut. CHARLES E. EATEN, Seattle.

*To Fort Riley*, for instruction, Lieuts. HAROLD B. THOMPSON, Seattle; ALEXANDER W. SEIBERT, Wenatchee; from Los Angeles, Lieuts. WILLIAM H. BOONE, North Yakima; ROY C. BAUMGARTEN, Seattle; BURTON E. PAUL, Tacoma; WALTER A. BURG, Uniontown.

*To Fort Worden*, Washington, for duty, Lieut. EMORY LEROY KNISKORN, Centralia.

*To Seattle, Wash.*, Aviation Section, Signal Corps, for duty, Capt. RICHARD W. PERRY, Seattle.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Capt. CHARLES T. DULIN, North Yakima.

### West Virginia

*To Chicago, Ill.*, for instruction, and on completion to his proper station, from Camp Pike, Lieut. EMERSON MEGRAIL, Wheeling.

*To Fort Oglethorpe*, for instruction, from Walter Reed General Hospital, Capt. ALBERT L. GRUBB, Berkeley Spring; for instruction, Lieut. LEROY J. BUTLER, Hansford.

### Wisconsin

*To Belleville, Ill.*, Signal Corps, Aviation School, Scott Field, for assignment to squadrons, from Fort Oglethorpe, Lieut. JAMES G. CONLEY, Racine.

*To Camp Gordon*, Atlanta, Ga., to examine the command for tuberculosis, from Camp Jackson, Capts. HARRY C. MIX, Green Bay; MICHAEL R. WILKINSON, Oconomowoc.

*To Camp Joseph E. Johnston*, Jacksonville, Fla., to examine the command for tuberculosis, from Camp Jackson, Lieut. LEON H. FLANCHER, Milwaukee.

*To Fort Riley*, for instruction, Lieut. ARTHUR F. STUECK, Michicot; from Chicago, Lieut. MAXMILIAN W. MOELLER, Milwaukee.

# Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

## ILLINOIS

**Cross of War for Evanston Physician.**—The French government has awarded to Dr. Jane Wells Craven, formerly of Evanston, the *Croix de Guerre* for rescuing and aiding wounded under fire.

**Drake Summoned to Washington.**—Dr. C. St. Clair Drake, state director of health of Illinois, Springfield, has been summoned to Washington to confer with the chiefs of the Medical Section of the Council of National Defense regarding the prevention of disease among Army camps.

**Poliomyelitis.**—As announced by the director of the state department of health, there were in Illinois, from Jan. 1 to Dec. 10, 1917, 825 cases of poliomyelitis, 550 of which were in Chicago. There were in the state 225 deaths from this disease, 149 of which occurred in Chicago. By the date mentioned, with the advent of cold weather, the disease incidence had diminished to a sporadic case here and there. To combat the after-effects of this disease in the shape of paralysis and deformity, infantile paralysis clinics have been established under the direction of Dr. Clarence W. East of the department, located in Chicago, Chicago Heights, Oak Park, Ottawa, Rock Island, Moline and Springfield. Clinics are held at these places every two weeks, except at Springfield, where weekly clinics are held.

### Chicago

**Asks Appropriation Against Smallpox.**—Health Commissioner John D. Robertson, December 21, asked the finance committee of the city council for an appropriation of $50,000 to employ a vaccinating staff. Several cases of smallpox have recently been discovered and he considers the condition one of emergency.

**Reexamination of Rejected Men.**—The War Department has been given the use of the quarters at Cook County and Presbyterian hospitals for the reexamination of selected registrants found deficient and granted exemption. Lieut.-Col. Chandler P. Robbins, M. C., Fort Riley, Kan., has been instructed to proceed to Chicago and organize the staff of this hospital.

**Memorial Venereal Disease Clinic.**—At the annual meeting of the Iroquois Memorial Association, December 29, Dr. Hugo E. Betz, chief surgeon of the institution, gave a résumé of the work of the year in which he stated that the hospital had handled 17,000 cases during the last twelve months, 12,000 of which were emergency cases. Resolutions were adopted approving the establishment of a free clinic for venereal diseases to be open every evening. Five physicians have volunteered to take charge of this clinic, and the work begins this week.

## INDIANA

**Society Will Pay Dues.**—The Indianapolis Medical Society has undertaken to pay all dues, local and state, for its members who have gone to the service.

**Smallpox.**—The situation in Richmond is said to be improving daily. The number of cases is decreasing.——There are said to be fifty cases of smallpox in Bicknell. The city board of health is reported to have refused to quarantine the patients on the ground that the city has no money with which to accomplish this.

**Personal.**—Dr. Morse Harrod of Fort Wayne has been seriously ill with smallpox.——Dr. Oscar E. McWilliams, Anderson, has been appointed surgeon to the Union Traction Company, succeeding Dr. John B. Fattic, resigned to enter Army service.——Dr. Maurice R. Lohman has been appointed deputy health commissioner of Fort Wayne, and will be placed in charge of all work in connection with the prevention of contagious diseases.

**Hospital News.**—A reorganization of the nurses' staff of Hope Hospital, South Bend, has been made, Dr. Charles S. Woods, superintendent of the Methodist Hospital at Indianapolis, furnishing the entire quota from the Methodist Episcopal Hospital. Dr. Earl E. Johnson, West Lebanon, will be the new superintendent of Hope Hospital.——A new county tuberculosis hospital will soon be started in Madison County, as the county council has purchased 52 acres of ground for that purpose.——Lutheran Hospital, Fort Wayne, is building a new $10,000 addition to its nurses' home.

## MARYLAND

**Diphtheria in College.**—An epidemic of diphtheria in Mount Saint Mary's College, Emmittsburg, has caused the college to be closed and the students to be sent home. Each student has been thoroughly examined, and is believed to be free from the disease.

**Personal.**—Dr. George H. Hocking has been elected chairman of the newly organized Govans Branch of the Red Cross.——Lieut. Alexander J. Gillis, M. R. C., Baltimore, who has been on duty with the British government in France, was recently gassed while on a visit to the first line trenches.——Dr. J. Walter Layman, Hagerstown, who has been seriously ill in a hospital, is reported to be convalescent.——Dr. Alexander R. Mitchell, Monkton, has been appointed health officer of the seventh district of Baltimore County, succeeding Dr. N. Milner Bortner, resigned to enter the United States service.

**Hospitals May Bar City Patients.**—After the first of the year the city will have nowhere to send its indigent sick unless new arrangements are made with the hospitals which are now taking care of free patients. The city's contract with these hospitals is that they, as a whole, will take care of 350 patients a day. Often they handle more. For doing so, the hospitals receive 62½ cents a day for each patient, or a total of $79,843.75 a year. The average per capita cost of taking care of these patients is $1.99 per day, or $254,222.50 for the year. The hospitals, as a whole, that handle the city's cases are bearing an annual expense of $174,378.75 or more than should be borne by the city. The hospitals which receive city patients are Mercy, Maryland General, University of Maryland, St. Joseph's, St. Agnes,' Hahnemann General and Franklin Square. Each of these institutions has a contract with the supervisors of city charities which will expire December 31. Figures from the office of the supervisors of city charities show that last year there were 5,700 patients cared for under the contract, which cost the city $70,000. This did not include tuberculosis patients. The supervisors expect to take the matter up with the Board of Estimates of Baltimore before the present contracts expire.

## MICHIGAN

**Addition to County Hospital.**—An addition is to be erected to the Kent County Hospital for the use of patients suffering from tuberculosis.

**Conference on Contagious Diseases.**—At a special meeting of the Kent County Medical Society, the druggists of Grand Rapids, and representatives of the state board of health, the topic of discussion was contagious and infectious diseases.

**Smallpox.**—A large number of smallpox cases of mild type were reported in Detroit. At present there are ninety cases under quarantine.——There are said to be thirty cases of smallpox in Reed City.——Twenty cases of smallpox have been reported in the vicinity of Ferryburg.

**New Officers.**—At the annual meeting of the Highland Park Physicians Club, December 6, the following officers were elected: president, Dr. Robert F. Foster; vice president, Dr. George A. Tolman, Detroit; secretary, Dr. Albert F. Stone, Bay City; treasurer, Dr. William N. Braley, Highland Park.

**Inches Home from Abroad.**—More than two hundred of the medical profession of Detroit attended a reception at the Hotel Tuller, December 8, in honor of Capt. James W. Inches, health officer of the city, who recently returned from a six weeks' tour of observation of the French, British and Italian war fronts on behalf of the American Red Cross.

**Suppressing Venereal Diseases in Michigan.**—Michigan has had in operation for the past two months a plan for the suppression of venereal diseases, having at first especial reference to the conditions arising in connection with the mobilization of troops in the Army cantonments. This plan was evolved from recommendations of a commission appointed by Governor Sleeper consisting of Drs. Richard M. Olin, secretary of the state board of health; Guy L. Kiefer, Detroit; Christopher G. Parnall, Jackson; Walter H. Sawyer, Hillsdale, and Alfred S. Warthin, Ann Arbor. The recommendations were printed in The Journal, Oct. 6, 1917, p. 1181. The plan is being carried out in cooperation with the state board of health under instructions from the governor. Cooperation has been arranged between the state board and the medical officers of Camp Custer, the former reporting to the camp officers all communicable diseases reported each week and the latter reporting to the state board all discharges, with destination of men discharged because of physical disability, and all cases of venereal diseases, with source of infection when obtainable. The plan also provides for securing the cooperation of the physicians and pharmacists of the states with reference to venereal diseases, and in carrying out this part of it a letter was prepared and sent to the physicians of the state outlining the objects of the plan and calling their attention to the fact that they must report all cases of gonorrhea and syphilis coming to their attention, together with the source of infection, and informing them that the state board of health would apprehend the persons transmitting the disease and place them in hospitals for treatment at state expense. A blank form for reporting cases and carriers was prepared and sent with the letter, and these reports are to be held as confidential. Meetings were held in various places with physicians and pharmacists. At Saginaw the physicians and pharmacists separately passed resolutions endorsing the plan of the commission and the state board, and agreed to assist to the best of their ability in carrying it out. A meeting of organizations of pharmacists connected with the State Pharmaceutical Association, representing about 90 per cent. of its members, likewise endorsed the movement and requested the secretary of the state organization to send to every druggist in the state an appeal to cooperate by discontinuing the sale of venereal disease remedies except on prescriptions of physicians, to whom all infected persons should be referred. To December 19, more than a thousand reports had been received from physicians in response to the letter sent out, and out of the cases secured for investigation more than fifty carriers had been placed in hospitals for treatment. Through the courtesy of citizens at Battle Creek, a small hospital has been equipped there for the treatment of these patients. The City Board of Health of Detroit has placed at the disposal of the state board one pavillion of fifty beds in the Herman Kiefer Hospital, and the regents of the state university at Ann Arbor have offered fifty beds in the hospital there. Hospitals in other cities have offered facilities for the treatment of these patients. It will be seen that the original plan to confine the work to the Army cantonments has been expanded on the advice of Governor Sleeper to include the whole state, and Dr. W. F. English, a member of the state board, has been appointed to assist the state secretary in carrying out the work. Through an active campaign along the lines laid down it is hoped greatly to diminish the incidence of the venereal diseases in the state.

## NEW YORK

**Nutrition Clinic.**—This clinic, which is conducted by the Vanderbilt Clinic, and is one of the 130 organizations reporting to the Babies' Welfare Association, states that it has enrolled 137 babies since its organization six months ago. The most recent development in connection with this nutrition clinic is the establishment of classes for the instruction of mothers in the preparation of milk formulas.

**Herter Lectures.**—The faculty of the University and Bellevue Hospital Medical College announces that a series of five lectures in the Herter Foundation will be delivered, January 7 to 11, inclusive, at the Carnegie Laboratory, at 4 o'clock, by Major Edward K. Dunham, M. R. C., U. S. Army, emeritus professor of pathology in the University and Bellevue Hospital Medical College, on "Principles Underlying the Treatment of Infected Wounds."

**Deaths from Pneumonia Increase.**—The figures compiled by the Bureau of Public Health Education of the department of health show that for the week ending December 22, there were 1,501 deaths reported in the greater city. Of these, 314 were due to pneumonia. During the previous week there were 263 deaths from pneumonia, giving an increase of fifty-one deaths for the week. In recent years, the average number of deaths per week at this time of the year has been about 200. The increase is attributed to the shortage of coal and the changeable weather.

**Hospitals Suffering from High Cost.**—Practically every hospital in the city is having a hard struggle with the problem of meeting current expenses occasioned by the ever-increasing cost of food, fuel and medicine. The budgets of all the hospitals show large deficits, and funds are coming in more slowly than usual, as much money usually given to the hospitals has been diverted to relief work in connection with the war. The Hospital for the Relief of Ruptured and Crippled shows a deficit of $37,319 above current revenue for the past year. It has sent out letters asking for financial support in its work.

**New Officers.**—Kings County Medical Society, Brooklyn, ninety-seventh annual meeting, December 18: president, Dr. Frederick C. Halden; vice president, Dr. John A. Lee, and secretary, Dr. Charles E. Scofield.——Richmond County Medical Society at Staten Island Academy, December 13: president, Dr. John D. Lucey, Stapleton; vice president, Dr. Daniel P. MacGuire, New Brighton; secretary, Dr. John S. Ware, Stapleton (reelected), and treasurer, Dr. Edward D. Wisely, Pt. Richmond (reelected).——Rensselaer County Medical Society at Troy, December 11: president, Dr. Thurman A. Hull; vice president, Dr. John H. Reid; secretary, Dr. George R. Stalter; treasurer, Dr. Russell F. Benson.

**New Food Conservation Movement.**—Recently a new movement was organized to conserve food, homes, health and woman power during war conditions and after. It to be known as the American Cooked Food Service. The officers elected were: president, Miss Jessie H. Bancroft; vice president, Mr. Adolph Lewisohn; secretary, Mrs. William G. Shailer; treasurer, Dr. Belle J. Macdonald. Other directors are Mrs. Edgerton L. Winthrop, Jr., Mrs. Herbert L. Satterlee and Mrs. Ransom S. Hooker. Mrs. Alice McKay Kelly, now organizing Red Cross canteens in Italy, is to be field secretary, and Mrs. Emma Waldron Davis, executive. The consulting board includes Mr. Herbert L. Satterlee, Dr. Graham Lusk, Dr. Henry Dwight Chapin, Dr. S. Josephine Baker, Dr. Charles A. E. Winslow, Dr. S. Adolphus Knopf, Mr. Cyrus C. Miller, Dr. Thomas D. Wood, Mr. George L. Bennett, Mr. Frederick S. Crum, Dr. G. Reese Satterlee, Prof. Irving Fisher, Mrs. John E. Milholland and Mrs. Bertha L. Grimes. The first station will be opened in a few weeks at 213 West Seventy-Ninth Street, with a motor service extending over a 2-mile radius. The food will be carried in insulated containers that keep it hot for several hours. The movement is designed to save the independent consumer by means of centralized service from commercial exploitation for his food supplies, and to keep together homes that otherwise might disintegrate because of the draft of women, domestic workers and house mothers into industrial or other war service.

## NORTH CAROLINA

**New Officers.**—Buncombe County Medical Society, at Asheville, December 17: president, Dr. Joseph B. Greene; vice president, Dr. Charles Dewitt Colby, and secretary-treasurer, Dr. Charles H. Cocke (reelected), all of Asheville.

**Cornerstone Laid.**—The cornerstone of the Presbyterian Hospital, Charlotte, was laid with impressive ceremonies, December 5. The new hospital will have accommodation for 100 patients, will be three stories and basement in height, and the third floor is to be devoted entirely to private wards and operating rooms.

**Woman as Acting Assistant Surgeon.**—Surg. Benjamin W. Brown, U. S. P. H. S., in charge of the sanitary conditions in the five-mile zone surrounding Camp Green, Charlotte, has recommended that Dr. Anne L. Alexander, Charlotte, be appointed acting assistant surgeon to take charge of the medical work in the Charlotte public schools, working in cooperation with Surgeon Brown and Dr. C. Curtis Hudson, city health officer.

## CANADA

**Military Cross Awarded.**—The Military Cross has been awarded to: Capts. Thomas Herbert, John Philip Selby Cathcart, Pt. Lamberton; Franklin Fletcher Dunham, Winnipeg, Manit.; Emmet Andrew McCusker, Arthur Allan Parker, Toronto, Ont.; Walter Henry Scott, J. Charles Sutherland and James Walter Woodley, Vancouver, B. C., all of the Canadian Army Medical Corps, and Capt. Douglas S. Creighton, Winnipeg, Manit., of the Royal Army Medical Corps.

**Hospital News.**—The main building of the Camp Military Hospital, Halifax, N. S., is now completed, and suffered little damage in the recent devastation overtaking that city. It is beautifully situated, and contains eight large wards, with accommodation altogether for 750 patients. A vocational building and two additional wings are under construction.——During the past hospital year the Toronto Home for Incurables treated 324 patients. Seventy-four deaths occurred in that institution, of which twenty were from cancer. There was an overdraft of $9,182.——The Kitchener-Waterloo Hospital treated in the past twelve official hospital months 1,059 patients; 996 were discharged, and fifty-nine deaths occurred. There were ninety-one births in the hospital during the year.——A municipal hospital is to be established in western Saskatchewan.——The government of British Columbia has made a grant of $10,000 to the Kootenay Lake General Hospital.

**Personal.**—Capt. Roy Coots, C. A. M. C., has returned to Toronto on sick leave.——Capt. G. Lockhart Gall, R. A. M. C., Montreal, is home on sick leave.——Dr. Thomas W. Walker, Saskatoon, Sask., is now attached to the Duchess of Connaught's Canadian Red Cross Hospital at Taplow.——A cable from Lieut-Col. Graham Chambers to Toronto on Christmas day announces his return to good health and that he is now engaged as chief in medicine at Moore Barracks, Folkstone. ——Lieut.-Col. George W. Badgerow, London, England, formerly of Toronto, has been appointed consulting surgeon to the South African Eye and Ear Hospital, Richmond, England.——Capt. Fraser B. Hurd, Montreal, who has been surgeon specialist to the Twenty-Second Casualty Clearing Station, R. A. M. C., for the past two years, has been transferred to the Adler Hey Hospital, Liverpool, England.——Dr. Thomas B. Futcher, Johns Hopkins Hospital, Baltimore, has been gazetted lieutenant-colonel, and is now in charge of the medical services at the Ontario Military Hospital, Orpington, England.——Capt. Jean M. E. Prevost, C. A. M. C., Montreal, has been appointed medical officer of the Second Depot Battalion of the Second Quebec Regiment. Captain Prevost has seen service in France and has been twice wounded. He first went overseas with the Fifteenth Battalion, Toronto Highlanders.

## GENERAL

**Correction.**—The formula for Asiatic pills appearing in the article by Barker and Sprunt, The Journal, December 8, page 1922, should read for a total of 100 pills instead of twelve pills.

**North Pacific Surgeons Meet.**—At the annual meeting of the North Pacific Surgical Association, held in Victoria, B. C., December 15, the following officers were elected: president, Dr. Milton G. Sturgis, Seattle; vice presidents, Drs. Ernest F. Tucker, Portland, Ore., and George S. Gordon, Vancouver, B. C.; secretary-treasurer, Robert D. Forks; councilor, Alfred Raymond, Seattle, and financial trustee, Dr. Casper W. Sharples, Seattle.

**Iowa and Illinois Physicians to Meet.**—The regular winter meeting of the Iowa and Illinois Central District Medical Association will be held at Davenport, Iowa, January 10. The program includes a film clinic, a paper on "Functional Conditions Contracted from Life in Trenches," by Dr. Sollier, and an illustrated address by Dr. Clarence W. Hopkins, chief surgeon of the Chicago and Northwestern System, on "Unusual Fractures."

**Tuberculosis in the War.**—The annual meeting of the National Jewish Hospital for Consumptives, Denver, to be held January 13, at the Savoy Hotel, will be followed by a conference at which "Tuberculosis and the War" will be the topic of discussion. Addresses will be made by Miss Jane Addams, Chicago; Dr. Hermann M. Biggs, state health commissioner of New York; Dr. Hatfield, secretary of the National Association for the Prevention of Tuberculosis, and others.

**American Red Cross Opens Tuberculosis Hospital in France.**—The first tuberculosis hospital in France created wholly by the American Red Cross, independent of French or American medical collaboration, was opened in Paris on Christmas Day. This hospital has been named the Edward L. Trudeau Tuberculosis Sanatorium. There are at present only eight beds, but it is hoped to increase the number to 1,200 within the next year. Dr. James L. Gamble, Baltimore, is in charge with a staff of Red Cross nurses.

**Deaths Abroad.**—**Dr. Felicisimo Lopez,** Consul General of Ecuador at New York for several years, charge d'affaires in Washington, and minister of finance of Ecuador; aged 70; a graduate of the University of Quito, Ecuador, in 1874; for the last five years a resident of Brooklyn, died at his home, December 15.——**Dr. Elizabeth Garrett Anderson,** Aldeburgh, Suffolk, England; University of Paris, 1870; L. S. A., London, 1865; aged 81; mayor of Aldeburgh, and the first woman to be elected mayor of an English city; member of the first school board for London; from 1866 to 1890 senior physician to the New Hospital for Women, London; lecturer on medicine in the London School of Medicine for Women, from 1876 to 1898, and dean of the institution from 1883 to 1903; president of the East Anglian Branch of the British Medical Association in 1896; visiting physician to the East London Children's Hospital; died at her home, December 18.

**Veronal and Novocain to Be Manufactured in the United States.**—The Federal Trade Commission has granted to three American firms licenses to manufacture and sell the preparations heretofore known as veronal and novocain, hitherto controlled by enemy aliens under American patents. The Abbott Laboratories, Chicago, have been licensed to produce and sell veronal under a nonexclusive license. Under the terms of the license issued, this drug is hereafter to be known as barbital, and it is stipulated that the new name, together with the scientific name, C. C. diethylbarbituric acid, be printed on all packages containing the drug. The name veronal may also be used on the package to aid in distinguishing the drug. The Abbott Company must pay to the alien property custodian 5 per cent. of its gross receipts on the sale of the drug. The Federal Trade Commission reserves the right to fix the price and to judge the quality of the drug as manufactured. The Rector Chemical Company of New York and the Farbwerke-Hoechst Company have been licensed to manufacture and sell novocain, hereafter to be called procaine. Here also the alien property custodian is to receive 5 per cent. of the gross receipts.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Children's Homeopathic Hospital, Philadelphia, $5,000, by the will of George C. Cross.

Babies' Hospital, Philadelphia, a ten-day drive, ended December 22, netted $187,132, or $12,132 above the amount first called for.

Shelby County (Ky.) Hospital, a donation of $10,000 by Col. D. R. Smith, Bloomington.

Columbus Hospital, New York, $10,000 to equip an operating room to be known as the Ramon Guiteras Operating Room; New York Academy of Medicine, $5,000 for any purpose desired; New York Post-Graduate Hospital, $5,000, to be used for the Guiteras Clinic; $10,000 to a young man in whom Dr. Guiteras was much interested, on condition that he take the name of Ramon C. Guiteras, one half of the bequest to be used to complete his education in medicine and one half for his establishment in practice; and the residuary estate to the town of Bristol, L. I., for the erection of a public schoolbuilding in memory of Mrs. Elizabeth Wardell Guiteras, the mother of the testator, by the will of Ramon Guiteras.

St. John's Hospital, Brooklyn, $20,000; Huntington (L. I.) Hospital, $25,000; Staten Island Hospital, New Brighton, $40,000; Nassau Hospital, Mineola, L. I., $10,000; St. Luke's Hospital, San Francisco, $20,000; and St. Luke's Hospital, New York, residuary legatee under the will of William H. White, Cold Spring Harbor, L. I.

**Once More a Warning.**—A letter has just been received from a physician in Colorado Springs, Colo., who acknowledges that he has been worked by one of the subscription swindlers recently mentioned in The Journal (December 15, page 2056; December 22, page 2134). The swindler represented himself as a solicitor for various publications in a contest for a scholarship in an educational institution. This time the organization behind the solicitor was stated to be the Advance Society of the University of Illinois. The doctor paid $24.55 in advance (that's where the name of the society comes in, we presume) in return for which he was to receive an annual subscription to the *Scientific American*, the *Literary Digest, Leslie's Weekly, Surgery, Gynecology and Obstetrics,* and in addition O. Henry's works in ten volumes and "The Great War" in five volumes. The solicitor, in order to give himself time "to make his get-away," informs the victim that should he not receive receipt for his subscription within fifteen days, he should address the main office of the society, and as there is no such office, the letter is returned by the postal department.

**Death of Professor Remington.**—Joseph Price Remington, distinguished as a pharmacist and chairman of the last two committees for the revision of the United States Pharmacopeia died at his home in Philadelphia, January 1, aged 70, after a long illness. He received the degree of Ph.G. in 1866, and later the degree of Ph.M., from the Philadelphia College of Pharmacy. He also had conferred on him the honorary degree of Pharm.D. by Northwestern University, Chicago, in 1899. He was F.C.S., F.L.S. and F.R.M.S. (Lond.). He had been professor of pharmacy in his alma mater since 1874, and dean since 1893; director of the pharmaceutic laboratory from 1877 to 1915; a member of the revision committee of the United State Pharmacopoeia since 1880, and chairman since 1901. He was the president of the First International Pharmaceutical Congress in 1893; chairman of a section in the Seventh International Congress of Applied Chemistry in London in 1909, and in New York in 1912; a fellow, member and honorary member of many foreign and American pharmaceutic and medical bodies. He was the author of Remington's "Practice of Pharmacy," which appeared in 1866; the editor of the "United States Dispensatory" since 1883, through nineteen revisions of Lippincott's Medical Dictionary since 1897, and of the United States Pharmacopeia of 1890, 1906 and 1913.

**Conference of Council on Medical Education.**—The fourteenth annual conference of the Council on Medical Education will be held at the Congress Hotel, Chicago, Monday, Feb. 4, 1918. The morning program will be devoted to medical education, and is as follows:

Opening of the conference, Dr. Horace D. Arnold, chairman, Council on Medical Education, Boston.

"Recent Progress in Medical Education," Dr. Nathan P. Colwell, Secretary, Council on Medical Education, Chicago.

"Problems of Administering Entrance Requirements," Prof. George Gailey Chambers, Director of Admissions, University of Pennsylvania, Philadelphia.

"The Student's Clinical Course in Medicine," Dr. George Dock, Professor of Medicine, Washington University Medical School, St. Louis.

"Some Problems in Medical Education Resulting from the War," Major Horace D. Arnold, M. R. C., U. S. Army, Boston.

In the afternoon the session will be held jointly with the Federation of State Medical Boards of the United States, and will deal with the general topic of medical licensure, as follows:

"A Central Cooperative Bureau of Information," Dr. David A. Strickler, President, Federation of State Medical Boards of the United States, Denver.

"The Civil Administrative Code of Illinois, and Medical Licensure," Francis W. Shepardson, Director, Illinois Department of Registration and Education, Springfield.

"The General Problem of the Minor Forms of Healing," Hon. Howell Wright, State Senator of Ohio, Cleveland.

"Sectarianism in the Science of Healing as Treated in Legislative Acts and Judicial Decisions," Harry Eugene Kelly, formerly attorney for the Colorado State Board of Medical Examiners, Chicago.

Tuesday, February 5, separate meetings will be held by the Federation of State Medical Boards of the United States and the Association of American Medical Colleges.

## PARIS LETTER

Paris, Nov. 29, 1917.

### The War

#### SURGERY OF NERVES

In a previous letter, Chevrier's work in nerve surgery was discussed. He has reported further on his work, especially the progress of healing after nerve suture. It passes through several phases: 1. The electric reactions aggravate at first, then ameliorate, and then little by little the muscular tonus reappears. This phase has a minimum duration of four months. 2. The voluntary contractions appear. At first the muscles, although contracting, are not strong enough to cause motion; as development progresses, voluntary motion succeeds voluntary contraction. The muscles regain motive power in the order of return of function to their nerve supply from above downward, and in inverse order of the length of these nerves from the nerve trunk to the muscle. This cycle is observed only in cases of total suture. It is irregular in cases of partial suture or of liberation. Function may even return quickly. On the other hand, in a case of total suture, function may return very slowly. Chevrier has not observed any rapid cures, or rather, he has observed "false rapid cures," which, paradoxical at first, have been shown, on more careful examination, to be deceptive. The slowness of the recovery depends not only on the slowness of the nerve regeneration, but also on the state of the muscle, a fact that does not receive sufficient attention from clinicians. The nerve plaques in the muscle must be capable of functioning for the muscle fibers to contract. Here, postoperative electrical treatment, mechanotherapy and orthopedic surgery are of value and must be continued the longer, the greater the distance between the lesion and the terminal branches of the nerve; and with short muscles which lose their contractile power rapidly and regain it slowly. So, too, one may hasten nerve regeneration by means of radiotherapy in small and weak doses, and, perhaps, by stimulating injections.

Failures in nerve surgery are of two kinds: the real and the apparent failures. The first is the result of improper technic, usually an insufficient resection. The second, and most frequent, is the result of not choosing the operation that was indicated by the existing lesion, performing a simple liberation when a resection with suture was indicated. Certain total failures cannot be charged to the operator but to the nature of the lesion or its location—a very extensive lesion, a lesion of or near a plexus, the brachial, for instance, where the principles of a good suture are not applicable. A large number of apparent failures are slow cures, to which sufficient attention is not given. These failures will become successes in time if the patient is kept under observation long enough.

#### FRAGMENT OF BULLET ON DESCENDING AORTA EXTRACTED THROUGH POSTERIOR MEDIASTINUM

Professor Laurent of Brussels recently reported to the Académie de médecine the case of a soldier, aged 20, who six months previously had sustained a bullet wound of the chest. An abscess had formed. The fragment was lying on the descending aorta, the pulsations of the latter being transmitted to it. Laurent made a skin incision, 25 cm. long, and disarticulated and resected 12 cm. of the tenth and eleventh ribs, exposing to view the tenth intercostal nerve. The left lung and the diaphragm were pushed back. At a depth of 12 cm. there was imparted to the palpating finger a whirling sensation caused by the movement of the lung and diaphragm and the pulsations of the aorta. The foreign body, consisting of the covering of a bullet, was extracted without accident.

#### RENEWAL OF DENTAL PROSTHESES

M. Justin Godart, undersecretary of state for the military medical department, has issued an order by which all aids to mastication (plates, bridges, etc.) furnished to soldiers of all classes to relieve them of digestive disturbances, or which they will use during their enlistment in the army or auxiliary service, will be so furnished only during the period of enlistment. But, soldiers who have sustained injuries of the jaws or teeth while in service shall be considered as *"mutilés de guerre"* (war mutilated) and will have the right to renew their prosthesis during their lifetime.

#### THE ASSIGNMENT OF MEDICAL OFFICERS AT THE FRONT

Deputy Dejeante asked the minister of war whether steps had been taken (1) to assign medical officers according to their age, sending to the front those between 20 and 32, to the rear those between 32 and 42, and assigning through the interior those more than 42 years of age; (2) to relieve medical officers of the class of 1891 after twenty-seven months of service at the front, and (3) to consider the treatment of tuberculosis as a specialty of the same importance as otology, laryngology, etc. The following reply was received: 1. The commander-in-chief assigns medical officers to the army and the various medical formations at the front and in the rear, taking into account the age and aptitude of these officers. An age limit cannot, however, be fixed, the commander being the only judge of the needs of the service. 2. The relief of medical officers of the class of 1891 cannot be considered until after the officers of the class of 1890, now in service, have been relieved. 3. The treatment of tuberculosis is considered a specialty. The medical officers of sanatoriums are chosen, as far as possible, from among those who by study, work or previous activities have already specialized in the treatment of tuberculosis.

#### DONATIONS BY THE NORWEGIAN RESIDENTS OF FRANCE

A group of Norwegians, residing in Paris and the provinces, have constituted themselves a committee to collect funds from their compatriots for the relief of the wounded. About 270,000 francs ($54,000) have been collected and turned over to the Union of Foreigners in France. Of this sum, 145,000 francs ($29,000) have been divided among the various institutions for the reeducation of the mutilated, the Grand Palais, the quai Debilly, the Maison-Blanche and Juvisy, and 125,000 francs ($25,000) have been distributed, with the assistance of the Norwegian consuls, among similar institutions at Calais, Hâvre, Rouen, Nantes and Bordeaux.

### Skimmed Milk and Food Economy

As stated in a previous letter (The Journal, April 15, 1916, p. 1212), the sale of skimmed milk has been authorized in order to offset, to some extent, the increasing insufficiency of the milk supply. Some of the suburbs of Paris have undertaken the sale, at a low price, by municipal organizations. The results attained have been very satisfactory. As much as 2,000 liters are being sold daily. The amount to be sold is limited by the quantity disposed of by the butter makers. By means of placards, notices to buyers and personal letters to mothers, the municipalities have taken all the necessary precautions to avoid the use of skimmed milk for infants and the sick. The price per liter being only 15 centimes (3 cents), it is a very cheap food but also a good food, since it is rich in proteins and carbohydrates. Of course, it is necessary that the skimmed milk be pasteurized and boiled.

### Our Health Resorts and Baths

A medical committee, known as the Netherlands Medical Committee, has been formed in Holland. The permanent officers are M. Kesler, F. J. Roes, H. Visser, P. J. Eldering and A. Mertens. It is the function of this committee to disseminate among the physicians of Holland information regarding the French health resorts. Its activities will consist of: (1) publishing in Dutch an annual containing complete and detailed information of the spas, health resorts and seaside watering places of France; (2) publishing a map "La France thermale," with therapeutic indications; (3) making careful studies of the mineral analyses of the waters, their therapeutic properties and indications, of the French resorts. This work will be published in the scientific and literary review, *La France,* of which a Holland edition will be published in January, 1918; (4) organization of an exposition "La France, thermal and picturesque;" (5) lectures by members of the committee, or, later, by eminent French medical men; (6) organization of study tours to France by the medical men of the Netherlands.

### Death of Dr. A. J. Magnin

Dr. A. J. Magnin, an American physician resident in Paris and attached to the American Hospital, is dead. At the beginning of the war, he devoted himself to the creation of an American ambulance, housed in the Pasteur Lyceum at Neuilly. Shortly afterward, he opened another ambulance at the College of Juilly, also maintained by Americans. During the Battle of the Marne, he left Bourget with his French colleagues and sought out and transported the wounded to Paris, utilizing for that purpose automobiles lent to him by his compatriots. At that time the arrangements for transportation of the wounded left much to be desired.

## LONDON LETTER

London, Dec. 4, 1917.

### The War

#### THE TREATMENT OF TETANUS

In a previous letter to The Journal an analysis of the cases of tetanus treated in the home military hospitals by Sir David Bruce was given. He drew the conclusion that under early and thorough treatment with antitoxin the mortality might be reduced from the 50 per cent. at which it then stood to about 20. A further analysis now published shows that this hope has been realized. The following table shows the continual diminution of the mortality:

| Analysis | No. of Cases | Recovered | Died | Mortality, Per Cent. |
|---|---|---|---|---|
| 1914-1915 .................... | 231 | 98 | 133 | 57.7 |
| 1915-1916 .................... | 195 | 99 | 96 | 49.2 |
| August, 1916 ............... | 200 | 127 | 73 | 36.5 |
| October-December, 1916 ..... | 100 | 69 | 31 | 31.0 |
| December, 1916-March, 1917. | 100 | 81 | 19 | 19.0 |

Sir David Bruce refrains from expressing an opinion as to whether the great improvement is due to the specific treatment or to one of the several other factors involved. Referring to surgical treatment, he points out that if this could be made entirely successful, by the cleansing and sterilization of wounds at the outset, there would be no more cases of tetanus; but while there is some evidence of an improvement in surgical technic, much remains to be done.

*The Lengthening Incubation Period.*—Among the last hundred cases in which the symptoms of tetanus appeared within ten days of the time the wound was received, the mortality was 40 per cent.; when they appeared between the eleventh and the twenty-fourth day, it was 25 per cent.; in the remaining sixty-six cases, with an incubation period greater than twenty-five days, the mortality was 13.6 per cent. The longest incubation was 365 days, and the shortest, three days. Since the beginning of the war, the average incubation period has been steadily lengthening. This is probably mainly due to the prophylactic injection of antitoxin. In the first year of the war, 47 per cent. of cases had a short incubation period; in the last analysis this had fallen to 10 per cent. Correspondingly the percentage of cases with a long incubation period has risen from 6.4 to 69.

*General and Local Tetanus.*—In the present analysis, eighty-one cases were general and nineteen local. Among the former there were fifty-eight recoveries and twenty-three deaths, giving a mortality of 28.3 per cent. All the patients with local tetanus recovered. There is no evidence to support the view that a fractured bone complicating the wound is a source of danger heightening the death rate from tetanus.

*Prophylactic and Therapeutic Inoculation.*—In six of the cases, tetanus followed an operation, and one was fatal. In none of these was a prophylactic inoculation of antitetanic serum given before the operation, although the advice of the Tetanus Committee of the War Office is that this should always be done. As in each preceding series of cases, the mortality among patients who had received no prophylactic injection in France was considerably greater than among those so protected. The present policy advocated by the Tetanus Committee is that four prophylactic injections should be given to every wounded soldier at intervals of seven days; but in periods of hard fighting this might sound like a counsel of perfection.

#### A NAVAL MEDICAL OFFICER'S BRAVERY

The king has conferred the decoration of the Albert Medal on Surgeon Probationer Robert Sydney Steele Smith. He was medical officer of a war ship that was torpedoed by a submarine. When the torpedo struck the ship, Surgeon Smith was in the wardroom aft with the first lieutenant. The explosion wrecked the wardroom and rendered the first lieutenant unconscious. As all other exit was blocked, Surgeon Smith piled the wrecked furniture under the skylight, and got the first lieutenant through this on deck. He then attended to a petty officer who was lying on deck with a broken arm and leg, adjusted and blew up his life belt, and after doing the same for the first lieutenant, got him overboard, as the ship was then foundering. The first lieutenant was by now partially conscious, but was again stunned by an explosion when the vessel foundered, and when he was picked up by the boat he was apparently dead. Surgeon Smith applied artificial respiration until the first lieutenant showed signs of life; he afterward attended to the injured in the boat so far as the circumstances allowed, until they were picked up forty-three hours later.

#### HEALTH PROBLEMS AND RECONSTRUCTION

Dr. Christopher Addison, minister of reconstruction, who was formerly lecturer on anatomy at St. Bartholomew's Hospital, delivered an important address on health problems and reconstruction at a meeting under the auspices of the Faculty of Insurance. He said that health was a complex matter; food, and habits of life and hours of work, and many other factors were concerned. Unhappily, there was no body of men whose business it was to consider all these matters—now under the control of many different departments—and to formulate a policy and advise the government. At the Ministry of Munitions there was set up a Health of Munition Workers Committee, who had studied all those various aspects of the question as they affected munition workers. One of the many results of a precise investigation was that a relation had been discovered between hours of labor and working efficiency. In the case of women engaged in turning aluminum fuse boxes, whose hourly output at sixty-six hours a week had been taken as 100, it was found that the output rose to 134 when the hours were brought down to 54.8 and to 158 when the hours were again reduced to 45.6. In the case of boys on light work, 100 again being taken as the hourly output for a seventy-two hour week, the figure became 117 for a fifty-four hour week, and 129 for a fifty-three hour week. Among men engaged on heavy work, with 100 as the standard for a fifty-eight hour week, the output rose to 139 for a fifty-one hour week. Up to the present it had been no one's business in particular to find out such things so far as they related to the general community, and in after-war conditions, when it would be vital to increase the productive powers of the nation, there must be some body whose work it would be to collect all information bearing on the health of the people, and to discover where the gaps were and how they might be filled. The new central health authority, when it was set up, would obviously be concerned in the first place with matters relating to disease, its origin and treatment, but this could not be handled by an authority unless it had powers to deal with matters affecting sanitation. The proper housing of the people was one of the most important elements in a health system. Then there had to be considered all the functions—great and growing ones—which attached to insurance committees as affecting health, and also those of that other great branch of the health service, the poor law administration. This matter would not wait. With the end of the war an unprecedented burden would be thrown on health authorities, in respect not only to demobilized soldiers, but also to civilians, in the reaction after war tension. The machinery ought to be ready and competent to deal with the problem; otherwise the whole subject would be lost in the babel of counsels. Three great branches of work in particular ought to be arranged before the emergency arose, namely, the whole question of nursing and midwifery provision, and—a most thorny one—the whole question of the relation of state health administration to the medical profession. He knew that the British Medical Association strongly took the view that it was the first necessity to create a central organization which would think out and consider the subject in advance. He confidently appealed that minor differences might be sunk and that the question might be regarded as a whole from the point of view of the national interest.

### VOLUNTARY FOOD RATIONS FOR CHILDREN

The food controller, when issuing the new voluntary rations (given in a previous letter), laid stress on the fact that children were not included. He has now removed this exception. He recognizes that the needs of individual children differ greatly, and that some children may require more and others less. He strongly advises that boys and girls whose food is rationed should be weighed every fourteen days at the same period of the day before a meal, and a record kept of their weight without clothes. If the weights are stationary or decline after two consecutive weighings, the allowance of food should be increased. He recommends the following voluntary rations:

| Ages | Bread |  | Other Cereals | Meat |  | Butter, Margarin, Etc., | Sugar |
|---|---|---|---|---|---|---|---|
| Boys and Girls | Pounds | Ounces | Ounces | Pounds | Ounces | Ounces | Ounces |
| 0- 5 ......... | 3 | 0 | 6 | 1 | 0 | 6 | 8 |
| 6- 8 ......... | 3 | 8 | 8 | 1 | 8 | 8 | 8 |
| 9-12 ......... | 4 | 8 | 10 | 2 | 0 | 10 | 8 |
| Boys— |  |  |  |  |  |  |  |
| 13-18 ......... | 6 | 0 | 12 | 2 | 0 | 10 | 8 |
| Girls— |  |  |  |  |  |  |  |
| 13-18 ......... | 5 | 0 | 10 | 2 | 0 | 10 | 8 |

The food controller has also issued the following suggestions with regard to the quantities of other foods which should on the average be supplied weekly to boys and girls whose consumption of bread, cereals, meat and sugar is rationed in accordance with the table:

| Ages | Potatoes | Other Vegetables |  | Milk | Cheese | Eggs or Equivalent | Fish | Jam and Syrup | Cocoa Equivalent |
|---|---|---|---|---|---|---|---|---|---|
| Boys and Girls— | Lb. | Lb. | Oz. | Pts. | Oz. | Only | Oz. | Oz. | Oz. |
| 0- 5 ............ | 3 | 0 | 8 | 2 | 0 | 2 | 0 | 12 | 0 |
| 6- 8 ............ | 4 | 1 | 0 | 2 | 1 | 2 | 0 | 12 | 1 |
| 9-12 ............ | 5 | 1 | 0 | 2 | 1 | 2 | 8 | 12 | 1 |
| Boys— |  |  |  |  |  |  |  |  |  |
| 13-18 ............ | 7 | 2 | 0 | 2 | 2 | 3 | 12 | 12 | 1 |
| Girls— |  |  |  |  |  |  |  |  |  |
| 13-18 ............ | 5 | 1 | 0 | 2 | 1 | 2 | 12 | 12 | 1 |

## Marriages

Capt. Clinton Luman Hoy, M. R. C., U. S. Army, Three Forks, Mont., commanding Field Hospital Company No. 21, M. O. T. C., Fort Riley, Kan., to Miss Maude Wilkins of Lewistown, Mont., in Chicago, November 28.

Lieut. John Elder Hutchinson, M. R. C., U. S. Army, Xenia, Ohio, on duty at Camp Zachary Taylor, Ky., to Miss Anna Kindcaid of Hartford, Conn., at Camp Zachary Taylor, December 8.

Capt. Paul Martin, M. R. C., U. S. Army, Indianapolis, on duty with the Lilly Base Hospital, Fort Benjamin Harrison, Ind., to Mrs. Grace Ellsworth Dewitt of Indianapolis, December 3.

Lieut. Carl Foster Snapp, M. R. C., U. S. Army, Chicago, now on duty at Fort McPherson, Ga., to Miss Alice Noyes Stafford of Chicago, at Grand Rapids, Mich., December 12.

P. A. Surg. Phil Boller, U. S. N. R. F., Los Angeles, on duty with U. S. Navy Base Hospital No. 3, to Miss Laura Frances Burton, December 5.

Asst. Surg. James E. Miller, Jr., U. S. N. R. F., Chicago, on duty at Sacramento, Calif., to Miss Lucille Thomas of Sacramento, September 5.

Walter Fullarton Macklin, M.D., Flushing, L. I., N. Y., to Mrs. Belmont Burdette Magee of Great Neck, L. I., N. Y., December 5.

Harry Hampton Donnally, M.D., Washington, D. C., to Miss Bessie Arnold Stearnes of Richmond, Va., December 7.

James Frederick Gaylord, M.D., Springfield, Mass., to Miss Helen Southworth Jones of Suffield, Conn., December 15.

John H. East, M.D., Denver, to Miss Mamie Sanford of Sundance, Wyo., at Deadwood, S. D., December 14.

Leroy R. Stoddard, M.D., New York City, to Miss Alice Nielsen at Greenwich, Conn., December 21.

## Deaths

**Theodore Caldwell Janeway, M.D.**, Baltimore, died of pneumonia, Dec. 27, 1917, aged 45 years. Dr. Janeway was a graduate of Columbia University, 1895; instructor in bacteriology in Columbia University, 1895-1896; intern in St. Luke's Hospital, 1897; instructor and lecturer in the University and Bellevue Medical College, 1898-1906; associate in clinical medicine in the College of Physicians and Surgeons, Columbia University, 1907; professor of medicine, 1909; visiting physician to St. Luke's, the City and the Presbyterian hospitals, New York; physician-in-chief to Johns Hopkins Hospital, and professor of medicine in the Johns Hopkins University under the Welch Fund, 1914. He was a Fellow of the American Medical Association; a member of the editorial board of *The Archives of Internal Medicine* since 1908, and a member of the board of scientific directors of the Rockefeller Institute for Medical Research since 1911.

Dr. Janeway offered his services to the Army immediately after war was declared by this country. His services were accepted and he was assigned to active duty in the Surgeon-General's Office in Washington. There he had general direction of the Division of Internal Medicine. Through his efforts, and with the cooperation of Major Warfield T. Longcope, the splendid personnel of the internists who have had charge of the cantonments and camps was obtained. He had recently made a personal investigation of the outbreaks of measles and pneumonia at certain of the cantonments. In addition to the almost night and day work at the Surgeon-General's Office, Dr. Janeway conducted two clinics a week in Baltimore, and this in addition to the energy required in the investigation of the cantonments probably weakened his power of resistance. Few men have done more to advance the pure science of medicine in this country than did Dr. Janeway. He was a man of lovable character, a hard worker, cut down at the time that he was accomplishing his greatest good.

**William Joseph Hearn, M.D.**, Philadelphia; Jefferson Medical College, 1867; aged 74; formerly a Fellow of the American Medical Association; anesthetist and private assistant to Dr. Samuel D. Gross; appointed chief of clinic at the opening of Jefferson Hospital in 1877; assistant demonstrator in his alma mater from 1871 to 1879; later demonstrator of anatomy, professor of principles and practice of surgery, and clinical surgery; and emeritus professor of surgery in his alma mater; quiz-master in surgery for five years; the first to give a course of instruction in the microscopy and esthology of tumors; instructor in surgery and bandaging in Dr. McClellan's School of Anatomy; for several years surgeon to the Philadelphia General Hospital; a member of the American Surgical Association, and Philadelphia Academy of Surgery; died at the home of his daughter in Media, Pa., December 21, from pneumonia.

**Charles Greenleaf Carleton, M.D.**, Lawrence, Mass.; Harvard Medical School, 1867; aged 74; a Fellow of the American Medical Association; president of the medical staff and consulting physician of the Lawrence General Hospital; consulting physician to the Danvers, Mass., Lunatic Hospital; Medical Cadet and Acting Assistant Surgeon in the Army during the Civil War; city physician of Lawrence, in 1895-1896; once president of the Essex North District Medical Society; president of the Lawrence Anti-Tuberculosis League, from 1908 to 1912, who was given a complimentary dinner in August last, in honor of his completion of half a century of practice, died at his home, December 17, from heart disease.

**Hugo Summa, M.D.**, St. Louis; University of Munich, Germany, 1884; aged 58; a Fellow of the American Medical Association, and a well known pathologist and diagnostician of St. Louis; for more than twenty years professor of medicine in the St. Louis University and Marion-Sims Medical College; a frequent contributor to the medical literature; consulting physician to the St. Louis City Hospital and St. Mary's Infirmary, and physician to the Rebekah Hospital; died at his home, December 15, from heart disease.

**Charles Wellman Mitchell, M.D.**, Baltimore; University of Maryland, Baltimore, 1881; aged 58; a Fellow of the American Medical Association; professor of pediatrics and clinical medicine in his alma mater; visiting physician to the University Hospital, and consulting physician to the Presbyterian Eye and Ear Hospital and Hospital for Crippled Children, Baltimore; well known as a specialist in diseases of children; died at his home, December 28, from pneumonia.

**Hugh Jones Edwards, M.D.,** Milwaukee; Rush Medical College, 1905; aged 41; for several years physician for the Milwaukee Branch of the International Harvester Company; died at his home, December 21, from the effects of an incised wound of the throat, believed to have been self-inflicted, with suicidal intent, while despondent on account of ill health.

**James L. Hensley, M.D.,** Marion, Ohio; Eclectic Medical Institute, Cincinnati, 1867; aged 85; a member of the staff of the Marion City and County Hospital; a licensed preacher of the United Brethren Church; at one time a member of the state legislatures of Ohio and West Virginia; died at his home, December 21, from cerebral hemorrhage.

**Jeremiah Crisp Bartlett, M.D.,** Springfield, Ohio; Medical College of Ohio, Cincinnati, 1865; University of Michigan, Ann Arbor, 1868; aged 72; for many years a practitioner of Marietta and Cambridge, Ohio, but for the last four years an inmate of the Masonic Home, Springfield, Ohio; died in that institution, December 16, from senile debility.

Theodore Caldwell Janeway, M.D., 1872-1917
Major, M. R. C., U. S. Army

**Theodore Gawn Finley, M.D.,** Los Angeles; University of Southern California, Los Angeles, 1908; aged 42; a Fellow of the American Medical Association; formerly assistant superintendent of the Los Angeles County Hospital; surgeon of the Los Angeles Gas and Electric Corporation; died in the Sisters' Hospital, Los Angeles, December 17.

**Edward Martin Schaeffer, M.D.,** Washington, D. C.; George Washington University, Washington, D. C., 1868; aged 74; a member of the Medical Society of the District of Columbia; formerly hospital steward and acting assistant surgeon, United States Army; a hand-writing expert; died at his home, November 30, from heart disease.

**Frank Wentworth Plummer, M.D.,** Malden, Mass.; Harvard Medical School, 1895; aged 47; a Fellow of the American Medical Association; visiting physician to the Malden Hospital; chairman of the Malden board of medical inspectors of schools; died at his home, December 15, from erysipelas complicated by pneumonia.

**William Daniel Whitten, M.D.,** San Diego, Calif.; University of Michigan, Ann Arbor, 1902; aged 37; a Fellow of the American Medical Association; formerly assistant surgeon to the Copper Range Consolidated Copper Company, Baltic, Mich.; died at the Pottenger Sanatorium, Monrovia, Calif., December 5.

**William L. Galloway, M.D.,** St. Louis; Boston University Medical School, 1888; aged 57; professor of dermatology in the Homeopathic Medical College of Missouri, and dermatologist to the Christian Hospital of St. Louis; died in Barnes' Hospital, St. Louis, December 14, a week after a surgical operation.

**Samuel D. Holcomb, M.D.,** Crystal River, Fla.; Western Reserve University, Cleveland, 1884; aged 61; for thirty-eight years a practitioner of Oakland and Wayne counties, Mich.; for many years vice president of the Farmington, Mich., State Bank; died at his home, December 11.

**Martin Augustus McGovern, M.D.,** New York; Bellevue Hospital Medical College, 1877; aged 67; from 1884 to 1916 surgeon of the Police Department of New York; and for a time an official of the department of health; died at his home, December 16, from cerebral hemorrhage.

**Albert Holman, M.D.,** Butler, Pa.; Jefferson Medical College, 1881; aged 64; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; died at his home, December 13, from cerebral hemorrhage.

**John Thomas Sharkey, M.D.,** Excello, Ohio; University of Cincinnati, 1917; aged 24; an intern in the Good Samaritan Hospital, Cincinnati; died in that institution, September 17, from acute dilatation of the stomach, following an operation for appendicitis.

**Martin Leland Dollahan, M.D.,** Chicago; Rush Medical College, 1917; aged 26; an intern at Presbyterian Hospital, Chicago; died in that institution, December 15, from septicemia secondary to an infection of the hand due to a necropsy wound.

**Enoch James Yager, M.D.,** Graysville, Ind.; Kentucky School of Medicine, Louisville, 1890; aged 69; a pioneer practitioner of Sullivan County, Ind., and a charter member of the Sullivan County Medical Society; died at his home, December 10.

**William Adley Hemphill, M.D.,** St. Louis; Washington University, St. Louis, 1874; aged 67; for forty years a practitioner of Elsberry, Mo.; died in the Deaconess Hospital, St. Louis, December 14, after an operation for disease of the bladder.

**Linnaeus Victor Gibbs, M.D.,** Huntington, Mass.; University of Vermont, Burlington, 1880; aged 76; a member of the Massachusetts State Medical Society; died at his home, October 16, from arteriosclerosis.

**William Edward Harwood, M.D.,** Petersburg, Va.; Medical College of Virginia, Richmond, 1873; aged 70; a member of the Medical Society of Virginia; a Confederate veteran; died at his home, about December 11.

**James C. McMechan, M.D.,** Cincinnati; Medical College of Ohio, Cincinnati, 1868; aged 70; a member of the Ohio State Medical Association, and Cincinnati Academy of Medicine; died at his home, November 28.

**Andrew T. Sherman, M.D.,** Detroit; Detroit College of Medicine and Surgery, 1895; aged 52; a Fellow of the American Medical Association; died at his home, December 9.

**John Burt Williams, M.D.,** Sterlington, La.; University of Tennessee, Nashville, 1909; aged 34; a member of the Louisiana State Medical Association; died at the home of relatives near Antioch, La., December 6.

**Glen Thompson, M.D.,** Salina, Kan.; Hahnemann Medical College, Chicago, 1906; aged 41; a member of the Kansas Medical Society; died at his home, December 2, from typhoid fever.

**Thomas A. Carroll, M.D.,** Windgap, Pa.; Baltimore Medical College, 1904; aged 36; a member of the Medical Society of the State of Pennsylvania; died at his home, December 5.

**Joseph Braunstein, M.D.,** Byron Hot Springs, Calif.; University of Vienna, Austria, 1878; aged 65; died in his apartment in the Hotel Granada, San Francisco, December 16.

**Abraham W. Green, M.D.,** Medical Lake, Wash.; Medical College of Indiana, Indianapolis, 1887; aged 75; died at his home, November 7, from cerebral hemorrhage.

# The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## HEMO-THERAPIN

### Report of the Council on Pharmacy and Chemistry

The following report on Hemo-Therapin has been adopted by the Council, and its publication authorized.

W. A. Puckner, Secretary.

According to the Hemo-Therapin Laboratories of New York City:

> "Hemo-Therapin is a combination of highly refined creosols and phenols (which have been detoxicated by special processes) with salts of iron, potassium, sodium, phosphorus and calcium in minute but physiologic proportions—the solution as a whole being designed to approximate closely in various fundamental details the chemistry of the blood."

No statement is made as to the quantities of the several ingredients, nor is any information given as to the identity of the "creosols" and "phenols," nor the nature of the processes whereby these are "detoxicated." It is further claimed that it is:

> ". . . the composite character of Hemo-Therapin, the relative proportions and balance of its several ingredients, and the action of the compound as a whole, to which its potency is due."

And it is suggested that:

> "It will be apparent that the ingredients which enter into the composition of Hemo-Therapin, a remedy used intravenously exclusively, have been selected with the utmost care with the object of assuring not only maximum therapeutic potency but also *absolute safety and freedom from all dangers of toxic or other unpleasant or harmful action.*" [Italics in the original.]

The advertising does not explain, however, why the complex preparation should be therapeutically efficient or why the intravenous administration of this mixture should be absolutely safe and free from toxic or harmful action. Of the origin of Hemo-Therapin it is said:

> "For many years Dr. E. B. Witte, a prominent physician of Trenton, N. J. [apparently owner of the Hemo-Therapin Laboratories] has devoted himself to the study of the blood. As a result of his researches, he early determined that when the blood is close to normal standards, the body is well nourished, the natural waste products are properly eliminated, an effective resistance is offered to the invasion of pathogenic bacteria, and the various functions of the body are kept normally active. But when, for one reason or another, the blood falls away from normal standards, the nutrition of the body suffers, the elimination of waste products is impaired, the resistance to germ attack is weakened, and the various functions of the body become sadly deranged and perverted. In other words, instead of the physiologic processes of the body being normally active, as soon as the blood is depreciated, they become depressed or deranged, with a loss of the physiologic harmony or equilibrium that constitutes a state of health.
>
> "Recognizing the relation of clinical conditions to these various phenomena, Dr. Witte reached the conclusion that the correction of many aberrant or diseased conditions depended on restoring the blood to as near to its normal state as possible. He accordingly applied himself especially to investigation of the chemistry of the blood, with the object of evolving a substance in liquid form that would so closely approximate normal blood in its essential chemical characteristics that when introduced into the circulation it would bring the blood nearer to the condition in which it exists in health."

After the usual "many years of hard painstaking labor," Dr. Witte elaborated a "fluid meeting the foregoing conditions" and now the Hemo-Therapin Laboratories inform us that 5 to 10 c.c. of this synthetic blood administered once in one, two or three days in "acute affection" and at longer intervals in "chronic ills"—once a week is said to be usually sufficient—will restore blood to a normality and empower it to overcome most ills. While disclaiming that "Hemo-Therapin is an infallible panacea," the medical profession is asked to believe that:

> "In erysipelas, septicemia, pyemia, the acute fevers, puerperal infection, furunculosis, carbuncles, malaria, acute rheumatism, pneumonia, typhoid fever, and in various skin diseases, such as eczema, psoriasis, herpes zoster, etc., the results have been prompt and gratifying."

It is "no less effective" in such "chronic ailments" as:

> ". . . diabetes, chronic Bright's disease, goiter, pulmonary tuberculosis, chronic rheumatism, the severe anemias, arterio-schlerosis [*sic!*], various nervous disorders, locomotor ataxia, varicose and indolent ulcers. . . ."

Evidence of the virtues of Hemo-Therapin is submitted as a series of "case reports"—unsigned—which bear a striking likeness to the testimonials of "patent medicine" almanacs. A specimen of the "case reports" is the following:

> "*Blood Poisoning due to Snake Bite.*—Case 9.: Mrs. ————; age, 52; was bitten by a poisonous snake—a copperhead—seventeen years ago. On the anniversary of the bite the arm would swell to more than twice its normal size and there would be pain, chills and fever. After a month of this the acute symptoms would disappear and the arm would show large scaly blotches which upon being removed would disclose a thin mucous liquid. Throughout the seventeen years pain was constant, being particularly acute in midsummer around the anniversary of the bite. This patient had consulted many physicians during the seventeen years of suffering without any relief. Large doses of narcotic remedies were necessary each day to subdue the pain. Twenty-four hours after the first injection of Hemo-Therapin all pain was dissipated. After four treatments the patient was considered well and there has been no return of any of the symptoms since the last treatment six months ago."

Hemo-Therapin is sold in ampules: 6 for $5 and 12 for $10, and a circular sent to a physician contained this type-written note:

> "Fees.—While the physician's fee is not regulated by this company, the physicians who use Hemo-Therapin get $5.00 and $10.00 for each treatment."

[Editorial Comment.—During 1917 advertisements of Hemo-Therapin have appeared in the following medical journals:

*Medical Record*
*New York Medical Journal*
*Medical Fortnightly*
*Pacific Medical Journal*
*Western Medical Review*
*Medical Council*
*Medical Times*
*American Journal of Surgery*
*Therapeutic Gazette*
*Texas Medical Journal*
*Archives of Pediatrics*
*Medical World*
*Medical Standard*
*Charlotte Medical Journal*
*International Journal of Surgery*
*Critic and Guide*
*Urologic and Cutaneous Review*
*American Medicine*
*Medical Summary*
*Medical Sentinel*
*American Journal of Clinical Medicine*
*Medical Herald*
*Medical Review of Reviews*

## VENOSAL

### Report of the Council on Pharmacy and Chemistry

The following report on Venosal has been adopted by the Council, and its publication authorized.

W. A. Puckner, Secretary.

"Venosal" is one of the products of the Intravenous Products Company, Denver, Colo. Its composition has been variously, and obscurely, described:

> "Venosal is a sterile solution representing 1 gm. (15.4 grains) of salicylates in combination."
>
> "Venosal is a sterile solution representing 1 gm. (15.4 gr.) of salicylates in combination, together with colchicum."
>
> "This is a product for intravenous use. The composition of which is Sodium Salicylate, 15.4 grs. (1 gm.), Iron Salicylate a minute quantity and the equivalent of approximately 2 grs. Dried Colchicum Root."

None of these "formulas" gives the quantity of the product containing the 1 gm. of salicylate, etc., but presumably it refers to the contents of 1 ampule or 20 c.c. This inference is in accord with the analysis of the product made in the Chemical Laboratory of the American Medical Association. The analysis also brought out the fact that the amount of iron in a given ampule was 0.0008 gm. (about 1/80 grain). This trace of iron in the presence of salicylate gives the product a purple color.

Venosal is recommended for the treatment of "rheumatism," meaning, the context would indicate, infectious rheumatic fever. As colchicum has no special action on this disease and as there is no apparent reason for the employment of the trace of iron present, these additions in fixed proportions are unscientific, if not absurd. According to the advertising matter:

> "Venosal . . . eliminates unpleasant digestive disturbances which frequently forbid the use of salicylates by mouth and, in addition, insures their full therapeutic value."

The statement is misleading, as the cases in which the oral administration of the salicylates is contraindicated are not "frequent" but exceptional and there is no evidence to justify the implication that the "full therapeutic value" of salicylates cannot readily be attained by their oral use. Still more astonishing is the following claim:

> "Venosal is a combination carrying the true salicylates (sodii) in doses much larger than given by mouth. With this preparation given intravenously, there is no nausea or disagreeable digestive after-effects, tinnitus aurium, or the accumulating effects of the drug; yet the specific action of the salicylates seems to be increased many-fold, according to reports received."

What are the facts? By mouth sodium salicylate is given in doses of from 3 to 15 gm. in a day; whereas Venosal is advised as 1 gm., in from one to three day intervals; as a matter of elementary arithmetic it is plain that these doses of Venosal are smaller instead of being "much larger." The absence of digestive ill effects, tinnitus, etc., is explained by the small dosage. That the specific action of the salicylates should be increased by intravenous administration is surprising when it is remembered that the drug is absorbed rapidly and completely from the intestines; in fact, the quoted statement is incredible.

The company further alleges that, on the basis of "clinical reports" it has received, it does not "hesitate to recommend this product for routine use in all streptococcic infections." Such a therapeutic suggestion is, to put it conservatively, gross exaggeration.

The whole question of the justification of using salicylates intravenously is open to grave doubt. Since it is possible to obtain the salicylate effects promptly and certainly by oral administration, the inherent dangers of intravenous medication render its routine employment unwarranted. A further objection to Venosal, especially at this time when economy is a national policy, is the unnecessarily high expense of Venosal itself and of its administration.

The referee recommends that Venosal be declared ineligible to New and Nonofficial Remedies because of conflicts with Rule 1 (indefinite chemical composition), Rule 6 (therapeutic exaggerations) and Rule 10 (unscientific composition).

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# *Correspondence*

## CLASSES IN NURSING FOR PATRIOTIC WOMEN

*To the Editor:*—The magnitude of the conflict that has been raging for more than three years and the part we are to play in it are gradually coming home to our people. A united effort in giving our boys in the trenches and their families at home all available help is becoming increasingly important. As our Army begins active operations, the crying need will be for more trained nurses. Every shipload of soldiers going abroad will emphasize this demand, which will become more and more pressing.

As a medical man, I have a few suggestions to make for preparing to meet this situation. Briefly they are as follows:

Young women who feel the call of patriotism in this hour of the nation's peril, and who are willing to respond, can be organized into classes of from fifty to one hundred, each class to be given three months' intensive training in surgical and medical nursing, the course to include bandaging and first aid.

This training can be done with little or no expense, and without any charge whatever to the young women who are willing to take the course. I am sure that medical men throughout the city will gladly join in such patriotic effort, and give their time freely. The hospitals and medical schools will no doubt cooperate. The classes could be held at the different hospitals. Lectures and laboratory work in the various subjects could be given by persons who have had the advantage of experience at the battle fronts, and thus have first hand information as to what training is most essential.

Organizations of a similar character could be organized and, I am sure, would soon be formed in every community. The plan would in a short time become nation wide. By this method patriotic young women who are anxious to respond to the call of duty would have an opportunity to participate in the actual trials of war. The need of the medical department could then be constantly supplied with nurses from the ever increasing number of these graduates.

I have spoken to a number of physicians and each one of them was enthusiastic about the idea. I myself am ready to give my time freely, and shall be pleased to hear from any one who is interested and is willing to cooperate.

Several young women have already signified their intention of joining the first class, which is to be organized immediately.

J. M. Shaw, M.D., Chicago.

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## SOUND PERCEPTION IN DEAF MUTES

*To the Editor:*—A usable amount of sound perception in deaf mutes is of more frequent occurrence than is generally recognized. This is because neither physician nor layman clearly understands how slight a degree of hearing can be utilized for educational purposes. A child that cannot hear speech at short conversational distances will not spontaneously learn to speak, and is classed by the medical profession as a "deaf-mute." Many children, properly so classed by physicians, have, nevertheless, a sufficient power of perceiving sound to profit by special instruction adapted to train the brain to associate ideas with the imperfect sounds that can be perceived. This is possible because, by the laws of sound, the intensity with which the ear is affected varies inversely as the square of the distance, and a child who cannot hear a word spoken at a distance of a yard may be able to hear it at a distance of an inch, since the impression on the ear would then be 1,296 times as great, and if the sound was twice as loud as when spoken at a yard the effect would be 2,592 times as great.

During the past twenty-four years, 35 per cent. of the deaf children that have been brought to me for training in speech have possessed a sufficient degree of residual hearing to profit by the auricular training which we give. Probably a third of the pupils in the state institutions for the deaf throughout the country could be trained to understand spoken language through the ear if given the opportunity to learn.

Not only could their brains be trained to associate ideas with the sounds of speech, but by the conducting of some of the auricular exercises before a mirror, with special reference to articulation, a greatly improved and more natural speech could be secured from the pupil.

There are many cases in which medical and surgical skill can secure for a deaf child at least a slight power of perceiving sound, though normal hearing cannot be attained. These slight powers of hearing, if properly used educationally, can be made of great service to the child. At present, in the majority of cases, no use is made of them. The physician should exert his influence to have the child receive the proper auricular training.

John Dutton Wright,
1 Mount Morris Park, West,
New York.

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## THE RECLAMATION OF USED ALCOHOL

*To the Editor:*—An article with this caption by Elizabeth Selden, superintendent of the Butterworth Hospital, Grand Rapids, Mich., appeared in the *Journal* of the Michigan State Medical Society, December, 1917, p. 499. Inferentially the article intimates that many institutions waste used alcohol that might be reclaimed with advantage and economy. If this is true, the article is timely and the information that it contains should be more widely published. The Army Medical Museum has been reclaiming used alcohol since its foundation in 1862. The process is simple enough—the evaporation by the heat of a steam coil, and condensation of the vapor by a cold water coil. The vapor that first comes over and is condensed usually gives a grade of 85; the grade then gradually falls; when it reaches 50 the process is stopped and the residue is discharged into the sewer. The still is in the open air, outside the museum annex. Of course the question is mainly an economic one—the relative cost of the installation of the still, the running of it when necessary, and the quantity of used alcohol. In a small institution, it might be more economical to throw the used alcohol away.

D. S. Lamb, Washington, D. C.
Pathologist, Army Medical Museum.

### ROENTGEN LOCALIZATION OF FOREIGN BODIES

*To the Editor:*—In The Journal, Dec. 1, 1917, p. 1902, there is a letter from Dr. George C. Johnston regarding my method of locating bullets and other foreign bodies (The Journal, Nov. 3, 1917, p. 1521) by means of a wire net laid on the roentgen-ray plate during the two exposures. There are seven meshes to the linear inch. With a tube distance of 21 inches and a tube displacement of 3 inches, suitable for the head, thigh or trunk (or 14 inches distance and 2 inches displacement for thinner parts), my statement was that each one-seventh inch subdivision that the image is displaced represents one-half inch distance from the foreign body to the plate. Dr. Johnston calls attention to the necessity for a correction at most distances, and I am very glad to verify his statement. The value of my method will be greatly enhanced by the use of the following table, which I have calculated since noting Dr. Johnston's suggestion.

Over the plate is galvanized iron netting of "one-eighth inch mesh." This, including the thickness of the wires, runs seven meshes to the linear inch.

| Anticathode Distance, 21 Inches, Tube Displacement, 3 Inches. | | Anticathode Distance, 14 Inches; Tube Displacement, 2 Inches. | |
|---|---|---|---|
| Image Displaced, $\frac{1}{7}$-Inch Meshes | Distance of Foreign Body from Plate Inches | Image Displaced, $\frac{1}{7}$-Inch Meshes | Distance of Foreign Body from Plate Inches |
| 1 | 0.9 | 1 | 0.9 |
| 2 | 1.8 | 2 | 1.8 |
| 3 | 2.6 | 3 | 2.5 |
| 4 | 3.2 | 4 | 3.1 |
| 5 | 3.7 | 5 | 3.7 |
| 6 | 4.6 | 6 | 4.2 |
| (1 inch) 7 | 5.3 | (1 inch) 7 | 4.7 |
| 8 | 5.7 | 8 | 5.1 |
| 9 | 6.3 | 9 | 5.5 |
| 10 | 6.8 | 10 | 5.8 |
| 11 | 7.3 | 11 | 6.1 |
| 12 | 7.7 | 12 | 6.5 |
| 13 | 8.3 | 13 | 6.7 |
| (2 inches) 14 | 8.7 | (2 inches) 14 | 7. |
| 15 | 8.9 | | |
| 16 | 9.1 | | |
| 17 | 9.3 | | |
| 18 | 9.6 | | |
| 19 | 10. | | |
| 20 | 10.3 | | |
| (3 inches) 21 | 10.5 | | |

Except when the foreign body is in contact with the plate, or is half way between the anticathode and the plate, the rule that the displacement of the image in one-seventh inch meshes equals the distance from the plate to the foreign body in half inches is only approximate, and the table should be used for exact localization.

Sinclair Tousey, M.D., New York.

### "CHOLESTEROL ESTIMATIONS IN BLOOD"

*To the Editor:*—In The Journal, Dec. 8, 1917, you comment upon "Cholesterol Estimations in Blood." The subject of cholesterinemia has occupied my attention and taken up a good deal of my time since 1912. During all these years I have made thousands of determinations and have tried most of the methods employed. Much has been said and written on the subject that is inaccurate, and the apparent inconsistencies are largely the result of improper interpretations of the results. The editorials and comments in The Journal should have a certain "finality" about them, and the profession ought to be able to consult The Journal as an authority, and to take for granted its editorials and its current comments. The cholesterinemia, in the diagnosis of cholelithiasis, is far from limited in its usefulness, and the findings in this condition are far from "quite inconstant." My work has shown, and continues to show, that a cholesterol determination is most helpful in the diagnosis of gallstones. The "latest statistics" of Gorham and Myers are far from final.

We all agree that a hypercholesterinemia is found in many conditions; a few conditions cause a hypocholesterinemia. But not until all coincident clinical states and conditions in an individual case are taken into consideration and properly interpreted will our "statistics," late or otherwise, be uniform and consistent. And not until we agree on a method for cholesterol determinations shall we obtain uniform results. The method I use, and have used for five years, always returning to it after trying others, was approved by Professor Autenrieth and checked up by Professor Windaus personally.

Edwin Henes, Jr., M.D., New York.

[Comment.—While we appreciate the high standard which our correspondent demands of the editorial pages of The Journal, we must remind him that there is no "finality" in science. The "truths" of science and even the dictates of religion have no absolute or necessarily permanent values; we must keep the open mind and be prepared for review and revision at all times. The regular reader of our editorial columns will discover that they not infrequently ask questions or present conflicting points of view. Probably in the problem here at issue further evidence will necessitate a new statement. We agree that the methods for estimation of cholesterol are far from satisfactory—even if they are approved by German professors.—Ed.]

## *Queries and Minor Notes*

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### DIAZO REACTION IN TUBERCULOUS CHILDREN—TUBERCULOUS MENINGITIS IN INFANTS

*To the Editor:*—Could you publish in The Journal a brief abstract of the following articles: (1) Schwab, J. B.: "Diazo Reaction in the Prognosis of Tuberculosis in Children," *Nederlandsch Tijdschrift voor Geneeskunde,* 1917, **1**, 1010.

(2) Bordet, E., and D'Ovidio, R.: "Tuberculous Meningitis in Infants," *Semana médica,* 1917, **24**, 385.

May Michael, M.D., Chicago.

Answer.—Schwab comments on the difficulty of estimating the prognosis in children. She mentions in particular the case of a child of 2 whose mother and six of the other children had died from tuberculosis, and the child itself presented high temperature, rapid pulse, extensive pleural effusion and changes in the lungs, and was living under unfavorable conditions on account of an inundation. Three months later the effusion had been absorbed, and except for pleural adhesions all seemed to be normal. The diazo and the urochromogen reaction had been constantly positive at first, but they veered to negative afterward. All the signs were manifestly misleading. This was confirmed by similar experiences with the diazo reaction in a hundred other tuberculous children, and the urochromogen reaction in fifty. The children have been under observation for various periods, some only a few days and others up to seven years. Among the children there were 23 with tuberculous meningitis; 15 with generalized tuberculosis; 5 with pulmonary plus peritoneal tuberculosis; 10 with tuberculous peritonitis; 33 with pulmonary tuberculosis, and the others had tuberculous pleurisy or glands. The diazo was constantly negative in 55, including 36 progressive and fatal cases. Of the 27 with constantly positive diazo, 23 have died since. Equally contradictory results were obtained in the cases with positive diazo veering to negative, or vice versa. The urochromogen reaction seemed to parallel the diazo, with a few exceptions. It did not seem to be more sensitive than the latter. In 7 cases the diazo varied from positive to negative repeatedly; the clinical prognosis in this group was always dubious to grave. The article was listed in The Journal, June 23, 1917, p. 1952, showing that the diazo is not a reliable guide for the prognosis.

The article "Tuberculous Meningitis in Infants" was summarized in The Journal, June 23, 1917, p. 1951, Abstract 76.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 8. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 7-8. Sec., Dr. Coit I. Hughes, 21 E. Washington, Phoenix.

CALIFORNIA: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

COLORADO: Denver, Jan. 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

HAWAII: Honolulu, Jan. 10-13. Sec., Dr. G. A. Batten, Box 375, Honolulu.

ILLINOIS: Springfield, Feb. 6-7. Supt. F. C. Dodds, Springfield.

INDIANA: Indianapolis, Jan. 8-10. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

IOWA: Des Moines, Feb. 5-7. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, Feb. 12. Sec., Dr. H. A. Dykes, Lebanon.

NATIONAL BOARD OF MEDICAL EXAMINERS: New York City, Jan. 9-17. Sec., Dr. J. S. Rodman, 310 Real Estate Bldg., Broad and Chestnut Sts., Philadelphia.

NEW MEXICO: Sante Fe, Jan. 14. Sec., Dr. R. K. McClanahan, East Las Vegas.

NEW YORK: Albany, Buffalo, New York City and Syracuse, Jan. 29-Feb. 1. Sec., Dr. W. J. Denno, Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Jan. 8-9. Sec., Dr. J. J. Williams, Weatherford.

PENNSYLVANIA: Philadelphia, Jan. 8-10. Sec., Nathan C. Schaeffer, State Capitol, Harrisburg.

SOUTH DAKOTA: Pierre, Jan. 8. Sec., Dr. P. B. Jenkins, Waubay.

UTAH: Salt Lake City, Jan. 7-8. Cor. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, Feb. 12. Sec., Dr. W. Scott Nay, Underhill.

WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

WYOMING: Laramie, Feb. 6-8. Sec., Dr. H. E. McCallum, Laramie.

## Ohio June Examination

Dr. Herbert M. Platter, secretary of the Ohio State Medical Board, reports the oral, practical and written examination held at Columbus, June 11-14, 1917. The examination covered 11 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 157 candidates examined, 154 passed, including 1 osteopath, and 3 failed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Chicago College of Medicine and Surgery | (1915) 82.4; (1916) | 79.3 |
| Hahnemann Medical College and Hospital of Chicago | (1917) | 87.5 |
| Northwestern University | (1917) | 84.6 |
| Rush Medical College | (1916) 81.8, 85.5; (1917) | 85.3 |
| Johns Hopkins University | (1914) | 86.1 |
| University of Maryland | (1916) | 81.7 |
| Harvard University | (1905) | 82.4 |
| St. Louis University | (1917) | 82 |
| Eclectic Medical College | (1917) | 75, 75, 75.3, 76, 77.4, 79, 79.4, 79.7, 79.7, 79.9, 81.7, 82, 82.2, 83.4, 83.7, 84.3, 85.3, 88, 88.1. |
| Ohio State University College of Medicine | (1917) | 79.5, 79.6, 81.6, 82, 82.3, 82.3, 82.6, 83, 83.1, 83.1, 83.2, 83.3, 83.5, 83.7, 83.8, 83.8, 83.8, 83.8, 84, 84, 84, 84.1, 84.7, 84.9, 85, 85.1, 85.3, 85.4, 85.4, 85.5, 85.7, 86, 86.1, 86.5, 86.6, 86.7, 87.1, 87.3, 87.4, 87.4, 87.4, 87.5, 87.7, 87.7, 88, 88.5, 88.8, 89.2, 89.8, 89.8, 89.9, 90.3, 90.4, 91.8, 92.5. |
| Ohio State University, Homeopathic | (1917) | 79, 82.8, 83.4, 83.6, 85.4, 85.7, 90.5. |
| University of Cincinnati | (1917) | 77, 81.4, 82.1, 83.1, 83.4, 83.7, 83.7, 84.9, 85.5, 85.7, 85.9, 86.2, 86.5. |
| Western Reserve University | (1916) 79.6; (1917) | 81.9, 82, 82.8, 83, 83, 83.2, 84.1, 84.4, 84.7, 85.1, 85.1, 85.2, 85.3, 85.4, 85.8, 85.8, 85.9, 86, 86.1, 86.3, 86.5, 86.8, 87, 87.2, 87.5, 87.7, 89.3. |
| Hahnemann Med. Coll. and Hosp. of Philadelphia | (1917) | 82.5, 83.6, 87. |
| Jefferson Medical College of Philadelphia | (1914) 85, 86.7; (1916) | 85.1, 85.6, 85.9. |
| University of Pennsylvania | (1917) | 81.8, 87.3, 88. |
| University of Pittsburgh | (1916) | 82.5, 84.1, 86.4. |
| Woman's Medical College of Pennsylvania | (1889) | 75 |
| Vanderbilt University | (1914) | 83.8 |
| Milwaukee Medical College | (1912) | 77.8 |
| University of Athens | (1899) | 75 |
| University of Genoa | (1912) | 75.1 |
| University of Naples | (1911) | 75 |
| FAILED | | |
| Tufts Medical College | (1903) | 63.8 |
| Eclectic Medical College | (1917) | 73.3 |
| University of Wooster | (1877) | 60.2 |

## Maine July Examination

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the practical and written examination held at Augusta, July 5-6, 1917. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Twenty-three candidates were examined, all of whom passed. Four candidates were licensed through reciprocity. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Bowdoin Medical School | (1917) | 83, 84, 85, 88, 88, 89, 92. |
| Boston University | (1917) | 82, 86, 90. |
| College of Physicians and Surgeons, Boston | (1916) | 85 |
| Harvard University | (1917) | 87, 88, 89. |
| Tufts College | (1900) 75, (1917) | 80, 83, 87, 88. |
| Long Island College Hospital | (1907) | 88 |
| University and Bellevue Hospital Medical College | (1914) | 90 |
| Jefferson Medical College of Philadelphia | (1916) 90; (1917) | 89 |

| College | Year Grad. | Reciprocity with |
|---|---|---|
| LICENSED THROUGH RECIPROCITY | | |
| Chicago Homeopathic Medical College | (1888) | Dist. Colum. |
| Washington University | (1901) | Missouri |
| University of Vermont | (1916) | Vermont |
| Medical College of Virginia | (1899) | Dist. Colum. |

# Book Notices

WHITE AND MARTIN'S GENITO-URINARY SURGERY AND VENEREAL DISEASES. By Edward Martin, A.M., M.D., F.A.C.S., John Rhea Barton Professor of Surgery, University of Pennsylvania; Benjamin A. Thomas, A.M., M.D., F.A.C.S., Professor of Genito-Urinary Surgery in the Polyclinic Hospital and College for Graduates in Medicine, and Stirling W. Moorhead, M.D., F.A.C.S., Assistant Surgeon to the Howard Hospital, Philadelphia. Tenth Edition. Cloth. Price, $7. Pp. 929, with 443 illustrations. Philadelphia: J. B. Lippincott Company, 1917.

Since the death of the late Professor White, the junior author has associated with him, in revision, two men qualified to assist in maintaining the standard of former editions. Of the new things incorporated, whether matters of examination, of diagnosis, or of surgical or medical procedure, only those have been included that seemed to the authors to be of permanent value. Among the new topics are a brief practical presentation of the subjects of vaccines and serums; tests of renal function valuable as relating to operative risk; high frequency desiccation in bladder and other neoplasms; conservative and radical treatment of prostatic hypertrophy; laboratory diagnosis and control of treatment in syphilis, and therapeutic measures of other varieties that have won general approval. The conservatism of the authors toward important procedures is indicated in their statement that they have not found, practically, that a continued positive Wassermann reaction is a condition to be heroically combated at the expense of the patient's health, and that they are in agreement with those who believe that symptomless syphilitics should not be subjected to prolonged and continuous treatment or intensive courses for the sole purpose of changing the reaction; they should rather have intermittent treatment throughout life, chiefly with mercury and the iodids, short of the production of drug reaction. On the controversial point of subdural injections in syphilis of the nervous system, they say they have not been convinced of the safety or special value of these.

FRACTURES OF THE LOWER EXTREMITY OR BASE OF THE RADIUS. By Lewis Stephen Pilcher, A.M., M.D., LL.D., Consulting Surgeon, Bushwick Hospital. Cloth. Price, $2. Pp. 116, with 132 illustrations. Philadelphia: J. B. Lippincott Company, 1917.

This is a well written, well illustrated little monograph based on a careful clinical and experimental study of the subject over a period of many years. Four points of special interest brought out by the author should be impressed on the minds of all who attempt to treat these fractures:

1. Many injuries about the wrist, unattended by deformity, are really fractures that are frequently overlooked unless the injured part is carefully examined by the aid of the roentgen ray. If these cases are not recognized and properly treated, subsequent deformity may result.

2. "In a considerable proportion of the cases of fracture of the base of the radius, in which appreciable displacement of the lower fragment has taken place, some actual permanent alteration of the form of the fragment has been produced, so that perfect restitution of the normal contour of the part is impossible by any treatment, and some permanent deformity is unavoidable. Some of the cancelli of the lower fragment are crushed and condensed, and in some cases more or less

absorption of the osseous tissue later takes place, so the bone is permanently shortened and the form of its extremity is changed. Such changes of the bone contour are the unavoidable result of the accident itself; they cannot be prevented by treatment, nor can their presence reflect in any unfavorable manner on the treatment given."

3. Injuries of the lower end of the radius in young persons before the completion of ossification may be followed by arrested growth of the radius with permanent increasing deformity.

4. "The chief sources of disability following this injury are the consequences of pariarticular changes, such as the matting of tendons, and the contracture of the ligaments, and the formation of fibrous bands, and adhesions, due to laceration and irritation of these structures consequent on the bony injury and displacement. Too prolonged immobilization and the undue pressure of retention splints too forcibly secured may aggravate the amount of disability referable to the injury itself."

All of these facts should be remembered in the treatment of these cases; and in all cases of injury about the wrist in children, the parents should be informed of the possibility of shortening coming on some time subsequent thereto by reason of too early ossification of the epiphyseal cartilage with arrested growth in the length of the bone.

Governmental Provisions in the United States and Foreign Countries for Members of the Military Forces and Their Dependents. Prepared under the Direction of Capt. S. Herbert Wolfe, Q.M., U. S. R. U. S. Department of Labor, Children's Bureau, Miscellaneous Series No. 11, Bureau Publication No. 28. Paper. Price, 25 cents. Pp. 236, with 4 illustrations. Washington: Government Printing Office, 1917.

War-time conditions inspired the collection of the material in this bulletin, issued by the Children's Bureau. The report deals with all the various types of pensions granted by the different belligerent nations. For the benefit of our own country, whose pension laws were admittedly inadequate to meet the emergency, a careful study was made of the various systems of caring for soldiers and their dependents in Australia, Austria, France, Germany, Great Britain, Italy, the Netherlands, New Zealand, Russia, South Africa and Switzerland. Special attention is called in the bulletin to the tendency of European nations to make almost universal provision for separate allowances paid to the families of men in active service. This practice contrasts sharply with the policy of the United States, which made no allowance for the families of men in active service. Great Britain and its colonies and Russia pay regular sums to the wife and children of every enlisted man, the allowance, in many cases, varying according to the size of the soldier's family. In other countries, this substitute for the breadwinner's earnings is granted only in case of need, the amount often being determined, as in Holland, by the economic status rather than the size of the family. Separation allowances, maternity benefits, indemnities for large families, and disability and service pensions are common in practically every country. Switzerland has their equivalent in a system of military and civil insurance described at length in the report.

Elements of Hygiene and Public Health. A Textbook for Students and Practitioners of Medicine. By Charles Porter, M.D., B.Sc., M.R.C.P., Medical Officer of Health, Metropolitan Borough of St. Marylebone. Cloth. Price, $4.15. Pp. 411, with 98 illustrations. New York: Oxford University Press, 1917.

This book may be perhaps best described by the word old fashioned. While some of the results of modern investigation are given place in it, there is also much material of doubtful value at the present time. The chapter on ventilation furnishes a good instance of a somewhat outgrown point of view. In discussing sewers, the author evidently feels some reluctance about dropping the notion that "bacteria may have come from the defective drains" (page 223). The text contains a good deal of repetition, and some of the illustrations, such as those of eight different types of water closet, seem somewhat superfluous. The book would be more useful if unnecessary material could be eliminated, and a more positive mode of statement adopted.

# Social Medicine, Medical Economics and Miscellany

## WHAT ONE LOCAL BOARD FOUND OUT

### Another Argument for Yearly Physical Examinations

EDWARD F. HURD, M.D.
NEW YORK

The accompanying table sums up the work done by the examining physicians of Local Board for Division 20, Bronx, New York City, under the Selective Service Act of May 18, 1917. I acknowledge my debt to Dr. Arthur J. O'Leary, assistant register of records, Department of Health, New York City, and one of the examining physicians, for valuable help in the compilation.

In order to estimate justly the value of these figures, it is necessary to understand by whom and under what conditions the data were gathered. The medical member of the board had secured as his associates six Bronx physicians, all but one of whom have been engaged for many years in the general practice of medicine; the exception was a specialist in diseases of the eye, ear, nose and throat. For the examinations the large gymnasium of New York University was used, and the smooth and rapid manner in which 1,800 men were examined within its commodious walls did not fail to impress all who saw it.

The candidates waited on benches under spreading shade trees until their order numbers were posted on the bulletin board by the clerk. A group of ten were admitted at one time and shown to seats in the middle of the floor immediately in front of a desk at which sat the medical member of the board and one of the examining staff. The member of the board asked the few questions made mandatory by the Selective Draft Law, and obtained the signature of the person to be examined. The man was then told to retire behind the screen. When he stepped, stripped, from behind the screen, he was taken in charge by the first physician, who weighed him and took his height and chest measurements. He was then passed to the second physician, who examined his teeth, nose and throat, and made a general inspection for deformities and abnormalities, including flatfoot, hammertoe, etc. The third physician examined by stethoscope the heart and the lungs. The fourth covered hernia, varicocele, hemorrhoids and history as to venereal disease; if any question elicited a suspicion of diabetes or nephritis, a sample of urine was obtained in the presence of the physician, and a university professor of chemistry made the examination at once, the result being known before the man was dressed. The fifth physician was stationed in a small room fitted with Snellen's test cards, and there examined the eyes and the ears. The physical examination blank was passed from physician to physician, each making a record of his findings.

If during the course of the examination any physician detected a condition which he considered sufficient to disqualify, he consulted the sixth physician, who was on duty for reexamination. These two failing to agree, they appealed to the board physician: the verdict of two of the three was final.

A few cripples—having curvature of the spine, amputations, etc.—presented themselves and were loath to strip before the others. These were taken in charge by one physician and privately examined, the result being verified by a second physician, as the law required. In the rare instances of tuberculosis the candidates were directed, for a sputum examination, to the Clinic of the Department of Health, on whose positive report they were at once disqualified.

With the foregoing arrangements, it was possible in a few hours to examine 175 men with such thoroughness that to date, with 70 per cent. of the quota in camp, not a man has been returned because physically deficient. Before leaving the building, each man was informed as to the result of his physical examination and given an opportunity to file a claim for exemption or discharge, the chairman of the local board taking charge of this branch of the work.

The examining physician of the board feels that from the results of these examinations, made under such favorable conditions, the medical profession may draw some valuable conclusions. The total number of examinations made was 1,800; the number of rejections for physical reasons was 705, or approximately 39 per cent. of the total. This seems a staggering proportion of unfitness among men between the ages of 21 and 31, a time of life when physical perfection is most likely to be found; but when we consider that 232 of these were underweight, a condition which may not mean any permanent physical defect, the high rate becomes more readily understandable. This figure would have been much higher had not the examining physician departed from the arbitrary dictum of the rules and regulations as to relative weight and height. In cases in which the subject, although underweight, was in all other essentials in good physical condition, he exercised his personal judgment to the effect that camp life would probably improve the weight, and accepted the man. Conversely, of overweights: none of the latter were rejected unless really obese.

We find of these 232 men underweight that the greatest number were aged 29; the smallest, 27. Out of 477 of the native-born, 151 were underweight; of the 149 Russians, sixty-six. Occupation had a determining effect on the question of underweight: out of a total of 207 clerks, seventy-four were underweight.

The next most frequent cause for rejection was hernia. Out of 705 canidates rejected, 186 suffered from it in various forms and degrees. The largest number were in the thirtieth year of age. Nativity seems to bear no obvious relation to this disqualification; occupation, however, does. Out of 207 clerks we find that fifty-three, or nearly one quarter, are affected with hernia.

The surprising number of heart lesions among these young men was a subject of comment by the physicians. After a most painstaking examination, eighty-three men were rejected for organic troubles, the class of clerks again ranking highest, with twenty-six.

The other causes of rejection were: flatfoot, 22; varicocele, 15; bad teeth, 20; tuberculosis, 4; bad eyes, 30; deformities, including hammertoe, etc., 36; hemorrhoids and varicose veins, 8; obesity, 22; albuminuria, 11; bad ears, 3; other causes, including chorea, insanity, etc., 33.

The findings of this board show that men of draft age who hold clerical positions are the poorest physical specimens. We shall waive the question whether deficient physical equipment impelled these men toward the inactive occupation of the clerk, or whether the sedentary life of the clerk has resulted in poor physical condition: there is probably a good deal to be said on both sides. Undoubtedly chronic constipation, lack of exercise and fresh air, with the resulting soft, flabby muscles, would seem to be the principle causes of underweight and hernia. Take these men out of their stuffy offices and put them into camp, make them live in the open with regular exercise and regular hours, and they will soon be brought up to the standard.

If the findings of other local boards are similar to these—and a compilation of such data from all districts of Greater New York would be of enormous statistical value—some means ought to be devised to improve the physical condition of these young men, who should, at this period of their lives, be at the highest point of bodily efficiency. Taken alone, such an index points unmistakably to the thinking physician his obvious duty, and though the day of the family doctor is fast fading in the blaze of the specialist's rise, there remain surely many physicians who have enough interest in the families of their patients to offer suggestions to those members who do not consult him professionally, but who nevertheless need and would heed his advice.

1853 Anthony Avenue.

PHYSICAL CAUSES FOR REJECTION BY AGE, NATIVITY AND OCCUPATION

| | Underweight | Hernia | Flatfoot | Varicocele | Bad Teeth | Tuberculosis | Bad Eyes | Deformities | Hammer Toe | Heart | Hemorrhoids and Varicose Veins | Obesity | Albuminuria | Bad Ears | Others | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | | | | | | | | | | | | | | | | |
| 21 | 18 | 15 | .... | 3 | 3 | .... | 2 | 3 | .... | 8 | .... | .... | .... | .... | 4 | 56 |
| 22 | 28 | 18 | .... | 4 | .... | .... | 1 | 4 | .... | 4 | .... | 1 | 1 | .... | .... | 61 |
| 23 | 30 | 14 | 4 | 2 | 1 | 1 | .... | 2 | 1 | 3 | 2 | .... | 3 | .... | 6 | 69 |
| 24 | 16 | 17 | .... | .... | 4 | .... | 2 | .... | .... | 4 | .... | 3 | 2 | .... | 7 | 55 |
| 25 | 26 | 20 | 2 | .... | .... | .... | 2 | 3 | 5 | 4 | .... | 2 | 1 | .... | 3 | 68 |
| 26 | 20 | 16 | 2 | 1 | .... | 1 | 2 | .... | .... | 9 | .... | 3 | .... | 1 | 4 | 59 |
| 27 | 12 | 18 | 4 | .... | 2 | 1 | 8 | 4 | .... | 12 | .... | 2 | .... | 1 | 4 | 68 |
| 28 | 29 | 20 | 4 | 2 | 1 | .... | 4 | 3 | 2 | 10 | 4 | 1 | 2 | .... | 1 | 83 |
| 29 | 31 | 22 | 6 | .... | 5 | 1 | 4 | 3 | 1 | 11 | 2 | 4 | 1 | 1 | 1 | 93 |
| 30 | 22 | 26 | .... | 3 | 4 | .... | 5 | 2 | 3 | 18 | .... | 6 | 1 | .... | 3 | 93 |
| Total | 232 | 186 | 22 | 15 | 20 | 4 | 30 | 24 | 12 | 83 | 8 | 22 | 11 | 3 | 33 | 705 |
| Nativity— | | | | | | | | | | | | | | | | |
| United States | 151 | 141 | 14 | 8 | 13 | 2 | 18 | 16 | 7 | 58 | 5 | 17 | 6 | 1 | 20 | 477 |
| Russia | 66 | 34 | 3 | 2 | 3 | 1 | 5 | 4 | 2 | 18 | 2 | 3 | 2 | .... | 4 | 149 |
| Ireland | 1 | .... | 1 | 2 | .... | 1 | .... | 1 | .... | 1 | .... | .... | .... | .... | 1 | 8 |
| Germany | 2 | .... | .... | .... | .... | .... | 5 | .... | .... | .... | .... | .... | 2 | .... | .... | 9 |
| Italy | 6 | 4 | .... | 1 | .... | .... | .... | 2 | .... | .... | .... | .... | .... | .... | 3 | 16 |
| Austria | 4 | 6 | 4 | 1 | 2 | .... | 1 | 1 | 1 | 4 | 1 | .... | 1 | 2 | 4 | 32 |
| Sweden | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 2 |
| Others | 2 | 1 | .... | 1 | 1 | .... | 1 | .... | 2 | 2 | .... | 1 | .... | .... | 1 | 12 |
| Total | 232 | 186 | 22 | 15 | 20 | 4 | 30 | 24 | 12 | 83 | 8 | 22 | 11 | 3 | 33 | 705 |
| Occupation— | | | | | | | | | | | | | | | | |
| Machinist and mechanic | 35 | 21 | 4 | 1 | 2 | .... | 1 | 4 | 1 | 9 | 2 | 7 | 2 | .... | 1 | 90 |
| Laborer | 30 | 21 | 3 | 2 | 6 | .... | 4 | 5 | 2 | 16 | 1 | 4 | 2 | 1 | 10 | 107 |
| Secretary | 4 | 3 | .... | 1 | .... | .... | .... | .... | .... | 3 | .... | .... | .... | .... | 3 | 14 |
| Painter | 8 | 6 | 2 | .... | 2 | .... | 2 | .... | 2 | 6 | .... | .... | 1 | .... | 2 | 31 |
| Salesman | 12 | 8 | 2 | .... | 2 | .... | 2 | 2 | 2 | 4 | 1 | 3 | 2 | .... | 1 | 41 |
| Clerk | 74 | 53 | 7 | 3 | 6 | 4 | 11 | 7 | 3 | 26 | 2 | 4 | 2 | 2 | 3 | 207 |
| Policeman | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 3 | 2 | .... | .... | 6 |
| Chauffeur | 2 | 2 | 2 | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 7 |
| Manufacturer | 12 | 14 | 1 | 2 | .... | .... | 4 | 4 | .... | 1 | .... | .... | .... | .... | 1 | 39 |
| Teacher | 2 | 1 | 1 | .... | .... | .... | 1 | .... | 2 | 4 | .... | .... | .... | .... | 1 | 12 |
| Civil and electrical engineer | 8 | 6 | .... | 2 | .... | .... | .... | .... | .... | 4 | .... | .... | .... | .... | 1 | 21 |
| Tailor | 3 | 2 | .... | .... | .... | .... | 1 | .... | .... | 2 | 2 | .... | .... | .... | .... | 10 |
| Others | 42 | 48 | .... | 4 | 2 | .... | 4 | 2 | .... | 8 | .... | .... | .... | .... | 10 | 120 |
| Total | 232 | 186 | 22 | 15 | 20 | 4 | 30 | 24 | 12 | 83 | 8 | 22 | 11 | 3 | 33 | 705 |

## Medicolegal

### A Cause of Action for Malpractice Stated

*(Lueke vs. Senn (Wis.), 163 N. W. R. 171)*

The Supreme Court of Wisconsin says that the complaint showed that the defendant was employed by the plaintiff, who suffered from blood poisoning following her confinement; that the defendant performed the operation known as currettement; that she had trouble with her left leg and foot, which at the direction of the defendant were elevated; that when she recovered from the blood poisoning she found her leg was stiff and could not be moved; that at the direction of the defendant she was taken to a hospital, anesthetized, and her leg broken at the knee so as to straighten it; that following the breaking of the leg it became discolored and intensely painful, which condition continued until the big toe dropped off, the leg became shriveled and wasted, and the plaintiff called in other physicians, and in order to save her life amputation of the leg was necessary. The complaint then continued:

> Plaintiff alleges further that the defendant negligently permitted said knee to become stiff and in the position in which it was by permitting it to remain in a raised condition and by supporting it in such condition. That said defendant negligently broke such knee and negligently failed to discover that in breaking such knee the blood supply below the knee had been cut off, and that such defendant negligently reported to this plaintiff that she was recovering, doing finely, and getting well. Plaintiff alleges further that solely through the negligence and wanton misconduct of the said defendant she has suffered the loss of her left limb, to her damage in the sum of $25,000.

As a second cause of action the plaintiff alleged:

> That in making the representations to her set forth in the first cause of action, concerning his ability and proficiency and in regard to her condition, the said defendant wantonly and wilfully misrepresented to her and falsified to her in such regard, and particularly in regard to the fact that she was improving, whereas she was not, and that through and by reason of such wilful and wanton misstatements the plaintiff continued under the care of the defendant, and that by reason of such continuance she was required to finally have her left limb amputated above the knee, all to her damage in the sum of $25,000.

The court is of the opinion that that part of the complaint denominated first cause of action stated facts sufficient to constitute a cause of action for that kind of negligence commonly denominated malpractice. The court is further of the opinion that the facts stated in that part of the complaint denominated second cause of action were not sufficient to constitute a cause of action showing liability for gross negligence, and that therefore but one cause of action was stated in the complaint. The only difference between the two causes of action attempted to be set forth in the complaint was that in the second the defendant was said to have "wantonly and wilfully misrepresented to her and falsified to her in such regard," etc. No additional fact or inference was stated. Calling a thing names does not change its character or composition, add to, or detract from it. Therefore the defendant's demurrer to the complaint should have been overruled as to the first cause of action and sustained as to the second cause of action.

### Different Views of Claim for Fees

*(Succession of Pizzati (La.), 75 So. R. 498)*

The Supreme Court of Louisiana says of a claimant in this case that he was a practicing physician, and also taught the class in chemistry in a boys' high school from 9 a. m. to 2:30 p. m., for which latter he was paid $165 a month. He said that between November 2, when the decedent first consulted him professionally, and December 30, when the decedent died, he "saw" the decedent, he supposed, "altogether about 160 times" professionally. Ten of these times were prior to December 8, and were at his (the witness') office, except the first, and the treatment was for dysentery. The visits from December 8 to 11, inclusive, when the decedent was still going about, were at the latter's house, and were for a cold. This cold developed into pneumonia on the 12th or 13th, and the treatment until the 22d, inclusive, was for pneumonia. By that time the patient had recovered from the pneumonia. On the 25th the kidneys ceased functioning, and he fell into a stupor from uremic poisoning, and this continued until his death in the night of the 30th. On the 30th he was evidently beyond treatment, and on the 29th almost so. The physician presented a bill for $5,000. The executor allowed $250. The trial judge allowed $500. Two other physicians and the claimant himself testified that the charge was reasonable.

The claimant, the supreme court goes on to say, was not shown to be one of the autocrats of the profession whose ministrations are worth whatever estimate they may choose to put on them, but to be a physician who supplemented his medical work by devoting the better part of each day to the daily routine of a boys' high school. The visits to his office were such as, the evidence showed, $2 are ordinarily charged for, and the services at the house were in the treatment of a common case of pneumonia, except during the few days intervening between the 22d and the 28th, when nothing extraordinary in the way of medical skill seemed to have been either called for or displayed. The patient also suffered from leakage of one of the valves of the heart; but this did not enter into the treatment, and could not figure in the bill. The allowance of $250 in the account was, the supreme court thinks, entirely reasonable.

On rehearing, the supreme court says that its reexamination of the testimony offered in support of the physician's opposition to the allowance convinced it that, while the claimant had somewhat overestimated the number of his consultations with the patient, the supreme court had somewhat underestimated the character of the services that he was called on to render. He testified that there were ten office consultations between November 2 and December 8, from which last-mentioned date he visited his patient at the latter's temporary residence until he died, and that he paid an average of five visits a day during that period. The patient was at first suffering with dysentery, was taken with pneumonia on the 12th or 14th, and recovered on the 22d or 23d, and, after a few days, developed toxemia, of which he died on the 30th, from which it would appear that the physician visited him for twenty-two days, which, at the average of five visits a day, would be 110 visits. Beyond that, however, it appeared that the patient was irritable and intractable, and at times violent, and that he required services from the physician which should have been rendered by the nurses and would have been rendered by them if they had been permitted. On the whole, the supreme court concludes that the compensation to be allowed should be increased to $1,000; and it is therefore ordered that the judgment before handed down be amended by increasing the amount allowed to the physician to $1,000, the succession to pay the costs of his appeal.

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Roentgenology, New York

November, 1917, 4, No. 11

1 Caliper Method of Foreign Body Localization. E. S. Blaine, Chicago.—p. 544.
2 Military and Naval Use of Roentgen Ray. A. Soiland, Los Angeles.—p. 550.
3 Roentgen Diagnosis of Concurrent Gastric and Duodenal Ulcer. R. D. Carman, Rochester, Minn.—p. 552.
4 Roentgen Observations of Pituitary Region in Intracranial Lesions. G. C. Johnston, Pittsburgh.—p. 555.
5 Physiochemical Nature of Action of Radioactivity on Protoplasm. A. Richards, Crawfordsville, Ind., and A. E. Woodward, Boston.—p. 564.
6 Case of Absent Femur. H. W. Dachtler, Toledo, Ohio.—p. 570.
7 Congenital Radio-Ulnar Synostosis; Three Cases. G. F. Thomas, Cleveland.—p. 571.
8 *Roentgenization of Thymus in Exophthalmic Goiter. C. A. Waters, Baltimore.—p. 574.
9 Multiple Views on One Plate. C. B. Danruther, Laporte, Ind.—p. 576.
10 Roentgenstereoscopy Applied to Examination of Extremities. P. M. Strother, Lynchburg, Va.—p. 576.
11 Rightsided Position of Stomach in Inflammatory Conditions in Ileocecal Region. H. E. Ruggles, San Francisco.—p. 577.
12 Case of Tuberculous Spondylitis. P. Eisen, Chicago.—p. 578.

13 Case of Impaired Extension of Knee Joint. M. J. Hubeny, Chicago.—p. 579.
14 *Unusual Gallbladder Complication. J. Shoup, Washington, D. C. —p. 580.
15 Case of Dextrocardia with Mitral Stenosis. A. F. Tyler, Omaha. —p. 581.

8. **Roentgenization of Thymus in Exophthalmic Goiter.**—Ninety-nine cases of exophthalmic goiter were treated by roentgenizing the thymus alone, although a few of these cases subsequently received irradiation to both the thyroid and thymus. The types of cases irradiated include the following: hyperthyroidism, 33; exophthalmic goiter, 47; colloid goiter, 2; adenomas, 5; dysthyreosis, 2; persistent hyperplastic thymus, 4; cyst thyroid, 4; status lymphaticus, 1; myasthenia gravis, 1. Seventeen cases were irradiated before operation, 34 following operation and 6 were irradiated before and after operation, while 38 received irradiation without any surgical interference. Fifty-two cases had partial or complete lobectomy, while 11 had only one or more thyroid arteries ligated. The treatments were given in series. The final result in this series of cases was undoubted subjective improvement but without a disappearance of the cardinal objective signs of the disease.

14. **Gallbladder Complication.**—Five years after an attack of uncomplicated typhoid, Shoup's patient was seized with pain in the right hypogastrium, varying in locality and severity. The pain was described as being of a dull, heavy nature, often assuming a pressure-like character. When lying on her left side she complained of a pulling sensation which caused exacerbation of the pain. On the other hand, the intensity of the pain was somewhat relieved by wearing corsets or making pressure over the seat of pain. Operation revealed dense adhesions between the duodenum and the liver. The gallbladder fundus was connected with the duodenum by means of a tube half an inch in length and as thick as a normal appendix. The fundus of the gallbladder was empty except for a small amount of fluid which looked like duodenal contents. No bile was present in the gallbladder, but when a soft cholesterin stone which completely filled the neck of the gallbladder was removed, bile began to pour into the gallbladder through the cystic duct.

### Archives of Pediatrics, New York

November, 1917, **34**, No. 11

16 Pyloric Stenosis in Infancy; Three Cases. B. K. Rachford, Cincinnati.—p. 803.
17 *Intradermal Reactions to Proteins of Infants Suffering from Gastro-Enteric Disorders. V. D. Greer, Chicago.—p. 810.
18 Improvement in Outpatient Work with Children. S. McLean, New York.—p. 818.
19 *Case of Meningococcus Meningitis in New-Born. D. J. M. Miller, Atlantic City, N. J.—p. 824.
20 Pavor Medicus. A. J. Waring, Savannah, Ga.—p. 827.
21 Three Cases of Sporadic Cretinism in One Family. C. Herrman, New York.—p. 831.
22 Importance of Preschool Period to Schoolchild. J. Levy, Newark, N. J.—p. 837.
23 *1916 Poliomyelitis Epidemic; Description of Characteristic Sign. H. Heiman, New York.—p. 846.

17. **Intradermal Reactions to Proteins of Infants.**—The striking finding of Greer's is that of twenty-six infants, twenty-three gave definite intradermal reaction to lactalbumin of the cow. Three cases reacted positively to cow's caseinogen. The much greater reactivity to lactalbumin is in agreement with the observation that almost all allergic milk reactions proceed better with lactalbumin than with caseinogen. These findings suggest that sensitization to cow's milk proteins does occur in acute or chronic gastro-enteric disturbance, and that such sensitization can be demonstrated by intradermal injection of small amounts of those proteins, and further that the lactalbumin is the protein to which, probably, sensitization most easily occurs.

19. **Meningococcus Meningitis in New-Born.**—The onset in Miller's case was with conjunctivitis, mistakenly regarded as gonorrheal. The baby was then only 2 weeks old. A bullous eruption appeared in the second week of the disease, but signs of meningitis were not apparent until the fourth week. The spinal fluid gelatinized at once. Ten punctures of the fontanel were made with no apparent ill effect beyond vomiting. The first two of these punctures were made into the ventricle; afterward, with greater accumulation, the needle probably entered only the subarachnoid space. Two hundred and sixty c.c. of serum were introduced with no signs of serum disease. There was apparent improvement in the clinical symptoms and the cerebrospinal fluid after the tenth injection of serum, with the subsequent return of active symptoms and death.

23. **Characteristic Sign of Poliomyelitis.**—A distinct tremor of the fingers observed by Heiman in a great many cases, but not sufficiently emphasized before is considered by him to be a characteristic sign in poliomyelitis.

### Boston Medical and Surgical Journal

Dec. 13, 1917, **177**, No. 24

24 *Hodgkin's Disease: Treatment with Radium and Roentgen Ray. C. C. Simmons and G. Benet, Boston.—p. 819.
25 Petersham Plan for Giving Schoolchildren Dental Service. W. R. Woodbury, Rochester, N. Y.—p. 834.
26 Trinitrotoluene Poisoning in Massachusetts; Report of Cases. T. F. Harrington, Boston.—p. 838.
27 Bárány Tests as Applied to Aviators. H. L. Babcock, Boston.—p. 840.
28 Study of Some Percentage Solutions. T. J. Bradley, Boston. —p. 843.

24. **Hodgkin's Disease Treated with Radium and Roentgen Ray.**—Nineteen cases of Hodgkin's disease treated at the Huntington Memorial Hospital are analyzed by Simmons and Benet. They state that clinically, Hodgkin's is a fatal disease, that it runs an acute or chronic course, little affected by treatment as regards the ultimate fatal result. It may usually be suspected, but there is no way to make a definite diagnosis without a microscopic examination of one of the glands. It cannot be differentiated clinically from certain cases of lymphosarcoma, tuberculosis, or even inflammatory glands. As regards treatment, radium and roentgen rays have a distinct beneficial effect, radium being of more value than roentgen ray. With treatment, the glands diminish in size, and the general condition improves. The relation between the treatment and the improvement is definite, and is seen in from one to three weeks after the first application of radium. None of the patients in this series was cured, but they are all comfortable and able to attend to their duties until nearly the end of the disease. The authors advise that treatments should not be limited to the palpable glands, as is usually the case, but should be directed against the lymphatic areas of the body, the mediastinum, abdomen, etc., from the first.

### California State Journal of Medicine, San Francisco

December, 1917, **15**, No. 12

29 Diseases of War: Their Prevention, Control and Treatment. L. L. Smith.—p. 487.
30 Some Properties and Actions of Tethelin, Active Constituent of Anterior Lobe of Pituitary Body. T. B. Robertson, Berkeley. —p. 491.
31 Urologic Problems. V. G. Vecki, San Francisco.—p. 495.
32 Surgical Treatment of Seminal Vesiculitis. A. B. Cecil, Los Angeles.—p. 497.
33 Mongolism. R. L. Ash, San Francisco.—p. 500.
34 *Two Cases of Amaurotic Family Idiocy (Tay-Sachs' Disease). C. W. Rand, Los Angeles.—p. 503.
35 Better Teaching in Schools of Nursing. A. C. Jammé.—p. 506.

34. **Amaurotic Family Idiocy.**—The two cases cited by Rand are almost identical in onset and course. The first patient died at the age of 15 months, the end being ushered in by convulsive attacks, The second patient, aged 13 months, has failed greatly in the past three months. It is interesting to note that the first case cited is probably the third child in a Russian-Jewish family to be afflicted with the disease. It is unusual in that sixteen years have elapsed since the last baby died.

### Iowa State Medical Society Journal, Des Moines

December, 1917, **7**, No. 12

36 Syphilis of Eye. G. F. Harkness, Davenport.—p. 439.
37 Syphilis of Nose and Throat. F. W. Bailey, Cedar Rapids.—p. 446.
38 Education of Public as Factor in Public Health Work. W. A. Evans, Chicago.—p. 449.
39 Roentgen Diagnosis of Gastric Lesions. L. S. Goin, Wheeling W. Va.—p. 453.

40 Relation of Communicable Diseases to Community and to Physician. M. F. Boyd, Iowa City.—p. 457.

### Journal of Bacteriology, Baltimore

November, 1917, **2**, No. 6

41 Early Instructors in Bacteriology in United States. D. H. Bergey, Philadelphia.—p. 595.
42 Nomenclature and Classification of Bacteria. Subgroups and Genera of Coccaceae. R. E. Buchanan, Ames, Iowa.—p. 603.
43 Bacterium Pyogenes and Its Relation to Suppurative Lesions in Animals. A. R. Ward, Washington, D. C.—p. 619.
44 Influence of Hydrogen-Ion Concentration of Medium on Reproduction of Alfalfa Bacteria. E. B. Fred and N. E. Loomis, Madison, Wis.—p. 629.
45 Colon Aerogenes Group from Silage. O. W. Hunter.—p. 635.

### Journal of Laboratory and Clinical Medicine, St. Louis

December, 1917, **3**, No. 3

46 *Studies on Cholesterol. Experiments Concerning Relation of Diet, Blood Cholesterol and Lymphoid Defense. G. Luden, Rochester, Minn.—p. 141.
47 *Development of Method for Early Diagnosis of Tuberculosis by Use of Roentgenographed Guinea-Pig. W. H. Eckford, Pittsburgh.—p. 175.
48 *Tungstates of Alkaloids—Experimental Pharmacologic Study. B. Fantus, Chicago.—p. 179.
49 *Three Cases Illustrating Consequences of Coronary Lesions. P. G. Woolley, Cincinnati.—p. 192.
50 Germicidal Value of Common Gynecologic Douching Agents. J. R. Stark, Cincinnati.—p. 199.
51 Experimental Study of Root-Filled Teeth. M. B. Cohen, West Salem, Ohio.—p. 202.
52 Modifications of Soxhlet Extractor. J. W. Weir, Oklahoma City.—p. 204.

46. **Studies on Cholesterol.**—Luden records in full a series of experiments on herself made to observe the relation and reciprocal action between the diet, the blood cholesterol, and the lymphocytic reaction or lymphoid defense. The influence of the chemical composition of the food on the chemical composition of the blood in increasing or diminishing the amount of cholesterol therein was clearly demonstrated. A diet which increases the blood cholesterol coincidently weakens the lymphoid defense. A diet which reduces the blood cholesterol coincidently increases the lymphoid defense. In persons predisposed to carcinoma an increase of the cholesterol and a weakening of the lymphoid defense, such as may occur with the prolonged use of a diet adapted thereto, may, perhaps, result in the development of carcinoma. Luden suggests that dietetic measures calculated to reduce the blood cholesterol and coincidently increase the lymphoid defense may yet prove to be of value in the treatment of carcinoma.

47. **Diagnosis of Tuberculosis with Roentgenographed Guinea-Pig.**—Eckford found that it is possible by means of the roentgen ray to increase the susceptibility of guinea-pigs to tuberculosis. Frequently repeated doses have a more certain effect than a single dose. The removal of a nodule from the groin for examination can be done in about two weeks and is usually diagnostic. This procedure has the advantage that in case of negative local findings the animal has the chance of developing internal lesions at a slightly later time.

48. **Tungstates of Alkaloids.**—Fantus suggests that the comparative tastelessness and slight local effects of phosphotungstates and silicotungstates of alkaloids might make these combinations therapeutically useful. The phosphotungstate and silicotungstate radicals are sufficiently nontoxic to be used for the administration of alkaloids with small dosage, such as strychnin or emetin. Inasmuch as the tungstates, when taken in liberal amounts for a long time, do have a toxic action, it is probably not advisable to use these combinations for the administration of quinin or other alkaloids that would be given in large doses, until further studies of the toxicity of these have been made.

49. **Cases Illustrating Coronary Lesions.**—The cases cited by Woolley illustrate the effects of gradual cutting down of the blood supply to the myocardium. In two cases the process was diffuse, slow and gradual, and led to general ventricular dilatation. In the other, the process was limited to one coronary and, in particular, to one branch. During a certain period the result was gradual though localized, dilatation tending to the production of a cardiac aneurysm. In the final period the process was abrupt and produced an infarct.

### Journal-Lancet, Minneapolis

Dec. 1, 1917, **37**, No. 23

53 Some of the Unsettled Problems in Surgery. S. J. Mixter, Boston.—p. 759.
54 Foreign Protein Injections in Treatment of Acute Infections. J. G. Cross, Minneapolis.—p. 764.
55 Relation of Thyroid to Other Ductless Glands. E. C. Kendall, Rochester.—p. 768.
56 Focal Infections in Nose and Throat. Means of Diagnosis and Elimination. W. E. Patterson, Minneapolis.—p. 771.
57 Myasthenia Gravis; Report of Three Cases. L. M. Crafts, Minneapolis.—p. 774.

December 15, No. 24

58 *Jejunostomy: Its Indications and Methods. C. H. Mayo, Rochester.—p. 793.
59 Birth Rate in Registration Area of United States. F. L. Adair, Minneapolis.—p. 796.
60 *Rickets, with Especial Reference to Premature Infants. E. J. Huenekens, Minneapolis.—p. 804.
61 Nephrolithiasis; Report of Cases. A. C. Strachauer, Minneapolis.—p. 807.

58. **Jejunostomy: Indications and Methods.**—The operation of jejunostomy has been made in the Mayo Clinic in forty-three cases for nutritive purposes since 1910. In the larger number of cases the operation was necessitated by cancer, and it was palliative. Because of the serious condition of the patients the primary mortality was high and the palliation brief. Mayo says that the operation is not one of great utility, except in a few rare cases of nonmalignant obstruction, or for the temporary relief of gastric fistula following perforation and operation. Twelve of the 43 patients died within a week, 4 died within a month, 4 within two months, 7 within a year and 3 within a year and a half. Thus in all of these cases the operation served its purpose, namely, that of affording temporary or permanent relief of the condition which necessitated the operation.

60. **Rickets, with Reference to Premature Infants.**—According to Huenekens, rickets is found in 92 per cent. of premature and twin infants. This is due to a deficiency of calcium at birth. Calcium in the form of tricalcium phosphate must be added to the usual treatment.

### Kentucky Medical Journal, Bowling Green

December, 1917, **15**, No. 12

62 Trend of Medical Education. P. H. Stewart, Paducah.—p. 500.
63 Plea for More Rational Therapeusis. S. J. Meyers, Louisville.—p. 503.
64 Ambroise Paré and Surgery of Renaissance. F. L. Koontz, Louisville.—p. 506.

### Medical Record, New York

Dec. 15, 1917, **92**, No. 24

65 Treatment of Hypoplastic and Mentally Impaired Children. E. B. McCready, Wildwood, Pa.—p. 1015.
66 Case of Bilateral Ureteral Calculus. L. Buerger, New York.—p. 1020.
67 Library of Army Medical Museum. R. W. Shufeldt, Washington, D. C.—p. 1022.
68 Case of Intrathoracic Thyroid Tumor. H. M. Moses, Brooklyn.—p. 1025.
69 Loss of Consciousness and Automatism in Inebriety. T. D. Crothers, Hartford, Conn.—p. 1026.
70 Medicine and Moon; Beliefs of Other Days. H. D. King, New Orleans.—p. 1030.

### Michigan State Medical Society Journal, Grand Rapids

December, 1917, **16**, No. 12

71 *Compound Fracture Treated by Bismuth Iodoform Paste—Bipp. H. R. Leibinger, Detroit.—p. 489.
72 Discussion of Fifteen Hundred Industrial Injuries. F. C. Warnshuis, Grand Rapids.—p. 490.
73 Soldier's Heart. W. H. Marshall, Flint.—p. 494.
74 Anesthesia and Its Relation to Good Surgery. C. H. Branch, Muskegon Heights.—p. 496.
75 Reclamation of Used Alcohol. E. Selden, Grand Rapids.—p. 499.
76 Eutocia Attained by Rational Methods Rather than by Excessive Narcosis During Labor. W. E. Welz, Detroit.—p. 501.

71. **Fracture Treated by Bismuth Iodoform Paste.**—Cases are cited by Leibinger which illustrate the possibility of getting early primary union in wounds which by usual

methods would require weeks and months for healing with suppuration and granulation. Wound edges may be brought together at once before scar retraction renders subsequent suturing impossible.

### Military Surgeon, Washington, D. C.

December, 1917, **41**, No. 6

77 Responsibilities of Medical Profession in This War. V. C. Vaughan.—p. 651.
78 Problem of Pulmonary Tuberculosis. E. Rist.—p. 659.
79 General Aspects of War. T. H. Goodwin.—p. 669.
80 War Neuroses (Shell Shock). T. W. Salmon.—p. 674.
81 From "Over the Top" to Casualty Clearing Station. E. K. Johnstone.—p. 694.
82 Statistics of Austro-Prussian ("Seven Weeks") War, 1866, as Measure of Sanitary Efficiency in Campaign. F. H. Garrison.—p. 711.

### Missouri State Medical Association Journal, St. Louis

December, 1917, **14**, No. 12

83 Obstetric Résumé. F. T. VanEman, Kansas City.—p. 503.
84 *Factors for Safety and Ultimate Results in Goiter Operations. C. Potter, St. Joseph.—p. 506.
85 Abdominal Cesarean Section for Eclampsia; Report of Two Cases. E. L. Dorsett, St. Louis.—p. 512.
86 Chronic Infective Endocarditis: S. Viridans; Case Reports. A. Sophian, Kansas City.—p. 514.
87 *Treatment of Acute Rheumatic Fever. J. C. Lyter, St. Louis.—p. 517.
88 Protein Indigestion in Infant. J. Zahorsky, St. Louis.—p. 520.
89 Benign and Malignant Achylias Differentiated by Gastric Albumin. D. L. Penney, St. Louis.—p. 522.

84. **Making Goiter Operations Safe.**—In handling goiter Potter urges that particular stress be laid on combined methods of treatment and care; care in the suggestive psychology, care in preoperative treatment, care in dividing the operation into stages with sufficient interval between steps, care in dissection around the more delicate neck structures, care in anesthesia and care in the operation and after-treatment. Rough radical treatment spells failure; gentleness success.

87. **Treatment of Acute Rheumatic Fever.**—Lyter reports on sixteen cases of acute rheumatic fever treated by the administration of typhoid vaccine, the typhoid vaccine being used only as a standardized foreign protein. These patients were given 1 c.c. of typhoid vaccine intravenously daily until a cure was effected. Three of the sixteen have thus far had recurrences. Lyter is of the opinion that the administration of a foreign protein intravenously is justifiable in all cases of acute rheumatic fever in which some primary focus of infection, as apical abscesses, infected tonsils, gallbladder, appendix or genito-urinary tract can be demonstrated and removed and those which prove refractory to general and salicylic treatment.

### New Jersey Medical Society Journal, Orange

December, 1917, **14**, No. 12

90 Treatment of Infection Following Labor, Mature and Premature. P. B. Bland, Philadelphia.—p. 453.
91 War and Tuberculosis. E. S. McSweeny, New York.—p. 457.

### New York Medical Journal

Dec. 8, 1917, **106**, No. 23

92 Tonsilloscopy and Curettage of Tonsils in Adults. T. R. French, New York.—p. 1061. To be concluded.
93 Field of Various Methods of Cardiac Diagnosis. H. E. B. Pardee, New York.—p. 1065.
94 Postpartum Hemorrhage. H. Thoms, New Haven, Conn.—p. 1069.
95 Importance of Antecedent State of Uneasiness as Cause of Certain Normal and Abnormal Types of Behavior. M. Solomon, Chicago.—p. 1070.
96 Treatment of Syphilis with Arsenobenzol Polyclinic. C. H. J. Barnett, Philadelphia.—p. 1073.
97 Case of Nasal Sarcoma Cured by Radium. O. J. Stein, Chicago.—p. 1075.
98 Postbellum Medical Problems; Conservation of Race. J. H. Marcus, Atlantic City, N. J.—p. 1076.
99 Ophthalmologist and General Practitioner. M. J. Levitt, New York.—p. 1078.

### Northwest Medicine, Seattle

December, 1917, **16**, No. 12

100 What We May Learn from French War Tuberculosis Problem. R. C. Matson, Portland, Ore.—p. 355.
101 Diagnosis of Tuberculosis. H. W. Hoaglund, Colorado Springs, Colo.—p. 361.
102 Tuberculosis in Children. G. H. Cattermole, Boulder, Colo.—p. 362.
103 Complement Fixation Test for Tuberculosis. C. L. Shields, Salt Lake City.—p. 364.
104 Treatment of Tuberculosis. W. H. Swan, Colorado Springs.—p. 365.
105 *Gastric and Duodenal Ulcers; Results from Combined Medical and Surgical Treatment. G. G. Richards, Salt Lake City.—p. 368.
106 Spontaneous Obliteration of Cavity External to Stomach and Communicating with it Through Perforated Ulcer. J. E. Else, Portland, Ore.—p. 370.
107 Recent Additions to Knowledge of Poliomyelitis. E. A. Rich, Tacoma.—p. 372.
108 Importance of Proper Food in Prevention and Treatment of Insanity. J. W. Givens, Orofino, Idaho.—p. 374.
109 Case of Asthma Relieved by Normal Horse Serum. R. W. Stearns, Medford, Ore.—p. 376.
110 Salvarsan Clamp Needle Holder. J. B. McNerthney, Tacoma.—p. 377.

105. **Combined Treatment of Gastric and Duodenal Ulcers.**—The medical treatment adopted by Richards consisted of the control of the free acid and pain by alkalis and in many cases belladonna and a long course of dieting. Of the medically treated patients, 25 per cent. later showed some return of their former trouble and still have to remain on a careful diet; 25 per cent. are apparently cured at the present time; 50 per cent. were only temporarily if at all improved, and 40 per cent. of these returned later for operation. The mortality of the medical treatment was nil. The surgical treatment consisted of a posterior gastro-enterostomy in all cases except seven perforated ones. One rather alarming complication following operation was the development of pneumonia in 12 per cent. and of pleurisy alone in 4 per cent. The average time that all patients remained on a prescribed diet and medicine following the operation was three months. Five per cent. have had some return of symptoms and have had to resume restricted diet for short periods. Two patients report no improvement in symptoms after one year. Eighty-five per cent. of the patients report very satisfactory results from the combined surgical and medical treatment. Two of the patients on whom operation was performed died, one six months after operation, of pernicious anemia. The other died of a double lobar pneumonia four days after operation for a perforation of thirty hours' standing. Richards emphasizes particularly that there has been gross neglect on the part of surgeons doing stomach work in the matter of postoperative treatment. A gastro-enterostomy does not cure an ulcer, either gastric or duodenal. It is merely a means to that end. If a careful regulation of the diet and a control of the acids will cure a large percentage of ulcers without operation, certainly these measures will act as valuable adjuncts to the benefits derived from the operation, and probably hasten a cure.

### Ohio State Medical Journal, Columbus

December, 1917, **13**, No. 12

111 Malignant Goiter. A. Crotti, Columbus.—p. 807.
112 Application of Military Surgery to Civil Practice. W. E. Lower.—p. 810.
113 Diseases of Nasal Accessory Sinuses. J. W. Murphy, Cincinnati.—p. 812.
114 Care of Eyes of Schoolchildren. S. H. Monson, Cleveland.—p. 813.
115 General Therapeutic Management. R. Southworth, Cincinnati.—p. 817.

### Oklahoma State Medical Association Journal, Muskogee

December, 1917, **10**, No. 12

116 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. L. J. Moorman, Oklahoma City.—p. 455.
117 Pregnancy among Tuberculous. W. A. Fowler, Oklahoma City.—p. 458.
118 Tuberculosis in Oklahoma. J. Schevitz, Oklahoma City.—p. 461.
119 Early Recognition of Pulmonary Tuberculosis and Its Economic Value. W. F. Dutton, Tulsa.—p. 467.
120 Clinician and Laboratory. G. A. Lamotte, Oklahoma City.—p. 472.

### Rhode Island Medical Journal, Providence

December, 1917, **1**, No. 12

121 Determination of Activity of Pathologic Process; Treatment and Prognosis in Syphilis of Central Nervous System. J. B. Ayer, Boston.—p. 239.
122 Pulmonary Abscess and Gangrene. H. de Wolf, Providence.—p. 243.

### Surgery, Gynecology and Obstetrics, Chicago

December, 1917, 25, No. 6

123 *Gunshot Wounds and Their Treatment. B. Moynihan, Leeds, England.—p. 583.
124 *Injuries to Peripheral Nerves and Their Treatment. B. Moynihan, Leeds, England.—p. 595.
125 *Gunshot Wounds of Lungs and Pleura. B. Moynihan, Leeds, England.—p. 605.
126 *Sodium Persulphate in Treatment of Tetanus; Report of Cases. L. Leyva, Bogota, Columbia.—p. 613.
127 *Study of Rectosigmoid. W. J. Mayo, Rochester, Minn.—p. 616.
128 Postoperative Pulmonary Complications. E. C. Cutler and J. J. Morton, Boston.—p. 621.
129 *Fat Embolism Following Trauma to Bones. G. T. Caldwell and H. L. Huber, Chicago.—p. 650.
130 Case of Serous Meningitis Following Traumatism. C. H. Lemon, Milwaukee, Wis.—p. 663.
131 Diagnosis of Mammary Conditions. W. C. MacCarty and A. C. Broders, Rochester, Minn.—p. 666.
132 Clinicopathologic Nomenclature of Mammary Conditions. W. C. MacCarty and A. C. Broders, Rochester, Minn.—p. 670.
133 Case of External Rupture of Pelvic Hematoma During Instrumental Delivery. T. H. Cherry, New York.—p. 674.
134 *Primary Malignant Neoplasm of Fallopian Tube, Probably Deciduomatous. C. Jacobson and H. G. Wells, Chicago.—p. 675.
135 Case of Giant-Cell Epulis of Upper Jaw. F. Reder, St. Louis.—p. 680.
136 Unilocular Cyst of Prostate Causing Obstructive Symptoms. M. Behrend, Philadelphia.—p. 682.
137 Greater Exposure in Kidney Approach. H. J. Prentiss, Iowa City, Iowa.—p. 685.
138 *Modification of Universal Incision in Exploratory Laparotomy. D. Del Valle, Buenos Aires, Argentine.—p. 688.
139 *Treatment of Double Femoral Aneurysm by Proximal Occlusion with an Autoplastic Fascial Flap. E. G. Jones and C. E. Waits, Atlanta, Ga.—p. 689.
140 Simple and Efficient Method of Suprapubic Bladder Syphonage. N. H. Beal, London, Ont.—p. 692.
141 Splint for Treatment and Transportation of Fractures of Lower Extremities. C. T. Butler, New York.—p. 693.
142 Methylene Blue in Diagnosis of Acute Perforating Gastric and Duodenal Ulcers. H. L. Baker, Chicago.—p. 695.

123. **Treatment of Gunshot Wounds.**—Moynihan says that the excision of all contaminated, infected, or dead parts—the removal of all fragments of clothing and of all projectiles, is the supreme necessity in all cases. In 80 or even 90 per cent. of early cases this may allow of immediate closure of the wound, which will be followed by healing in the great majority of cases. In infected early cases the mechanical exposure and cleansing may be followed by a treatment directed to the removal of the remaining infection. In infected late cases, a thorough mechanical exposure and cleansing of the wound and the parts around will allow of secondary closure forthwith if certain antiseptic pastes are used. Experience shows that similar results have followed on this mechanical treatment of the wound without the introduction of antiseptics. A further trial in this class of cases may show that the natural defenses of the tissues are ample to deal with the infections then remaining. Sufficient reliance does not appear to be placed on the stupendous power the body tissues possess for controlling infection. Emphasis is laid by Moynihan on the paramount necessity for the complete immobility of wounded parts at all times and on all occasions. So will one of the most powerful agencies making for reinfection and autoinoculation be kept in check.

124. **Injuries to Peripheral Nerves.**—Moynihan insists that the earliest examination should be made of all wounds in which division of a nerve trunk is probable. If at the casualty clearing station such a lesion is found, end-to-end suture should be adopted forthwith. This is more likely to be possible in cases in which primary suture of the wound, after excision, is found practicable. If secondary suture of the wounds, after the Carrel-Dakin method has been practiced, is to be undertaken, the union of divided nerves should be secured at the same time. If these methods have been attempted and have failed, they do not prejudice the later union of the nerve. On the contrary they probably insure that an easier and more satisfactory operation can then be practiced. Throughout the whole period before late nerve suture is attempted, the strictest attention must be paid to the relaxation and nutrition of all paralyzed muscles, to the maintenance of suppleness in all joints moved by these muscles, and to the preservation of the integrity of the skin. Operations on nerve trunks demand the most scrupulous observance of the ritual of asepsis and gentleness of manipulation; the nerve must not be injured by instruments or by the surgeon's finger; it must not be separated from its sheath or disturbed overmuch from its bed; it must not be chilled or allowed to dry. All sutures must be of fine catgut and introduced with most punctilious accuracy. Axial rotation of the nerve must be avoided. The cut ends of the nerve before approximation must show clearly the fibers of which the trunk consists. Nerve grafting is of little or no value; nerve anastomosis is sharply condemned; the turning down of flaps from the nerve to bridge a wide gap is useless. Tendon transplantation is of great value in cases in which nerve suture is impossible or in cases in which suture has given a result not entirely satisfactory.

125. **Gunshot Wounds of Lungs and Pleura.**—The following general conclusions are given by Moynihan: The approximate mortality from gunshot wounds of the chest at all parts of the line of communication is 20 per cent. The causes of death are hemorrhage as a rule within twenty-eight hours; and sepsis after the third or fourth day. The local conditions in wounds of the chest wall and lung are in all respects similar to those met with in wounds elsewhere. The lung tissue is more resistant to attack than many other tissues. The opening of the pleural cavity and the resulting exposure of a large serous sac to infection and all its consequences add, however, a danger of the most threatening character. The chief essential in the treatment of all cases of penetrating wounds of the chest is rest. In clean perforating wounds of the chest, rest together with the cleansing and dressing of the wound of entrance or exit, will lead to the recovery of the great majority of cases. In cases of "open thorax," the earliest and most complete effort possible must be made to secure closure of the wound after an appropriate toilet. In those rare cases of grave hemorrhage, when hemoptysis is present or when the blood escapes by the wound, a direct access to the source of the bleeding must be obtained, when all contingent circumstances permit, and the wound in the lung must be treated by suture, preferably; or by plugging of the cavity from which the blood escapes. In cases of hemothorax when the blood effused is small in quantity and remains sterile, no active measures are necessary, unless absorption is long delayed. Aspiration, repeated if necessary, may then be performed. In cases of hemothorax, when the blood effused is large in amount and remains sterile, aspiration after the seventh or eighth day, or earlier in cases of urgent dyspnea, certainly hastens convalescence, permits a more rapid expansion of the lung, and prevents the formation of firm adhesions which may permanently cripple the free movements of the lung. In cases of hemothorax, whether the amount of blood is small or large, when infection takes place, open operation is necessary. Early operation both when the Carrel-Dakin technic or Morison method are adopted saves many weeks of convalescence and permits of a more perfect functional recovery. Small foreign bodies, or rifle bullets, imbedded in the lung, often cause no symptoms; they become encapsulated and may safely be left. Larger foreign bodies retained in the lung may cause distressing or disabling symptoms for long periods. In such cases removal after resection or elevation of the fourth rib through an anterior incision will allow of the safe removal of the projectile from any part of the lung. Pieces of metal so removed are almost always infected.

125. **Tetanus Treated by Sodium Persulphate.**—Leyva says that before the introduction of sodium persulphate in the American Hospital in Paris, 75 per cent. of the cases of tetanus ended fatally. In Leyva's work the patients who were treated with sodium persulphate recovered, while the others did not. Persulphate combined with the antitetanic serum relieves the pains and spasmodic attacks. The minimum dose must be 60 c.c. in one day. The solution must be freshly prepared, and must be kept cold and in a shaded place, as both heat and light decompose it.

127. **Study of Rectosigmoid.**—In an investigation of the last 100 specimens of cancer of the rectum and rectosigmoid

removed consecutively at St. Mary's Hospital, Rochester, Minn., it was found that twenty-eight were located in the rectosigmoid juncture, extending as much on the rectal as on the sigmoid side, twenty-one involved the juncture but extended more on the rectal than on the sigmoid side, fourteen involved the juncture but extended more on the sigmoid than on the rectal side. Thus 63 per cent. involved the rectosigmoid, 30 per cent. the rectum only, and 7 per cent. the anal canal.

129. **Fat Embolism, Trauma to Bones.**—Caldwell and Huber report on an experimental study of its production and prevention. They found that crushing the tibias of mature rabbits produces a moderate and fairly constant amount of fat embolism, as determined by counting the fat droplets in a large number of representative microscopic fields, in stained sections of lung tissue. Esmarch constrictors placed on the legs of rabbits, previous to the crushing of the tibias and removed after two hours, lessen distinctly the amount of fat entering the lungs during the remainder of the experimental period; this effect is much less marked and more uncertain when they are removed at the end of a half hour or even one hour. The amount of fat embolism which develops after the removal of the constrictors is dependent largely on the activity of the animals. Rabbits kept in chloral hydrate narcosis during the entire experimental period, following the crushing of the tibias, develop only a small amount of fat embolism although the constrictors are not used. The removal, by means of a motor saw, of splints from the tibias of normal dogs and rabbits produces an appreciable but a very small amount of pulmonary fat embolism. The use of the chisel for the removal of the tibial splints from dogs increases very slightly, if at all, the amount of fat entering the circulation. The spinal part of the Albee bone transplantation operation, on normal rabbits, produces more fat embolism than does the tibial part.

134. **Neoplasm of Fallopian Tube.**—Jacobson and Wells report the case of a woman 20 years old, presenting history, symptoms, and physical findings suggesting an ectopic pregnancy and considered as such without question at the time of operation. Four weeks after the operation the patient died of hemorrhage and sepsis, with a pelvic abscess performing the sigmoid and opening into the vagina, and thrombosis of the iliac and renal veins. On postmortem examination the wall of the pelvic abscess was found to be made up of extremely soft neoplastic tissue of peculiar polymorphous cells, and encapsulated nodules of similar histologic structure were found implanted on the peritoneal surfaces, both parietal and intestinal, and invading the left fallopian tube. There were no metastases in the lymph glands nor in remote organs. The pelvic growth was so much altered by infection that its characteristics had little significance. This tumor resembles the atypical chorio-epitheliomas. On the basis of the clinical history, operative and necropsy findings and histologic structure, the authors consider that in all probability the neoplasm arose in the decidua of an ectopic gestation, although the histologic findings alone are not sufficiently conclusive to prove positively that the tumor is a deciduoma.

138. **Modification of Universal Incision in Exploratory Laparotomy.**—The technic employed by Del Valle is as follows: One inch parallel to the median line, an incision is made on the right hand side of the abdomen, commencing two or three finger breadths below the costal margin and extending the same distance above the pubis. On the same line the sheath of the rectus is opened and the muscle retracted outward. In this way it is possible to make an incision on the posterior portion of the rectus sheath, keeping the same distance from the median line. It is at this step that the modification of the incision occurs. The posterior wall of the rectus sheath is opened with two subincisions which leave between them an aponeurotic bridge of an inch or more in width. The inferior incision commences at Douglas' arch and 1 or 2 inches above this arch, the superior incision terminates. In this manner it is possible to explore all the abdomen and pelvis, examine all the viscera, and drain the pelvis.

139. Abstracted in The Journal, Jan. 20, 1917, p. 221.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### Archives of Radiology and Electrotherapy, London

November, 1917, **22**, No. 6

1 Contraction Forms of Human Stomach Illustrated by Plasticine Models. G. Jefferson.—p. 161.
2 Method of Running Coolidge Tube on Continuous Current Mains Without Aid of Accumulators or Other Transforming Device. F. H. Johnson.—p. 174.
3 Roentgen Rays from Sources Other Than Focal Spot in Tubes of Pure Electron Discharge Type. W. D. Coolidge and C. N. Moore.—p. 176.

### British Medical Journal, London

Nov. 24, 1917, **2**, No. 2969

4 *Modern Antispetics. A. P. Gould.—p. 677.
5 *Results of Blood Transfusion in War Surgery. L. B. Robertson and C. G. Watson.—p. 679.
6 Direct Transfusion of Blood. A. J. Hull.—p. 683.
7 *Simple and Rapid Method for Selection of Suitable Donors for Transfusion. R. I. Lee.—p. 684.
8 Vincent's Angina Among Troops in France. R. J. C. Bouty.—p. 685.
9 *Six Cases of Tonsillectomy in Diphtheria Carriers. C. C. Ballantyne and B. S. Cornell.—p. 686.
10 Pneumothorax with Hernia into Left Pleural Cavity. T. H. S. Wells.—p. 681.
11 Case of Ectopia Viscerum. P. R. Cooper.—p. 681.

Dec. 1, 1917, **2**, No. 2970

12 Anatomic and Physiologic Principles Underlying Treatment of Injuries to Muscles, Bones and Joints. A. Keith.—p. 711.
13 *Treatment of Neurasthenia and Psychasthenia Following Shell Shock. R. T. Williamson.—p. 713.
14 *Red Blood Cell Count and Hemoglobin Content of Blood in Disordered Action of Heart. A. G. Levy.—p. 715.
15 Acute Tuberculous Bronchopneumonia with Pneumothorax. A. Malloch.—p. 716.
16 Trench Foot. R. T. Dobson.—p. 717.
17 Treatment of Secondary Hemorrhage from Buttock by Ligature of Internal Iliac Artery; Case Reports. W. M. Shepherd.—p. 718.
18 Fragment of Shell in Arterial Circulation; Case Report. C. S. O'Neill.—p. 719.
19 Story of Tooth Plate; Unusual War Injury. G. Taylor.—p. 720.
20 Absence of Right Pinna and Right Tonsil, with Right Facial Paralysis. J. J. Healy.—p. 720.

4. **Modern Antiseptics.**—The Morison antiseptic paste (bipp) treatment of wounds is, in Gould's opinion, the highest attainment yet achieved. Deliberately to sew up a wound known to be gravely infected after a single treatment and trust to sterilization being effected by the enclosed antiseptic is a bold procedure which when successful, as it is in Morison's hand, Gould says well merits the description of "brilliant." The technic is very definite and must be carried out with great care. As in Carrel's method, it is twofold. On the one hand the dead and dying material is most thoroughly removed by vigorous friction. Then a potent antiseptic (bipp) is most carefully applied to every part of the infected surface in sufficient but not excessive quantity. Morison's treatment cannot be summed up in the one word "bipp" any more than Carrel's can in the word "tube." Each method of treatment depends for success on a very careful technic, and it must be carried out in every detail with scrupulous care. The aim of each is the same, the sterilization of the previously infected wound and its closure so as to secure rapid union with the minimum of scar tissue. Carrel proceeds in two stages; first the sterilization, and only after that has been attained does he suture the wound. Morison combines them in one treatment with far less labor and less cost in dressings.

5. **Blood Transfusion in War Surgery.**—Robertson and Watson cite cases to emphasize the fact that many patients admitted in an inoperable condition from severe hemorrhage have been rendered operable by blood transfusion. The largest factor in the causation of the condition of shock as seen in patients admitted to a casualty clearing station appears to be the loss of blood, except in cases of visceral injury. In two cases hemolysis hastened the death of the patient. In one of these the citrate method was used. The possibility of hemolysis certainly is present, but the danger of its occurrence is slight in comparison with the danger of operating on a shocked and exsanguined patient. The results in a series of thirty-six cases of severe primary hemorrhage

may be classified as, life saving, twenty-two; immediately beneficial, but died from infection or operation, nine; no benefit, three, and harmful, two. Although the mortality in this series of cases is comparatively high, it must be remembered that all the patients were in a desperate condition, and with, perhaps, one possible exception, could not have been expected to survive if the procedure had been withheld.

7. **Selection of Suitable Donors for Transfusion.**—Lee describes his procedure as follows: A small amount of blood is collected from a patient (1 c.c. from the ear or finger is sufficient) and allowed to clot. The serum is then obtained. One drop of this serum is placed on a slide and mixed with a drop of a suspension of blood of the donor taken into 1.5 per cent. citrate solution. (A few drops of blood are taken into approximately ten times the amount of 1.5 citrate solution and shaken. It is very important that the blood be dropped directly into the citrate, and should not be coagulated partially.) The result will appear in a few moments, and is best examined under the microscope, where, in the event of a positive test, marked agglutination will be evident. The reaction will also be evident macroscopically. In the event of a negative test it is a wise precaution to raise the cover-glass, and after making sure that the serum and cells are well mixed, to examine the preparation again. The only possible source of confusion is the appearance of rouleaux of the red corpuscles, indicating a too thick emulsion. If the test is negative, transfusion may be regarded as entirely safe.

9. **Tonsillectomy in Diphtheria Carriers.**—The authors point out that in apparently normal individuals the *Bacillus diphtheriae* may be harbored in the depths of the tonsillar crypts. Complete enucleation of the tonsils seems to be a successful means for eliminating diphtheria organs from carriers, although it appears too drastic a measure for routine adoption.

13. **Treatment of Neurasthenia Following Shell Shock.**—The important points emphasized by Williamson in the treatment of neurasthenia are: All anxiety and fear of further exposure to similar risks to life, and anxiety from other causes, should be removed, if possible, and the patient should be told definitely that he will certainly recover. The sleep treatment is very useful. At first hypnotic drugs may be given both at night and during the day for a short time; so that the patient may sleep all night and, for a few days, also during part of the day. He should cease thinking of the war and his experiences. This may be brought about (*a*) at first by the sleep during part of the day as well as during the night, as just described, and by occupation whenever he is awake; (*b*) afterward he should be kept asleep all night (by drugs); but during the day the drugs should be discontinued and he should be kept fully occupied in a suitable way. As regards the kind of occupation: (*a*) A new subject or one not associated with war is desirable. (*b*) Very close application to the work in hand is important. (*c*) The occupation should be interesting and one requiring thought.

14. **Blood in Disordered Heart Action.**—The average red cell count of fifteen patients suffering from disordered action of the heart was 5,837,000; the average hemoglobin content was 93.4 per cent. and the average color index 0.8.

### Glasgow Medical Journal

November, 1917, **88**, No. 5.

21 Uterine Fibroids; Diagnosis, Complications, Treatment Based on One Hundred and Fifty Cases. W. D. Macfarlane.—p. 257.
22 Work of Unit Scottish Women's Hospitals in France, Serbia and Salonica. A. L. McIlroy.—p. 277.

### Indian Medical Gazette, Calcutta

October, 1917, **52**, No. 10

23 *How to Administer Quinin. A. C. MacGilchrist.—p. 345.
24 Collection and Disposal of Human Excreta in Standing Camps on Field Service. C. C. Murison.—p. 346.
25 Colitis in Waziristan and Its Prevention. M. M. Abdulla.—p. 347.
26 Evacuation of Serious Cases in Mountain Warfare. W. H. Thipthorp. —p. 349.
27 *Prophylaxis of Malaria. M. Roche.—p. 349.
28 Sterilization of Water by Chlorin and Hypochlorites. V. Nesfield. —p. 351.
29 Forgotten Pages of Jail History. J. Mulvany.—p. 358.
30 Infantile Biliary Cirrhosis. S. Ganguli.—p. 361.
31 Cholera. V. B. Bennett.—p. 363.
32 Case of Ulcerating Granuloma. G. da Silva.—p. 364.

23. **How to Administer Quinin.**—The best way to administer quinin by the mouth for the treatment of malaria, MacGilchrist says, is to give it thrice daily with or soon after meals at intervals of eight hours. It is a minor matter which salt of quinin is used, as all salts dissolve in the acid contents of the stomach. The sulphate is the cheapest salt; the hydrochlorid and bihydrochlorid are expensive, and, if given in such a way that they may exist in a concentrated condition in an abraded or damaged stomach, are injurious. When a solution of quinin salt enters the intestines, the alkaloid base quinin is precipitated from the solution of the quinin salt. Quinin alkaloid is very insoluble in water but is very soluble in bile. It is, therefore, useful to give a cholagogue, for instance, calomel, before starting quinin treatment. MacGilchrist advocates the use of Warburg's tincture. Besides quinin, this tincture contains two or three cholagogues, and as these cholagogues are purgative, it contains astringents such as opium. The tincture also contains volatile oils which similarly counteract griping. The efficacy of this tincture is largely due to the presence of the cholagogues.

27. **Prophylaxis of Malaria.**—Experience has convinced Roche that one 5-grain fresh tablet of quinin sulphate taken daily at 5 p. m. prevents malarial attacks.

### Medical Journal of Australia, Sydney

Oct. 20, 1917, **2**, No. 16

33 Syphilis. T. E. L. Lambert.—p. 325.
34 Nephrotomy for Complete Suppression of Urine in Child. H. I. Holmes.—p. 333.

### Practitioner, London

December, 1917, **99**, No. 6

35 Effects of War Bread on Health. R. Hutchison.—p. 501.
36 Vincent's Disease of Mouth and Pharynx. W. H. McKinstry. —p. 507.
37 Recent Work on Diseases of Lungs. A. J. Jex-Blake.—p. 533.
38 Improved Cesarean Section. A. L. Smith.—p. 541.
39 Technic of Cesarean Section. J. C. Jefferson.—p. 562.
40 Internal Form of Acute Hodgkin's Disease. A. Howell.—p. 565.
41 *Association of Neuritis and Myalgia with Subnormal Temperature. S. Kent.—p. 575.
42 Removal of Massive Lipoma from Parotid Region. R. Manwaring-White.—p. 579.

41. **Neuritis and Myalgia with Subnormal Temperature.**—In lumbago, sciatica and all neuritis which is not complicated by or symptomatic of some febrile disease, the temperature always runs a subnormal course. Kent feels that there must be some relationship between cause and effect. Also pain in each of these disorders varies directly with the depression of the mercury, and should this ascend to normal for a brief period, for such period will the subject obtain respite from his sufferings. Kent suggests the following theory: The blood at normal temperature is able to hold in solution certain morbid products of katabolism, including, perhaps, uric acid. There is, however, a point below which these products cannot remain so dissolved, but must be cast out into the tissues, giving rise to a train of symptoms varying according to the region invaded. If this is a correct surmise, there is, on the one hand, a ready explanation why a certain class of drugs, largely employed in these cases, fails to effect a cure, and on the other an obvious hint toward a rational mode of treatment that would, and, as a matter of fact, actually does, achieve the desired effect. The salicylates and the multitudinous derivatives of coal tar all depress the temperature still lower, thereby increasing the difficulty of the blood stream in reabsorbing the morbid precipitates. The rational treatment is the reheating of the blood stream, through the natural physiologic process of digestion by the oxidation of the fat in the food. Kent relies almost entirely on the administration of olive oil, advocating at the same time a liberal supply of bacon, dripping, or butter. He says it is surprising how quickly an improvement takes place, the relief of pain proceeding always *pari passu* with the ascending of the temperature. He cites four cases. Among local applications he prefers the protecting of the affected part with pine wool, and in

neuritis sometimes gets very decided relief from pain by the injection of ether into the course of the nerve at one or more points.

### Quarterly Journal of Medicine, Oxford

October, 1917, **11**, No. 41

43 *Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. W. P. Morgan.—p. 1.
44 Simple Rapid Method of Estimating Filtrate Nitrogen in Small Quantities of Blood and Other Body Fluids. R. Donald.—p. 19.
45 Use of Cholemic Red Cells and Normal Cells in Production of Hemolytic Immune Body in Rabbit. L. S. Dudgeon.—p. 30.
46 Methods of Estimating Vibratory Sensation. J. L. M. Symms. —p. 33.

43. **Pneumothorax in Treatment of Tuberculosis.**—Morgan claims that partial collapse of a tuberculous lung tends to give rest to any consolidated portion, and thereby to reduce autoinoculation. The changes which take place as a result of the absorption of gas tend to reduce the amount of strain in the diseased parts when this strain is compared with that which existed before collapse. A single operation for collapse is therefore likely to be followed by good results. A moderate degree of collapse does not materially interfere with respiration provided it allows sufficient normal tissue to function. Both lungs can be treated at one and the same time. In all cases of aspiration of fluid from the pleural cavity, the fluid removed should be replaced to some extent by gas. This is desirable, in the case of tuberculosis of the lung, in order to give rest to the diseased parts, and, generally, because it prevents the value action of the lung and all that distress which would result from attempts to empty the cavity completely. The apparatus and method usually employed for the operation are seriously defective in many respects, and necessitate the puncture of the lung and leakage of air from it. These defects can be remedied by the use of a slightly more elaborate apparatus.

### Sei-I-Kwai Medical Journal, Tokyo

November, 1917, **36**, No. 11

47 Case of Myotonia Atrophica with Muscular Atrophy. K. Yokomori.—p. 107.
48 Experimental Transmission of Kala-Azar to Laboratory Animals. N. Mine.—p. 108.
49 *Sugar Content of Blood in Infantile Beriberi. T. Suzuki.—p. 109.
50 Roentgen-Ray Examination of Normal Stomach of Japanese. Y. Kato and J. Nakamura.—p. 110.

49. **Sugar Content of Blood in Infantile Beriberi.**—The average sugar content of blood in infantile beriberi, according to Suzuki, is 0.0808 per cent. A light grade of hypoglycemia is present in the majority of the cases, quite independently of the type of the disease or its stage. The author also estimated the sugar content of the blood in mothers and found that in the majority it is normal; in two cases a light hyperglycemia was present. The following facts were elicited by animal experiments. The injection of the thymus emulsion has no influence on the sugar content of the blood in rabbits, nor does it affect the sugar content of blood in epinephrin hyperglycemia. A high degree of hypoglycemia is produced in rabbits after the extirpation of both the suprarenal glands. In these rabbits the injection of the thymus emulsion causes the diminution of the sugar content of blood. From these results the author concludes that the probable cause of the hypoglycemia in infantile beriberi is the insufficient function of the suprarenal glands.

### Bulletin de l'Académie de Médecine, Paris

Oct. 23, 1917, **78**, No. 41

51 The Necessity for the Bread Card. Gley.—p. 436.
52 *Means to Arrest the Declining Birth Rate. C. Richet, A. Pinard and Others. Conclusion.—p. 441.
53 The Dispensary and Hospital in Connection with the Consulates in French Colonies. Kermorgant.—p. 459.
54 *Every War Wound Without Streptococci Should Be Sutured. G. Gross.—p. 466.

November 6, **78**, No. 43

55 *Local Treatment for Gas Poisoning. Rumpelmayer and Béclère. —p. 500.
56 *The Alleged Dental Stigmata of Syphilis. V. Galippe.—p. 501.
57 Potato Bread. E. Maurel.—p. 542.
58 Vincent's Hypochlorite Powder in Treatment of Wounds. Sauvage. —p. 548.
59 Senile Conditions in the Teeth of Soldiers at the Front. J. C. Demarquette.—p. 553.

52. **Means to Arrest the Declining Birth Rate.**—The Académie after months of discussion adopted a set of resolutions emphasizing the necessity for combating birth control propaganda, the necessity for criminal prosecution of abortionists, with permission for medical and pharmacist organizations, organizations of midwives, of dentists and of herborists to bring suit against persons guilty of acts that bring direct or indirect prejudice to the collective interests of the profession they represent. The stricter suppression of all advertising and publicity bearing on abortion was urged, and the principle advocated that those with few or no children should be taxed to help support the large families. Regular maternities should be established in every province, with secrecy guaranteed when desired. The inviolability of professional secrecy under all conditions was reaffirmed, and the importance of cultivating and teaching hygiene in the widest sense of the word. The instinct for preservation of the species seems to become less potent as the intelligence develops, and hygiene should seek to restore the normal harmony between them. Individual hygiene shows that birth control measures injure the health. Physicians know that in many households these practices entail nervous disturbances and destroy conjugal happiness. The hygiene of pregnancy teaches that induced abortion jeopardizes the woman's life. It was emphasized that individual hygiene seeks out not only the physical causes of disease but also the moral causes, the reasons for voluntary birth control. Natality is a question of hygiene, and as the Académie's mission is to watch over the public health, this includes the moral health as well as the physical health.

54. **Early Suture of War Wounds.**—Gross states that he was one of the first to insist on early suture of war wounds, and his experience has demonstrated that this can be done with confidence where the wound is not infected with the streptococcus. The anaerobes are unable to develop, he reiterates, unless the streptococcus is present. It can be detected only by its cultures, but he declares that when cultures show the presence of the streptococcus, the sutured wound should be opened up at once. Otherwise all properly cleaned out wounds can be sutured without apprehension. The cultures show in five or six hours quite characteristic findings.

55. **Local Treatment of the Gassed.**—Rumpelmayer declares that as the chlorin gas burns the tissues of the air passages, the logical treatment is with intratracheal injection of a soothing medicated oil. This should be done immediately as it not only relieves the pain but wards off complications from the corrosive nature of the poisonous gas.

56. **No Dental Stigmata Peculiar to Syphilis.**—Galippe devotes forty-one pages to demonstrate that physicians have paid too little heed to the works of dentists, and hence when they find peculiar malformations of the teeth in their syphilitic patients they ascribe them to the syphilis. If they had wider experience with teeth they would find that, to date, there is no dental anomaly of shape, size, site or structure which belongs exclusively to inherited syphilis and cannot be found with other inherited taints.

### Journal de Médecine de Paris

August, 1917, **36**, No. 8

60 Influence of Experimental Physiology on Our Knowledge of Surgical Affections. A. Satre.—p. 147.
61 The Diet in Diabetes. Nigay.—p. 150. To be continued.

### Presse Médicale, Paris

Oct. 25, 1917, **25**, No. 60

62 The Wassermann Reaction in Malaria. S. I. de Jong and A. Martin.—p. 617.
63 The Cardiopulmonary Circulation. G. Colleville.—p. 618.
64 *Alcohol in Trigeminal Neuralgia. J. A. Sicard.—p. 620.

November 15, No. 63

65 *Detection of the Tuberculous in the Army. Léon-Kindberg and A. Delherm.—p. 645.
66 *Treatment of Stomach Disease. L. Meunier.—p. 647.
67 *Paralysis from Disuse. P. Hartenberg.—p. 648.
68 *Treatment of Syphilis of the Eye. A. Poulard.—p. 648.

64. **Injection of Alcohol for Essential Trigeminal Neuralgia.** —Sicard warns to be careful not to let the alcohol get into a

blood vessel. He knows of cases in which the region tributary to the vessel became gangrenous, and sequesters of bone were cast off. The gangrene healed in a few weeks, but it left an ugly scar. If blood drips from the needle, he postpones the injection of the alcohol. It might be possible by waving the tip of the needle to and fro during the entire injection to keep from depositing the alcohol in the injured vessel. In some cases ocular paralysis developed after the injection of alcohol for trigeminal neuralgia, but it always subsided in a few weeks or months. To ward off this complication he leaves the cocain in place for four or five minutes before injecting the alcohol. If the cocain is in contact with the ocular nerves, there will be transient diplopia. If this becomes manifest, he postpones further intervention to some other time. Facial erysipelas has been known to follow the injection of alcohol in persons who have previously had it; the germs were merely slumbering and were roused by the injection.

This alcohol nerve blocking treatment is adapted only for essential neuralgia. If the pain keeps up continuously, or if there is concomitant anesthesia of skin or mucosa, it is not essential neuralgia, nor when the neuralgia comes on abruptly in all the three branches at once, nor when other cranial nerves are involved and there is trismus, hemiatrophy of the tongue, etc. These forms of neuralgia are secondary, and injection of alcohol not only does no good but may aggravate them. Hence it is necessary to have the patient examined by specialists for the nose, ear, eye and teeth, before assuming that a trigeminal neuralgia is of the essential type. Migraine must also be excluded, as also the neuralgia after herpes zoster. The sign that the injection of alcohol has answered its purpose is the resulting immediate anesthesia of the skin and mucosa of the innervated domain. It is accompanied by a sensation of woody hardness and swelling—mere illusions. The more perfect, intense and total the anesthesia for all three branches, the longer the neuralgia will stay cured. He has had the neuralgia recur under these circumstances only in two out of his several hundred cases. In one absolutely unique case, neither the alcohol nor severing the branches at the oval and round foramens cured the neuralgia, and there was purulent infiltration later, compelling enucleation of the eye. No other mishaps have occurred in his experience although in some elderly persons the bone was so friable that he found it difficult to work the needle into and through the proper passage.

65. **Detection of Tuberculosis in Soldiers.**—Kindberg and Delherm analyze their experiences with 1,000 men suspected of tuberculosis. Only 1.5 per cent. proved to have actual tuberculosis. About 113 of the men had some chronic nose or throat trouble. The resulting cough, fever and physical signs at the apex, with blood in the sputum may masquerade as pulmonary tuberculosis. Absolute reliance can be placed, they say, on radioscopic findings showing normal conditions. This testimony outweighs everything that can be learned from percussion and auscultation. Even when the apex region casts more or less of a shadow the man must be screened from different angles, bending over, or increasing the intensity of the rays, before accepting the shadow as a pathologic process. When the shadow persists and no bacilli are found in the sputum some healed process or pleurisy at the apex can be assumed. An incipient tuberculous process at the apex is possible but practically it is exceptional.

They warn that there is no "pretuberculous stage." If the man has neither active tuberculosis or cured tuberculosis, the cause for the symptoms must be sought elsewhere. In examining the sputum, the first on waking is sometimes the only one during the day that contains tubercle bacilli. The Petri dish should be handed the man at this moment, and with strictest precautions, the attendant skilled and strict, with frequent supervision by the physician. The personal conviction that there must be bacilli present is necessary to keep up the persevering search for them, to repeat the tests of provoked expectoration and homogenization. Some men just on the point of being passed as "closed tuberculosis" after two or three negative examinations then gave positive findings. Not much time is wasted by reiterated persevering examinations, while there is the inestimable advantage of certainty.

On the other hand, for fluoroscopy to have its full significance it must be done by the physician in charge of the service along with the roentgenologist. In their service both were combined in one. Sifting out the actually tuberculous men requires a specially organized service with perfect unity between the laboratory, the clinic and the roentgen room. Under ordinary conditions, with sputum from any part of the day, the search for tubercle bacilli loses the greater part of its value for the diagnosis.

Whatever the method of sifting out the tuberculous, the record of the findings should follow the man wherever he goes. In several instances men fell into their hands again later without a trace of anything to show as to their previous examinations. This is bad for the man and bad for the military service. A booklet giving the clinical history at different intervals, etc., would save much duplication of effort and prove a great aid in helping the man to get and keep well.

This article issues from the *centre de triage* in charge of Major Rist who has been recently in this country. His views as to the paramount importance of refusing to accept the presence of tuberculosis unless the sputum and the roentgen findings confirm the clinical suspicion, have been repeatedly mentioned in these columns. The service includes, besides the laboratory and the roentgen room, an isolation barracks where the men found to have active tuberculosis are kept until they leave *pro rata* for places awaiting them in sanatoriums in the home zone. There is also a nose, ear and throat specialist service, and a service for general medicine to decide the fate of those found nontuberculous. Men are sent here from all sections of the army.

66. **Treatment of Stomach Disease.**—Meunier reports the findings in regard to the freezing-point of the stomach content at different periods after a meal. In twenty normal persons, in ten minutes the freezing-point was 0.70; at thirty, 0.52; in one hour, 0.42; in one hour and a half, 0.38 until finally 0.35 was reached. When the figure for the freezing-point kept high as digestion progressed then the subject began to feel pain in his stomach. A large number of patients with various gastric affections but all with tardy pain an hour or an hour and a half after an Ewald test meal showed, instead of the normal 0.35 after this interval, from 0.49 to 0.72. This indicates retention of stomach contents and abnormal concentration of the gastric juice, whatever the cause of the retention may be. The indications are to hasten evacuation and bring the freezing-point back to the figure 0.35 which seems to be the optimum for evacuation of the stomach. He accomplishes this by having the patient sip a fluid that has the freezing-point at 0.35. The fluid dilutes the gastric contents and brings the freezing-point to the optimum 0.35. The fluid can be a solution of any salt that is directly indicated by the clinical picture, but its molecular concentration should be invariably 0.35. He suggests for this a wineglass every ten minutes of a 9 per thousand sodium bicarbonate solution; or 20 per thousand sodium citrate; 10 per thousand sodium sulphate; 5.5 per thousand sodium chlorid; 40 per thousand peptone; 9.35 per thousand hydrochloric acid, or 26.8 per thousand phosphoric acid. These banish the pain while having a therapeutic action in addition, in suitable cases.

67. **Paralysis from Disuse.**—Hartenberg is in charge of an army "neurologic center" and relates that in many instances of functional paralysis the trouble is the result of long inaction, and hence might have been avoided. The nerves in a long disused part suffer, and the cortical motor centers in control of that part grow sluggish too. There being no longer much feeling and no movement in the part, the man neglects it, forgets it. He carries it or drags it as if it were a foreign body, a dead weight, with that air of indifference which has impressed all observers. It is possible that some are more predisposed than others to inertia, just as others develop readily tremor, tics or spasms. All start with a voluntary disuse of the part on account of some painful lesion. Then comes an hour when movement could be resumed but

is neglected. On the management of the case at this hour depends the future of the part. Vigorous interference is necessary here, with disciplinary measures for the rebellious. To temporize is to do irreparable damage. After a few months, recovery is almost impossible. When the phase of inhibition of the cortical centers is reached, a cure is scarcely probable.

68. **Syphilis of the Eye.**—Poulard remarks that treatment of syphilis of the eye is on the same principle as syphilis elsewhere, but it requires extra haste as the eye is such a delicate organ. He also instils into the eye some substitute for neosalvarsan in case of iritis or keratitis, and has even injected the fluid under the cornea in very grave cases.

### Progrès Médical, Paris

Oct. 20, 1917, 32, No. 42

69 *Cyst in Thyroid Following Bullet Wound. M. Baller.—p. 347.
70 *Healing Over of War Wounds. H. Vignes.—p. 348.
71 Case of Galloping Phthisis After Inhalation of Asphyxiating Gases. J. Tapie.—p. 349.

October 27, 32, No. 43

72 *Neuroses, Psychoneuroses and Hysteria. Bernheim.—p. 355.
73 The Emotional Factor and Waking Nightmares in the Psychoneuroses of War. G. L. Duprat.—p. 357.
74 *Functioning of an Army Psychiatry Clinic. H. Damaye.—p. 362; J. Crinon.—p. 364.

69. **Bullet in Thyroid.**—The man applied for relief from a tumor in the thyroid which proved to be a cyst developing from the irritation kept up by a bullet in the thyroid. The presence of the bullet had not been suspected during the seven months since the war wound, testifying to the great tolerance of the thyroid.

70. **Healing Over of War Wounds.**—Various means for hastening epidermization of war wounds are discussed by Vignes. Hot paraffin applied with an atomizer seems to have a direct action in this line, besides its protecting effect. He cites Wederhake's report in the *Münchener medizinische Wochenschrift,* June 12, 1917, of the almost constant success he has had with lotions of aluminum acetate supplemented by lymphorrhea induced by Bier's technic. This prepares the field for grafting. He uses for the grafts hernial sacs with the endothelial surface facing outward. Disappointments are frequent with any kind of grafts from another person, while autografts can almost always be relied on.

72. **Psychoneuroses and Hysteria.**—Bernheim defines neuroses, psychoneuroses and hysteria, and shows the connection between them. Every organ, every function tributary to the nervous system, is subject to neuroses. Even the brain is not exempt; hallucinations, amnesia, strange ideas and dreams are manifestations of psychic neuroses. All the symptoms soon subside, perhaps instantaneously, like the disturbances induced by suggestion; the latter are only experimental neuroses. The neurosis may be brought on by emotional stress or it may accompany some traumatic affection or it may be of mental origin—the idea of coughing starts one to coughing. Psychic neuroses are those manifested by mental symptoms, while a psychoneurosis is a nervous affection maintained by the mind. The two may be associated.

74. **Psychiatry in the Army.**—Damaye analyzes 638 cases of mental or nervous affections that passed through his service last year. The mental disturbances were usually transient when the men were kept back from the front. The proportion of the persisting and incurable cases is surprisingly small in comparison to the more or less prompt recovery of the others. The mixed cases are especially numerous, namely, those in an intermediate stage between mental debility and dementia praecox, with and without delirium, or between hebephrenia and actual loss of mental balance. Hystero-epilepsy and hysteroneurasthenia were particularly frequent. The various types of mental anomalies are listed; the largest group was 71 cases of melancholia with notions of persecution; 39 cases of melancholia with a neurastheniform state; 51 of acute brief attacks of delirious excitement with hallucinations, and 37 of simple mental debility. In 24 cases there was desire to commit suicide; in 19 malaria was commencing, and in 399 there was slight albuminuria, with more or less perfect compensation of some heart defect. The albuminuria disappeared in most of them after a week of rest, but in others it persisted unmodified. The etiology of these nervous and mental disturbances is complex: predisposition, emotions, intoxications and fatigue all cooperating. The attacks of convulsions nearly always coincided with exhausting fatigue. Syphilis is a predisposing factor in the mental disturbances, and a combination of malaria and alcoholism, but all the mental and neuropathic troubles and even the syndrome of general paralysis can be started by some concussion mishap. This "presses the button" as it were. Treatment in all cases was to give at once a bath at 37 C. for one-half hour if the man is tranquil, and for an hour at 40 C. if he is excited. A calomel purge was then given and the man was put to bed. The baths are repeated daily and no food but milk is allowed for two or three days. If the urine findings are negative, he is then given the restricted and then the full milk-vegetable diet. By this means the effects of the digestive disturbances, etc., are overcome. No wine is ever allowed; milk or "glyzin" are the only beverages given. The patients are all given, besides, a solution of 40 drops of tincture of iodin in 100 gm. gum mixture, fractioned, during the day. This is kept up for five to ten days. It serves to sterilize the digestive tract, promote leukocytosis, and acts as a general tonic. Cold baths are not advisable, but, if conditions call for it, a daily injection of 5 cg. of sodium cacodylate is given. When there is much mental distress, morphin is the resource and the much excited patients are given, beside the baths, 4 gm. of chloral in 120 gm. of gum mixture at night and possibly a very cautious injection of hyoscin hydrobromate. The most practical arrangement for the psychiatric service is to have an advanced station, moving with the front lines, and, farther back, where all is quiet, a psychiatric center and a neurologic center to which the men can be evacuated from the advanced station. The evacuations should always be in charge of specialist attendants.

74. **The Advanced Psychiatric Centers.**—Crinon urges the importance of recording on the wounded man's card, from the very first, the notice of nervous or mental upset. Psychic changes should be recorded as scrupulously as the organic. It is now officially ordered that the concussion syndrome has to be specified on the card. The "psychically disabled" should have their record as complete from the first as is the rule for the physically maimed. This would permit also suitable measures from the very first, when they are much more likely to prove effectual. The influence on the brain of physiologic disturbances from shell shock or toxi-infections should be arrested as early as possible. To neglect this allows the psychic changes to deepen and crystallize into delirium or confusional states. All this requires advanced psychiatric stations. Their existence is still further justified by the important task of sifting out the men to be sent to the nerve centers and the psychiatry centers farther back from the front. Many men only lightly affected could do well in them and be promptly restored to full duty. Sent back into the interior, their psychic disturbances become more and more confirmed and durable. At the best, the men are returned after months of convalescence when, if they had been given specialist treatment close to the front, they would have been in the ranks again in much less than a month. Toxic delirium of alcoholic origin is often mistaken for a more permanent trouble. It requires only a special course of internment and treatment which is as available in a well equipped advanced psychiatric station as elsewhere. Men subject to convulsions can also be kept under observation here, and the nature and number of their attacks determined. Crinon thinks it is as absurd to exempt men from service on account of a single epileptic seizure—which is now the regulation—as to exempt those who have not good teeth.

### Revue Médicale de la Suisse Romande, Geneva

September, 1917, 37, No. 9

75 *Return of Goiter After Operation. A. Sarkissiantz.—p. 525.
76 *Hernia in Children. J. Brossy.—p. 548. Commenced in No. 8, p. 473.
77 Anthropometric Photographic Control of Children's Growth. L. Jeanneret and G. Messerli.—p. 570.
78 Chronic Hygroma of Iliopectineal Bursa. E. Kummer and de Senarclens.—p. 574.

75. **Return of Goiter after Operation.**—This work from Roux's clinic supplies a foundation for discussion as to the ultimate results of ligatures in colloidal goiters with nodules. It shows that even after ligation of the main trunk of the superior thyroid artery, the anastomoses are enough to ensure sufficient vitality for the remainder of the thyroid, and even after ligation of the four thyroid arteries. Hence this does not guarantee against pseudorecurrence. The ligation induces abundant production of connective tissue, and there may be a very vascular new growth, difficult to remove if a further operation is attempted. A simple, unilateral complete operation guarantees best against further operative measures if the patient does not mind the scar. Multiple ligatures applied during enucleation seem to predispose to annoying return as these recurrences generally take the form of a conglomerate of cysts. The details of seven cases are given in which the goiter returned and a second operation was required. The intervals ranged from three to twenty years. One boy of 10 had ten nodules excised from the thyroid body after ligation of three arteries. In a few months there was a tendency to suffocation from recurring nodules and two were resected; one was as big as a hen's egg. They had developed in the region where the artery had not been ligated.

76. **Herniotomy in Children.**—Brossy analyzes the findings in 236 children up to nine years after an operation for inguinal hernia. The total number, 1887 to 1906, was 333 inguinal hernias in 299 children. The hernia returned in 6.44 per cent., which is less than half the average frequency of recurrence in adults. There has been no recurrence in any of the nineteen operative cases of umbilical hernia. The details of the nine fatalities are given as also of the few cases of recurrence. They warn that children should not be hospitalized for any purpose unless absolutely necessary; when this is the case the child must be isolated completely and no operation should be attempted unless a predisposition to sudden death can be excluded (spasmophilia, status thymicolymphaticus, etc.) Operations for hernia are simpler and the remote results better in children than in adults. The tendency to recurrence seems to increase with the age of the child at the time of the operation.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Oct. 14, 1917, **38**, No. 82

79 *Examination of Stools in the Typhoid Group. G. Baglioni.—p. 1099.

October 18, **38**, No. 83

80 Anaphylaxis and Idiosyncrasy. Andruetto.—p. 1114.

79. **Examination of Stools in Typhoid.**—Baglioni has sometimes found the paratyphoid B early in the stools of patients with true typhoid or paratyphoid A bacilli in the blood. It is probably a saprophyte in these cases.

### Pediatria, Naples

November, 1917, **25**, No. 11

81 *Chlorin in Blood of New-Born. S. Cannata.—p. 641.
82 *Prizes Given at Infant Welfare Stations. E. V. Palmegiani.—p. 643.
83 A Case of Achondroplasia. S. de Stefano.—p. 655.
84 Vaccine Therapy for Children. P. Ceppellini.—p. 661. Commenced in No. 9, p. 533.

81. **Chlorids in the Blood of the Newly Born.**—Cannata found from 0.392 to 0.434 per cent. sodium chlorid in the blood during the first twenty-four hours after birth, and from this up to 0.460 within the first five days. These figures were obtained from twelve healthy newly born infants.

82. **Practical Infant Welfare Work at Turin.**—Palmegiani describes the workings of what are called the Corredini prizes given to mothers bringing their babies systematically to the baby stations for inspection and advice. The prizes are given monthly and consist of one or more articles of infant clothing, all new, donated by friends of the movement to reduce infant mortality. The mother must have brought the child to the station at least three times in the previous month, and present evidence that she has fed it properly either with breast milk or according to the advice of the station officials. No prizes are given to wetnurses or to mothers who do not begin to bring their infants until they are 4 months old or later. The number of articles thus distributed was 1,014 in 1915. The children came from homes of one or two rooms and in 71.7 per cent. there were from one to three persons to the room. The monthly prizes seemed to have a decided influence in stimulating the mothers to take better care of the children, keep them cleaner and take more pride in their physical development, while another important advantage was that the infants got suitable clothing.

### Policlinico, Rome

Oct. 28, 1917, **24**, No. 44

85 *Compound War Fracture of the Femur. P. d'Alessandria.—p. 1305.
86 Sudden Ataxia with Ophthalmoplegia in Child After Measles; Recovery. G. Morelli.—p. 1311.
87 *Acute Nephritis with Spirochetes in the Urine. P. Sisto.—p. 1314.

85. **Fracture of the Femur.**—The importance of early radical measures and immobilization is emphasized, and the plea is made that these wounds should be classed with those that are unable to stand transportation.

87. **Acute Nephritis with Spirochetes in the Urine.**—The spirochete seemed to be of the infectious jaundice type, but there were no symptoms aside from the acute nephritis. The man may have been a carrier.

### Riforma Medica, Naples

Oct. 27, 1917, **33**, No. 43

88 *The Clinical Picture of Diseases from Filtrable or Ultramicroscopic Germs. U. Gabbi.—p. 1013.
89 Case of Filariosis Elephantiasis in Sicily. G. Spagnolio.—p. 1017.
90 Present Status of Cerebral Topography. A. Ferrannini.—p. 1024.

88. **Diseases from Filtrable or Ultramicroscopic Virus.**—Gabbi classifies in a table the five groups of these diseases: *a*, dengue with its rash, *b*, the three eruptive fevers, *c*, the four types with petechiae, *d*, the two with hemorrhages in the mucosa of the digestive tract (yellow fever, black vomit), and *e*, poliomyelitis. The latter is the only one without appreciable manifestations in the skin. He emphasizes the resemblances between the various groups, the lack of endocarditis and the rarity of nephritis (except in scarlet fever, and here the primary angina may be responsible). Another feature in common is the fever curve; in all there seems to be an abortive crisis at about a third of the total course. It seems to be connected with the appearance of the eruption, and to be proportional to the extent of skin involved. The dilatation of the vessels in the eruption seems to provide a means for dispersion of. heat, and the fever drops proportionately. Leukopeny is the rule in all groups, at least during the first period, and in all there are pains in the lumbar region and limbs at the beginning, and the depression is so great that it suggests involvement early of the suprarenals. All the groups seem to leave a durable immunity, and the spleen is not enlarged or very slightly. The liver is involved in yellow fever alone. No characteristic anatomic lesions are left. In short, he adds, each family of germs has a characteristic set of symptoms, and study of these may enable us to classify better diseases of still dubious etiology.

### Brazil-Medico, Rio de Janeiro

Oct. 6, 1917, **31**, No. 40

91 Presence of Balantidium in the Horse. A. M. da Cunha.—p. 337.
92 *Primary Tuberculosis of the Spleen. A. A. de A. Sodré.—p. 337.
93 Present Status of Abortive Treatment of Syphilis. D. Speroni.—p. 341. Conclusion.

October 13, **31**, No. 41

94 *Embolism After Mercurial Treatment. E. von Bassewitz.—p. 345.
95 Rectal Treatment of Malaria in Young Children. A. Pedro.—p. 348.

92. **Primary Tuberculosis of the Spleen.**—The man of 44 developed insidious primary tuberculosis of the spleen which caused only vague symptoms. Finally an abscess formed and ruptured into the pleura, followed by rapidly fatal acute miliary tuberculosis.

94. **Embolism from Mercurial Treatment.**—Von Bassewitz prefers the insoluble mercurial salts in treatment of syphilis, and in the course of his twenty years' use of them he has occasionally encountered symptoms suggesting minimal pleuropulmonary embolism. The symptoms were sudden severe pains in the chest a few hours after an injection of

the insoluble salt of mercury. There was seldom cough or cyanosis, but the temperature usually ran up, and there was tachycardia. Sometimes the seat of the pains changed about, the patients saying they felt as if some foreign body had changed its position. The whole subsided in the course of two or three days without leaving a trace. He attributes these disturbances exclusively to the vehicle in which the drug Is suspended and not to the drug itself. All that is necessary to avoid them is to give the drug in olive oil or, better yet, in human fat obtained at aseptic operations from noninfected persons. This is ideal in every respect except that it cannot be kept long. Five typical cases are described in detail.

### Repertorio de Medicina y Cirugía, Bogota

October, 1917, **9**, No. 1

96 *Esophagoscopy and Tracheobronchoscopy. A. Forero.—p. 2.
97 *Roentgen Diagnosis of Bone Disease. P. M. Lund.—p. 44.

96. **Direct Esophagoscopy and Bronchoscopy.**—Forero gives the history of endoscopy and the preferable technic, remarking that general anesthesia is indispensable for children, as they are restless and cannot stand cocain, also for timid adults and in all cases in which the foreign body has induced an inflammatory reaction. Otherwise he prefers cocain alone. The loss of flexibility in the spine with advanced age renders endoscopy much more difficult, although not contraindicating it absolutely, but cachexia is an absolute contraindication, and extreme caution is indispensable with heart disease, aneurysm, pulmonary tuberculosis, emphysema, etc., and also extreme nervousness not moderated with sedatives. With cancer of the esophagus there is often spasmodic constriction above. He deplores that with foreign bodies in the air passages and esophagus there is usually so much delay before applying to the endoscopist that the difficulty of detecting and removing the foreign body is much enhanced by the resulting inflammatory reaction. The article is illustrated.

97. **Roentgen Examination of Bone Lesions.**—Lund emphasizes the advantages of taking a radiogram of the sound mate, also, as he discusses the various types of bone lesions and interpretation of the roentgen findings.

### Semana Medica, Buenos Aires

Oct. 4, 1917, **24**, No. 40

98 Present Status of Treatment of Rabies. C. R. Mejia.—p. 381.
99 *Reflex Cough from Foreign Body in Ear. J. de la Cruz Correa. p. 384.
100 Roentgen Examination of the Digestive Apparatus. E. Fynn.—p. 385.

99. **Reflex Cough.**—Correa reports several cases in children and adults in which a spasmodic cough was traced to some lesion or foreign body in the ear. One patient was a woman of 52 who had long had chronic eczema of the ears. At every acute exacerbation she had a spasmodic cough. In one young man extraction of the hardened cerumen cured his deafness and his cough. In one boy of 4 the spasmodic cough came on every time his ears were washed in cold water, and an unsuspected shoe button was found in one ear.

### Siglo Medico, Madrid

Oct. 20, 1917, **64**, No. 3332

101 *The Roentgen Rays in Diagnosis of Pulmonary Tuberculosis. B. N. Canovas.—p. 786.
102 Medical Precepts and Prejudices in Regard to Food. S. Baglioni. —p. 791. To be continued.
103 Influence of Alkaline Medication on the Elimination of Chlorids. F. F. Martinez.—p. 794. Conclusion.

October 27, **64**, No. 3333

104 Treatment of Atrophy of the Femoral Quadriceps. S. G. Hurtado. —p. 806.
105 *Typhus at Madrid in 1916. G. Marañon.—p. 808. Commenced in No. 3331, p. 766.

101. **Roentgenoscopy with Pulmonary Tuberculosis.**—Canovas emphasizes the importance of being familiar with the roentgen findings in normal lungs in order to appreciate the deviations in the tuberculous lung.

105. **Typhus at Madrid.**—Marañon relates that the mortality with typhus at Madrid in the last twelve years has ranged from 10 to 15 per cent. but in the epidemics of 1913 and 1916 it was 17 and 18 per cent. In children under 10 the disease ran a very mild course; between 10 and 40 it was grave, and after 50, fully 60 per cent. died. Residence in a locality where typhus has been endemic seems to confer a kind of immunity. The intensity and extent of the exanthem are no criteria of the gravity of the case. Cortezo in 1903 stated his belief that the louse was the transmitting agent of the disease. Marañon comments on the difficulty of distinguishing between typhus and epidemic meningitis in certain cases. The former may present the typical symptoms of the latter, while the eruption with meningitis may simulate that of typhus. In one case of apparent typhus, lumbar puncture to relieve the headache showed the meningococcus in pure culture. Herpes speaks also for meningitis. The typhus eruption is not accompanied by the nasopharyngeal lesions of measles. In some cases there may be infarction of lymph glands and salivary glands, suggesting possibly bubonic plague.

In treatment the reliance was on symptomatic measures with free use of camphorated oil in the graver cases. The patients were kept on milk, given with tea or coffee if preferred, with plenty of fruit juices and sweetened water. Ordinary diet could be resumed in two or three days after defervescence. By selecting the attendants and physicians among those who had had typhus, the danger of infection was reduced. They wore overgarments fastened with rubber at neck and wrists, and cotton gloves, frequently changed. The infected rooms were sterilized with sulphuric acid, 50 gm. to the cubic meter, the floors with kerosene, leaving all open to the air and sun for four or five days.

### Russkiy Vrach, Petrograd

1917, **16**, No. 25-28

106 *Psychotherapy in Chronic Internal Diseases. A. I. Yarotzky.—p. 433.
107 A New Russian Mineral Spring in Treatment of Cholelithiasis. D. A. Burmin.—p. 444. Concluded in No. 29, p. 472.
108 Eruptive Fever in Soldiers, Resembling but Not Typhus. V. R. Russatie.—p. 447. Commenced in No. 24, p. 425.
109 Experiences with Skull and Brain Wounds. V. P. Diedoff.—p. 450. Commenced in No. 24, p. 429.

106. **Psychotherapy in Chronic Internal Diseases.**—Yarotzky pleads for the physician to realize that his connection with a case of chronic internal disease is not restricted to giving the patient directions as to food, drugs, exercise, etc., to enable him to keep up under his chronic disease and postpone the fatal outcome as long as possible. The physician should realize what it means for a man who has lived mainly for the pleasures of the table, for example, to be obliged to restrict himself to the housing and diet necessary with severe chronic kidney disease. He keeps transgressing the doctor's directions, and the doctor gives him up as doomed. Instead of this, Yarotzky pleads that the physician should step in and aid the patient to acquire an entirely new view of life and attitude of mind, live for others, cultivate a love of art and of science, interest himself in his environment, in short, instil idealism, altruism, as a physiologic factor. In his practice he has noticed that persons who develop pneumonia or diabetes have almost invariably passed recently through some severe emotional stress or financial worry.

The fear of death which acts like a whip in acute disease grows dulled in the chronic, and the patient debates whether mere living is worth all the trouble. Here is the field for psychotherapy, as an adjunct to all that medical skill can suggest in the special case. It is indispensable to enable the patient to profit by the physician's skill otherwise. Yarotzky claims that the physician can train the patient's feelings, ideas and ideals, just as he can train an organ to strengthen it. The lack of this sustaining psychotherapy is what drives so many to Eddyism and other fads which make their appeal to the mind. Altruism, idealism, public questions and service, photography and other hobbies—interests of this kind are a potent factor in keeping well and in aiding in the struggle against disease.

Yarotzky takes up in turn chronic disease of the various internal organs, showing the influence of the mind in their course and even on their inception, especially excessive secretion of hydrochloric acid with its evil train. He emphasizes that the physician with his examinations and directions focusses the patient's attention on some organ and thus by suggestion plus autosuggestion may induce exacerbation of existing derangement. He urges the physician to trust more to his intuitions, explaining how these are the crystallization of a lifetime of subconscious impressions from the environment. The wearing out of organs is merely a subordinate factor in old age. The richness or the poverty of the individual's mental life is the predominant factor. In conclusion, Yarotzky reiterates that the physician is too apt to pay scant attention to the patient's psychic life, and yet this is the key to success for his other measures in some cases.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Sept. 29, 1917, **2**, No. 13

110 *Illumination for Fine Handwork. G. G. J. H. Pol.—p. 1120.
111 *The Antagonistic Action of Atropin and Physostigmin. G. den Besten and A. Sluyters.—p. 1137.
112 *Sarcoma of Joint Capsule. E. C. van Rijssel.—p. 1143.
113 *Latent Infection with Gas Gangrene Bacilli. T. van Schelven.—p. 1148.

110. **Illumination for Fine Work.**—Pol writes from the university clinic for eye diseases at Amsterdam to discuss the minimum illumination required for embroidering, working on jewelry and other fine handwork. From the tabulated data it seems evident that a person for a visual acuity of 1 requires a minimum illumination of 40 candle power to read black letters on a white background. If content with a visual acuity of 0.8, then 15 candle power would suffice. With 0.8 and a dark background, 288 or even 578 candle power meters are required to read letters that do not stand out with much contrast. The practical conclusion of the work is that it is impossible to set up a definite standard for minimum illumination, the individual conditions differ so widely. If a minimum is to be selected, the tests described point to 288 candle power meters for vision of 0.8 to 0.5.

111. **Antagonism between Atropin and Physostigmin.**—The conclusions from 225 tests made at the Pharmacology Institute of the University of Utrecht are that a given amount of atropin is able to neutralize the action of physostigmin in the proportions of 1 to 1,500 up to 1 to 1,500,000.

112. **Sarcoma of Ankle Capsule.**—Van Rijssel reports the case of a soldier with a fibrosarcoma of the left ankle. He adds that of the twenty cases on record of malignant tumor in a joint, the ankle was the site of the lesion in only three cases; all the others were in the knee. The prognosis may be regarded as good with a pedunculated growth, although recurrence is not unknown even with these. The outlook is also favorable for the diffuse growths if not too far advanced when removed. Amputation is not required and not even resection of the joint, as a rule, judging from the eighteen operative cases reviewed. As metastasis is exceptional, radical removal of the growth may be tried, with more aggressive measures if conditions later demand them.

113. **Latent Infection with Gas Bacilli.**—Van Schelven writes from the Holland ambulance stationed at Olmütz to describe a series of cases in which a gas phlegmon developed months after a war wound when some operation was done on the region. He also reports a case in which a gas phlegmon at the time of the war wound was conquered by long and deep incisions, the man making a smooth recovery. Six months later he fractured the bone in that leg. It was a simple fracture, but three days later a gas phlegmon developed in that leg. This case shows the possibility of slumbering, latent gas infection, and shows that accidental contamination at the second operation need not be incriminated for these tardy gaseous infectious processes.

### Svenska Läkaresällskapets Handlingar, Stockholm

September, 1917, **43**, No. 3. First half of A. Pettersson Festskrift

114 Pettersson's Scientific Work. E. Almquist.—p. 505.
115 More Rapid Technic for Obtaining Antimeningococcus Serum from the Horse. P. Aaser.—p. 514.
116 Modes of Elimination of Mercury. J. Almkvist.—p. 518.
117 Transformation of Pathogenic Bacteria Under Saprophytic Conditions. E. Almquist.—p. 543.
118 Congenital Heart Defects; Two Cases. G. Bergmark.—p. 553.
119 *Mechanical Ileus in the Pregnant and Parturients. E. Bovin.—p. 579.
120 Nature of Heterogenous Antigens. E. Friedberger.—p. 595.
121 *Good Functioning in Much Altered Hip Joints. P. Haglund.—p. 611.
122 Purin Metabolism in a Diabetic of Thirty. E. Hammarsten.—p. 619.
123 *Diabetes Insipidus in a Syphilitic. K. Heden.—p. 625.
124 *Erythrocytosis versus Leukocytosis in Leukemia. I. Hedenius.—p. 631.
125 Tumor in Gasserian Ganglion of Cow. F. Henschen.—p. 649.
126 Trophospongium of Ganglion Cells. E. Holmgren.—p. 664.
127 *Bárány's Syndrome. G. Holmgren.—p. 681.
128 The Alleged Blood-Lymph Glands. G. Häggqvist.—p. 688.
129 Interlobar Empyema; Two Cases. H. C. Jacobæus.—p. 701.
130 Dysentery in Sweden. O. Karlen.—p. 712.
131 *Diphtheria and Diphtheroid Bacilli. C. Kling and M. Ljungdahl.—p. 721.
132 *Bacteriologic Findings in Case of Polymyositis. K. Landsteiner.—p. 759.
133 *Spasmophilia and Milk. K. O. Larsson.—p. 775.

119. **Ileus in Parturients.**—Bovin reviews the literature on the subject of mechanical ileus during pregnancy. The gravid uterus itself is only exceptionally responsible for it. He has been unable to find a case on record developing in the puerperium, but in a quadripara in his own practice a laparotomy was required for volvulus of the cecum the eighth day after normal delivery.

121. **Good Functioning in Pathologic Hip Joint.**—Three young men with nearly or quite normal functioning of the hip joint were found on casual roentgen examination to have changes in the hip joint such as we see usually only with severe deforming arthritis. The remote history in each case indicates that the changes are the sequels of juvenile osteochondritis (Perthes-Calvé disease). The gross anatomic changes develop so gradually and insidiously that function is scarcely interfered with.

123. **Diabetes Insipidus in a Syphilitic.**—The man of 61 had been in the hospital several times for treatment of diabetes insipidus during the last five years, but no benefit was derived until the casual discovery of a positive Wassermann reaction. Marked and permanent improvement then followed under mercury and neosalvarsan.

124. **Erythrocytosis versus Leukocytosis.**—Hedenius relates two instructive case histories which seem to show that the irritation which may induce hypererythrocytosis in one person may induce hyperleukocytosis in another. Both reds and whites may be in abnormally large proportions, as in the first case, and then the reds may drop to a very low figure while the hyperleukocytosis persists unchanged. In the other case the reverse conditions prevailed.

127. **Bárány's Syndrome.**—The woman of 37 suddenly developed vertigo, pain and deafness in the course of mild chronic otitis. There were also rotatory nystagmus and other symptoms forming the syndrome to which Bárány called attention as an indication of pressure in the pons region. They subsided temporarily after four lumbar punctures but returned each time a few weeks later. Finally trephining released a large accumulation of fluid in the unusually long cerebellopontine angle recess, and great improvement followed, confirming Bárány's views.

131. **Diphtheria and Diphtheroid Bacilli.**—The five colored plates sustain the assumption that the pseudodiphtheria or diphtheroid bacilli are not atypical diphtheria bacilli.

132. **Polymyositis.**—Landsteiner found in all the muscles of a woman with polymyositis a kind of streptococcus somewhat virulent for animals.

133. **Spasmophilia and Milk.**—Larsson analyzes the literature on the sources of tetany and spasmophilia, particularly those discussing milk as a factor. He then reports practical experiences with the different elements of milk albumin in feeding children inclined to spasmophilia. The albumin did not seem to have anything to do with this morbid tendency. On the other hand, giving the children the whey alone, freed from all albumin, brought back the symptoms of spasmophilia in children who had apparently thrown it off after milk had been dropped entirely. Considerable research was done to decide whether spasmophilia is not actual anaphylaxis, but the assumption of anaphylaxis was not sustained. Some crystalloid, heat stable element in cow's milk whey seems to be responsible for the spasmophilia.

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# ANGINA PECTORIS

## CLINICAL EXPERIENCE WITH TWO HUNDRED CASES

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This paper is based on an experience with about 250 cases of angina pectoris, seen for the most part in office and consultation practice. The records of 200 were complete and accurate enough to be the basis for a statistical study which has been made by Dr. Nuzum. The histories of a few cases under the care of other members of the medical staff of the Presbyterian Hospital, Chicago, and the necropsy records of twelve cases, furnished by Dr. E. R. LeCount, have been laid under contribution and incorporated in the statistical study. No cases of so-called false, mock or pseudo-angina are included. Only such as were believed at the time to be dependent on an organic cardiac or aortic lesion have been considered.

### SPECIAL CLINICAL FEATURES

Without discussing the familiar clinical features of angina, it may not be amiss to refer to a few facts that have seemed worthy of mention because of their unusual character or because they have been forcibly impressed on us.

By all odds the most frequent exciting cause has been walking—walking rapidly, up hill or against a head wind. But we have been impressed by the number of patients who voluntarily add as a corollary that the attacks are prone to appear when the patients walked soon after a heavy meal. This has often on analysis seemed the explanation for the occurrence of the seizures in the early evening, that is, after the heavy dinner. The patient's attention is also attracted to the stomach by the belching that often accompanies the attack or immediately precedes its termination.

A fit of anger is one of our classical textbook causes. In our experience it has been rare. After waiting more than twenty-five years for such a history, we obtained it for the first time—a typical John Hunter case—a few months ago.

We have known one patient who by choice would lie prone during every attack. One got on her hands and knees. All the others have assumed the sitting or standing posture. Nearly all have remained quiet, immobile. Some have merely slowed up in their rate of walking. One man insisted that he continued walking, "walked it off." This fact, coupled with his insistence that the constriction in the chest was not a pain, just a viselike tightness, made us hesitate somewhat as to diagnosis. But it was evidently angina, for he died a few months later, in such a seizure, before his physician reached the house in response to an emergency call. The sense of constriction without pain occurring after the ordinary exciting causes of angina is always highly suggestive.

We have been interested in four patients with high grade anemia who described perfectly typical anginal attacks on walking—constriction, pain, radiation, erect posture, immobility. One man in the terminal stages of pernicious anemia died in an anginal seizure. Another with a marked anemia of secondary type with neoplasm in the abdomen improved under digitalis so far as the cardiac manifestations were concerned. A third died of his metastatic carcinomas appearing after the amputation of the penis for the primary tumor. A fourth was lost sight of; his severe anemia was of doubtful origin, suspiciously like pernicious anemia. To what extent the anemia was a contributing or causative factor in these four cases can only be conjectured; or perhaps the association was purely accidental. In none was there a necropsy. One may surmise that blood of poor quality going through somewhat narrowed coronaries might favor the development on slight provocation of an anginal spell, that is, if one accepts the coronary — intermittent claudication — origin of the pain. We have thought of the possibility of a tumor's being so located as to cause coronary obstruction or possibly involve the wall of the beginning aorta. But in two of these cases there was no reason to suspect tumor anywhere in the body. Necropsies in cases of this type might be illuminating.

A fact that has struck us as remarkable is the comparative infrequency with which a patient is unnerved by these attacks, even though he knows their true and serious nature. During the seizure he may have the angor animi, may realize that he is face to face with death. But generally, even though the attacks may be severe and frequent, even several in a day, the man takes up his routine of business, and while not forgetful of caution is yet not a nervous wreck or timidly overcautious. Very often he is strangely untaught by his horrific experience to avoid the repetition of acts that almost surely bring on another paroxysm of suffering. Yet occasionally one sees a patient who is in a state of constant terror, with shattered nerves. In three women there were marked neurotic, almost hysterical, manifestations, especially after the attacks, so that the spells were by some regarded as purely neurotic or pseudo-angina; and one had grown dependent on morphin. The latter patient died suddenly in an attack. Another who became hysterical after a spell, and who was all the time self-centered and highly neurotic, during the seizure was immobile and of ashy gray color; she died in a seizure. The third one, who assumed the hand and knee position, admitted that she was a nervous wreck and was made foolishly hysterical by the spell, but insisted on the severity and the genuineness of the pain. And considering the organic changes in her heart and from a careful study of her case, we believe she had the true complex of symptoms. The outcome in her case we do not know.

### ANGINA DUE TO CORONARY OBSTRUCTION

A few years ago our attention was acutely attracted to coronary thrombosis in connection with anginal pains.[1] A case of this kind with necropsy taught us that even large coronary branches might be obstructed and the patient not die immediately but live for many hours, or several days. Some probably recover. Since then we have seen several such cases in which symptoms have been clearly enough marked so that one might venture to make a diagnosis of angina due to coronary obstruction.

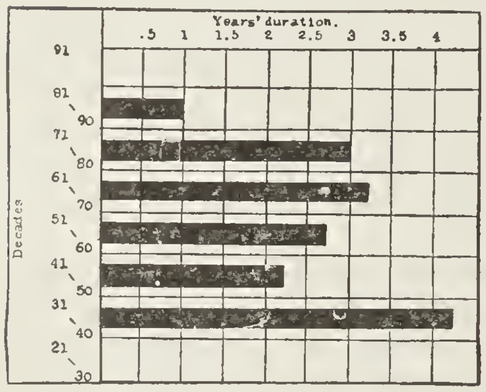

Chart 1.—Average duration of angina in fifty patients that died.

A large proportion of patients with embolic or thrombotic obstruction of a large branch of a coronary artery die suddenly, or at least soon after the accident. The insult to the myocardium is more than it can stand, especially as the coronaries are not richly anastomotic. Yet anastomoses of sufficient size to functionate have been shown by dissections, and by injections and stereoscopic roentgenograms. Experimentally also, in dogs particularly, it has been shown by many that, contrary to Cohnheim's earlier teaching, branches of large size like the descending ramus may be ligated with the recovery of the animal, the fibrosis resulting from the scarring of the anemic infarct not producing injury sufficient to cause death. And pathologists have many times found evidence of long standing obstructions. So the statements made by clinicians that occasionally a coronary obstruction may cause an anginal seizure, yet the patient not die immediately or very soon, seems warranted by anatomic, pathologic and experimental investigations, as well as by occasional cases with necropsy.

The patients that we have seen with this accident have fallen into two groups, one in which the coronary obstruction gave rise to the first and only attack of pain, and the other in which the patients had previously had anginal seizures.

The two cases we have had with necropsy belonged in the first group.

Case 1.—A man, aged 55, was seized with severe pain low in the chest and epigastrium. He vomited. The physician, believing, as did the patient, that the attack was of gastric origin, washed out the stomach; but relief came only with morphin. The man lived fifty-two hours. He was conscious to the last. His pulse from the first was rapid and very weak, the heart tones nearly inaudible. An acute emphysema with many moist râles developed. The temperature never was above 99.2. The left ramus descendens was found plugged by a thrombus at a narrow spot where there was a small pathologic mural roughening and thickening.

Case 2.—A man, aged 62, while walking on the board walk at Atlantic City, was seized with a terribly severe pain in the lower precordia. He was helped to the hotel, but refused to call a physician while in Atlantic City or for the next two days while in New York for, as he said, he knew from the severity of the initial pain, the great weakness and difficult breathing, that he would be ordered to a hospital, and he wished to get to his home in Chicago for his illness and, as he feared, his death. He lived over two weeks from the onset of the attack. His heart when he reached Chicago was dilated, weak and somewhat rapid. There were dyspnea, cyanosis and marked edema of the legs, and albuminuria. Death was as in ordinary cardiac failure. Necropsy revealed recent plugging by a thrombus of the descending branch of the left coronary with softening of the heart muscle at the left apex and the lower interventricular septum.

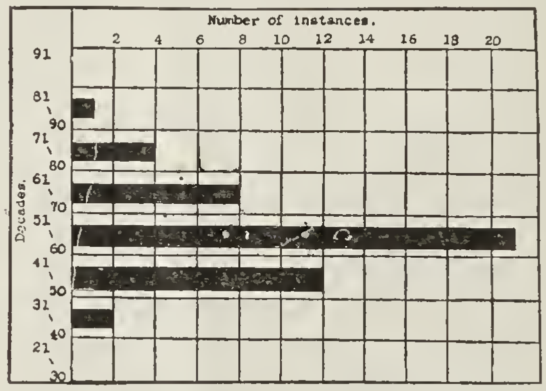

Chart 2.—Age at which death occurred in fifty instances.

In this, as in the other case cited, the aorta was remarkably free from evidence of sclerotic change. No other lesions were found than the isolated patches of sclerosis in the coronary. It happened also that in each case the patient had only a short time before been carefully examined by competent physicians and had been pronounced in good health as to heart, blood pressure, urine, etc. It was, in other words, an acute accident. In most of the other cases in which we have ventured this diagnosis, there have been preceding cardiac symptoms, generally frank angina pectoris. The attack that has been regarded as thrombotic has been of unusual severity, often acompanied by vomiting and frequently followed by signs of shock or collapse entirely different from the phenomena following the attacks of angina from which the patient had previously suffered. The pulse has generally been rapid, occasionally slow, and often remarkably feeble and compressible. Blood pressure is low. Dyspnea and cyanosis have varied in degree, in some cases being very distressing. The heart tones have been feeble; occasionally a murmur as from dilation or imperfectly functioning mitral valve has been heard. In two we have made out in a day or two the pericardial friction over the area of softened myocardium. The lungs have at times ballooned up in a remarkable way—the acute emphysema of von Basch and others. Râles may be numerous, as in acute edema of the lungs. Albumin has been present in traces or, as in two patients that lived several days and in whom marked edema of the lower part of the body appeared, the amount of albumin was large. In one patient living three months after the accident, the electrocardiogram is distinctly abnormal and resembles those produced in dogs by the ligation of the descending ramus of the left coronary artery.[2] In another whom we saw in our office two days before his death, the electrocardiogram showed numerous extrasystoles of three different types seeming to come from three different points of origin. This was about two months from the time of the seizure that we regarded as due to coronary obstruction. The pain in nearly all of these patients has been lower in the chest than in ordinary angina. Several have described it as epigastric as well as beneath the lower sternum. In only a few has it radiated to the neck or arms. In neither of the two cases with necropsies was there any radiation. The resemblance to a subphrenic accident—perforated gastric ulcer or gallbladder, acute pancreatitis, etc.—may be very striking when coupled with vomiting, collapse, etc.

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[1] Herrick, James B.: Clinical Features of Sudden Obstruction of the Coronary Arteries, The Journal A. M. A., Dec. 7, 1912, p. 2015.

[2] Since this article was written this patient has died, the necropsy showing the coronary thrombosis. (J. B. H.)

### PROGNOSIS

A few words as to prognosis and treatment. Angina pectoris is still a most formidable disease. Real recovery is certainly very rare. Patients may, however, live many years, even twenty, as did John Hunter. On the contrary, the first attack may be fatal. Of this series the average duration of the disease in fifty whose deaths are reported was nearly three years from the onset of symptoms (Chart 1). One patient was living after seven years, having very few attacks. Of these fifty, 44 per cent. died between the ages of 50 and 60, and 82 per cent. between 40 and 70 years (Chart 2). This corresponds with the incidence of the condition. Of 200 patients the onset was between 51 and 60 years in 42 per cent.; between 41 and 50 in 16 per cent; between 61 and 70 in 24 per cent.; between 41 and 70 in 82 per cent. (Chart 3). We know of no way to foretell how long a man with angina may live. Rapidly recurring seizures, signs of cardiac failure and complications will naturally make the prognosis grave. Experience teaches us the importance of communicating the knowledge of the serious nature of the condition without delay to the immediate friends, both to prepare them for possible fatalities in the immediate future as well as for one's own protection. We once had a patient with angina drop dead thirty minutes after leaving our office. No friend had been with him, and none had been told our opinion. Three died within two days after an office consultation. One man whose illness the class and we had worked out as angina died in the clinic before the students within two minutes of the onset of a terrible pain in his heart region. He had had many typical anginal seizures, this dramatic final one being due, as shown by necropsy, to a rupture of the aorta into the pericardial sac.

### TREATMENT

The first case of angina pectoris that we ever saw was during the internship of one of us (J. B. H.) in the Cook County Hospital, Chicago. The effect of amyl nitrite was marvelously helpful. It took many years of trial, with many disappointments, to drive out the notion—so firmly had it been fixed in mind by this experience and by the spell of Lauder Brunton's writings—that nitrites were practically specific in relieving the phenomena of an attack. But sooner or later one learns that while some attacks may be aborted or shortened by the nitrites or nitroglycerin, others do not respond in the least. But it should always be tried. Morphin is, of course, valuable for the pain. The other remedies that seem to have real value are the iodids and digitalis. Surely in some instances the long continued use of the iodid lessens the frequency and severity of the attack even in the nonsyphilitic.

Romberg has laid especial stress on digitalis in angina. This seems to us just. One may speculate as to how this result is brought about; perhaps it is due to an improvement in coronary circulation. But certain it is that under its use, even though the blood pressure may be high, some patients with angina show distinct improvement.

Three weeks ago a woman came to see us for the second time, chiefly to report her improvement. She still had the large heart, the high blood pressure, and the murmurs due to sclerosed valves and aorta, and she still had typical attacks if she tried to walk too fast or to do too much. Iodid and digitalis had, we are sure, helped her; but we are also sure she was right when she said that the greatest service we had rendered her was that we had told her how to live, how to eat, to sleep, to walk, and how not to try to manage all the social affairs in her little home town. She had had three years of relative comfort. Often our greatest service to the patient with angina is to teach the proper mode of life.

### ORIGIN OF PAIN

How the exact nature and the origin of the pain in angina are to be settled it is difficult to see, as the problem lends itself poorly to experiment on the lower animals. Anatomic changes in man are not so uniformly localized as to permit of general translation in terms of clinical symptoms. Occasionally, however, the clinical history and the necropsy findings are so clearcut and so evidently correlated as to enable one to reach some fairly definite conclusions.

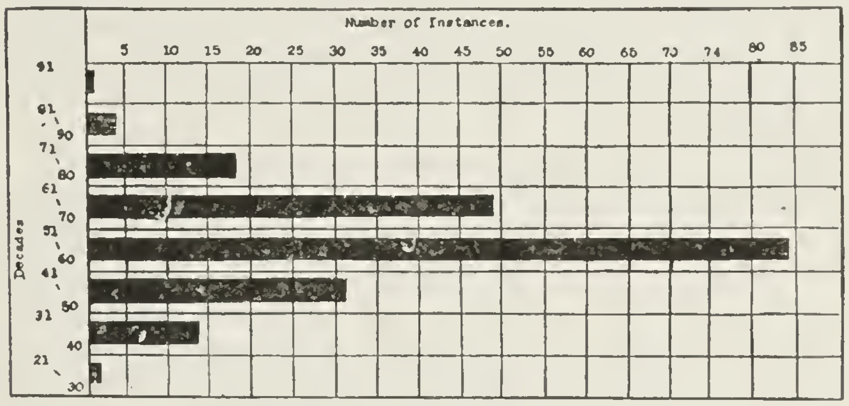

Chart 3.—Age at onset.

Thus the necropsies in the two cases of coronary thrombosis already cited showed as the only lesion a thrombus in the descending branch of the left coronary artery. The pain in these two cases was severe; it was substernal, but it did not radiate. The aorta in each case was unusually smooth and free from all signs of disease. One must conclude that the anginal pain in some cases may be of coronary origin. Even Allbutt reluctantly admits this. The location and radiation of the pain will presumably differ, depending on the artery or branch obstructed. Allbutt's view that the origin of the pain in the vast majority of cases of angina pectoris is in the aorta has seemed to us not only well argued but also well supported by many observations. Certainly the more attention is paid to the beginning of the aorta in these cases, the oftener is there found sign of disease. Three cases that we have seen have seemed to us to argue for the view that at least in some instances the pain is aortic. In the man who died in the clinic from a ruptured aorta, there had been a dissecting aneurysm, and many attacks of angina on exertion with arm radiation. The coronaries and myocardium were remarkably clear of disease. The aorta for several inches above the semilunar valves was deformed by atheromatous lesions. The man was a syphilitic.

A man of about 40 once consulted us for typical anginal pains of moderate severity brought on by walking. A soft systolic blow over the beginning aorta made an aortitis highly probable. No heart change could be made out. After eight years of Christian Science treatment he came back to us with large heart, typical aortic leak, and broad aorta. During all these years he had had frequent anginal attacks. He died suddenly in an attack a few weeks later. A case like this is not proof of the aortitic origin of the pain. But the history made us feel that such was the case.

A man of about 45, nonsyphilitic and with an entire absence of cardiac symptoms, while lifting a heavy sack with all his might, suffered from an excruciating pain in his heart region. He dropped the bag and staggered to a seat nearly fainting, short of breath, almost in collapse. From that time he suffered from dyspnea on exertion, and was told by physicians that he had a valvular disease; he soon began to have pain on walking which was constricting, and caused him to stop; it radiated to the neck and left arm. When we saw him eight or nine months later he had a well marked aortic leak with very large left heart. His anginal attacks were typical. Here was a case in which one might safely say there had been a rupture of an aortic valve. Is it not likely that the damage done to the aortic wall, the reactive inflammation following with the involvement of the outer coats, may have been, according to Allbutt's notions, the cause of the angina?

This case, incidentally, was an illustration of the fact that a patient may have angina with other diseases causing pain near the heart. This man had had symptoms of ulcer of the duodenum for ten years, typical periods of pain coming on three or four hours after eating, relieved by the taking of food, etc. These two pains he clearly distinguished, and declared they had no similarity. Becoming discouraged at the poor results of dietetic and rest treatment of his ulcer, he went to a surgeon, who started to operate for the ulcer which was found; but the man died on the table before the operation had been completed.

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**One Mayor's View of Health Conservation.**—After discussing the health question with the present health officials and many others interested in the work since assuming the duties of mayor, I have come to the conclusion that agencies established for the conservation of health have probably the most important work on earth to perform. To prevent sickness and to cooperate with other forces employed in preventing the causes of sickness, such as public and private charities and all bodies engaged in the advancement of sanitation, is a function of government that cannot be sidestepped. Healing the sick is an easy problem, but to get to the root of the evil and to eradicate the cause of illness seems to be the difficult problem. A survey would seem to indicate that the efficiency of the health department in Newark can be increased tenfold if not all bound up with red tape and politics, and if all of the departments in the city government that should cooperate with the health department would be compelled to do so. I congratulate the present health department officials and employees who have promptly taken up the fuel, food and tuberculosis questions and have obtained immediate results beneficial to the people generally. The disposition and ability seem to be there. All that is needed now is cooperation. As mayor, I intend to take a very deep interest in the health question, and to keep in close touch with the health department and all its activities.—C. P. Gillen, Mayor of Newark, N. J.

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# THE ADMINISTRATION OF EPINEPHRIN BY INTRASPINAL INJECTIONS

## IN ACUTE OR SUBCHRONIC CASES ACCOMPANIED BY A LOW BLOOD PRESSURE *

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A very low blood pressure accompanies dangerous states of diseases from any source. We need not discuss the problem of whether low blood pressure is an essential characteristic of the condition termed shock—a question which is just at present being discussed extensively. Many physicians agree that any means capable of raising the blood pressure stimulates hope for the recovery of the patient.

The use of epinephrin has been variously suggested even by writers who do not fully believe that the lowering of blood pressure is an essential factor in shock. Epinephrin is usually recommended to be given intravenously, though all investigators are familiar with the fact that the duration of rise of blood pressure produced by such an injection is very short, sometimes not longer than six or seven minutes. Worse yet, the rise terminates in a fall of the blood pressure lasting for some time. At various times we have studied the effect of epinephrin on blood pressure when administered by subcutaneous, intramuscular or intraspinal injection. As far as animals are concerned, the effect of subcutaneous injection is very small, though it may last longer than that of intravenous and intramuscular methods of administration.

Five years ago we published our results of intraspinal injections. Satisfactory results can be obtained only in monkeys. While the rise of blood pressure under such circumstances is comparatively slow, the pressure may reach the height of that produced by intravenous injection and even go a little higher. But the most important result was the difference in the duration of the effect. When epinephrin is administered intravenously, the effect passes off completely in ten minutes at most. When it is administered intraspinally, even after an hour, the blood pressure may be perceptibly higher than the original pressure, even if the normal blood pressure was not lower than 120 mm. of mercury. While the results varied in certain details with the animals, they hold good in a general way for all the monkeys we experimented on. Through the kindness of Dr. Simon Flexner we were recently in a position to test this question again in three monkeys. The general outcome coincided with our previous results. We therefore suggest that, under present war conditions, epinephrin be administered intraspinally in cases of low blood pressure. The initial dose should be not less than 3 c.c. of a 1 : 1,000 solution. In the poliomyelitis epidemic of 1916, some physicians gave small children doses as high as 6 c.c.[1] We do not wish to discuss the favorable result of this treatment on poliomyelitis. We merely wish to say that, when epinephrin was given in doses no smaller than 2 c.c. every few hours, there was not a single case in which any harmful results were observed. In all cases in which it was looked for, there was a rise of blood pressure.

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* From the Department of Physiology and Pharmacology of the Rockefeller Institute for Medical Research.

[1] Haas, S. V.: Med. Rec., New York, 1916, **90**, 425.

In human beings the injection of epinephrin in the lumbar region is more easily executed and the results are more uniform and reliable than in monkeys.

In our experiments with intrapharyngeal insufflation, we have learned that a considerable pressure on the abdomen, exerted by means of a board and bandages, contributes a definite increase to the blood pressure.

We would advise that, thirty or forty minutes after the intraspinal injection of epinephrin, a subcutaneous injection of that solution should be added. We are aware that none of this advice will prove life-saving in all dangerous cases. But physicians should employ any remedy that can assist the struggle for life by 40, 30 or even only 20 per cent. In offering this advice, we are not concerned so much with the scientific problem as with the problem which should be the main interest of the practicing physician, namely, to employ any remedy that may contribute to the saving of human life.

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# CUTANEOUS MEDICINE IN ITS RELATIONSHIP TO INDUSTRIAL ACCIDENT AND HEALTH INSURANCE

## BASED ON CALIFORNIA EXPERIENCE

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I have had numerous examples of vocational dermatoses under observation in my private practice and also through the courtesy of the California State Industrial Accident Commission. The observations here reported are based partly on this experience.

Many dermatoses are due principally to external influences and are aggravated and perpetuated largely by external causes. The occupation and habits of the individual naturally have an important influence on the course of these eruptions. It must not, however, be forgotten that there are often underlying conditions rendering the skin more sensitive and thus more easily injured.

Cutaneous medicine embraces such a wide field, including as it does syphilis and diseases of the mucous membranes, that a brief paper could not possibly cover the subject.

### SYPHILIS

In the case of syphilis, which is involved to a great extent in the diagnosis, prognosis and treatment of many dermatoses, it will be seen that the field is too broad for brief discussion. In the first place, syphilis impairs the efficiency of the individual as a worker very early, so affecting his physical and mental condition as to make him careless and more than ordinarily liable to accidents. Then there are those persons who develop cerebrospinal syphilis, the first indication of which may be seen in some error of judgment or erratic action on the part of the worker, causing perhaps serious accidents. The well known effects of syphilis in producing aneurysm, which is so insidious in its development that only roentgenographic examination may disclose its presence, make it a factor in still another way. As for the influence of syphilis in delaying healing, opinions differ; but it will be agreed that when it causes anemia or any other weakened state, the reparative forces of the tissues are impaired. It has been my observation that untreated syphilis has an unfavorable influence on the course of various cutaneous eruptions. Syphilis often seems to cause an abnormal activity of the sebaceous gland system with a resulting seborrhea and its various complications, such as seborrheic dermatitis.

The extreme importance of being able to differentiate various cutaneous eruptions, which claimants might pretend were due to their work, from those of syphilis, should be evident to every one. Even with expert knowledge of all kinds of eruptions, it is not always easy. While the Wassermann test is of great value when unqualifiedly positive, it is often not enough to decide the question, particularly when, as in the case of late syphilis, the reaction is frankly negative. In doubtful cases, however, a provocative Wassermann may clarify the situation.

### INCREASED VULNERABILITY DUE TO SYSTEMIC CONDITIONS

In considering the skin, we must not forget that it is an important organ intimately connected with and influenced by all the various bodily functions, among which the digestive system plays an extremely important part. Various disorders of the nervous system and the internal gland system are often the cause of an increased susceptibility of the skin to injury. Increased vulnerability of the skin plays an important part in the production of all so-called vocational dermatoses. This increased vulnerability may be due to other causes. Idiosyncrasy for different chemical and mineral substances and certain foods may be mentioned in this condition. Probably the commonest cause of cutaneous sensitiveness is seen in the derangements of the alimentary canal. Anaphylaxis also increases cutaneous irritability. In addition to careless habits and errors in diet, a great variety of factors influencing the sympathetic nervous system may cause indigestion. Unfavorable home environment and bad habits, particularly alcoholism and other drug habits, have their well known influences. Various toxins in the blood resulting from malassimilation or some form of chronic intoxication may increase the sensitiveness of the skin. Reflex action from many causes may disturb the nervous mechanism of the skin, interfering with the normal functions of the sweat glands or with sensation. In these cases focal infection is observed frequently enough to make it a factor of great importance.

### INCREASED VULNERABILITY DUE TO LOCAL CONDITIONS

As for the skin itself, it should be borne in mind that one of its most important functions is protection, and that a healthy epidermis with its various layers intact defends the body against the invasion of all kinds of organisms. In most of the vocational dermatoses, the starting point and the principal part of the pathologic process is in the epidermis, the corium becoming involved secondarily. It has been well said that "the stratum corneum is the first line of defense of the skin." A person whose skin is congenitally defective, particularly in the outer layers, is very much more liable to develop trade dermatoses than is one with normal epidermis. This is particularly true when the epidermis is very thin. This kind of skin is seen normally in the young and in females, but sometimes in males it occurs as a marked congenital abnormality. Sometimes the entire epidermis, particularly the outermost portion, is congenitally hypertrophied, as in xeroderma or ichthyosis. In this condition the horny layer is not constant in thickness, and the secretions vary also. A uniformly intact, firm, pliable skin, so necessary for protection, is not seen. Naturally, such skin is rather susceptible to injury. Skin showing impaired secretory functions is more liable to develop dermatoses. The normal sebaceous secretion serves to keep it in a pliable state and it also affords protection. A deficiency in secretion is liable to result in lowered tone and lowered resistance to various chemical and mineral irritants as well as to atmospheric and thermal conditions. On the other hand, an excess of sebaceous secretion is prone to clog the follicles and the ducts, resulting in irritation and increased vulnerability. Skin of this type is usually favorable soil for bacterial growth. It is particularly sensitive to the deleterious effects of various oils, tars, paraffin, petroleum and allied substances. The liability of a seborrheal skin to develop dermatoses all the way from acute eczema and furunculosis to epithelioma is well known.

Impaired cutaneous circulation can be a potent factor in the production of severe dermatoses. For instance, lupus erythematosus develops when such skin is much exposed to the effects of heat. Chilblains also are prone to occur when the tone of the cutaneous vessels is impaired. The onset of Raynaud's disease may be started by exposure to cold.

That congenital tendency to develop bullae at the site of a slight traumatism which is known as epidermolysis bullosum may be made the basis of a claim for compensation by a disabled worker. Fortunately, the disease is rare.

There are various other conditions increasing the vulnerability of the skin, among which may be mentioned irritating clothing, such as woolens, furs, poorly dyed goods, overzealous bathing, the use of poor soaps, the use of cosmetics, and lack of cleanliness. Too frequently bathing deprives the skin of its oil. The sebaceous secretion is of great importance because it affords protection and increases the suppleness of the skin. Naturally a dried-out skin is prone to crack. The use of "hard water" in cleansing is liable to irritate some skins and make them too dry. It may be readily seen that habits and conditions at home and away from work may have a great deal to do with rendering the skin more liable to develop vocational diseases.

### TREATMENT IN GENERAL

Prophylaxis against vocational dermatoses should include efforts to cause an increased thickness of the horny layer and to improve the integrity of the rest of the epidermis. While this is being accomplished, some protective substance should be kept applied, or gloves or bandages should be worn when the person is at work. It is usually more practicable, however, to rub in some form of grease. Ordinary cold cream is often very useful. With the addition of lanolin, its protective qualities are increased. It should be rubbed into the exposed parts several times daily and always after each washing. Some of the tragacanth lotions may be of benefit.

If the person's skin stands glycerin well, a 25 per cent. aqueous solution will serve to prevent undue dryness after washing. It is to be rubbed in well and not wiped off afterward.

As a keratoplastic agent, resorcin is extremely useful. The various tars are also valuable for this purpose. A 2 per cent. solution of resorcin in water or in dilute alcohol, applied as a compress, will soon cause the formation of a new horny layer of the outermost prickle cells and the prompt exfoliation of the old horny layer. When the skin has shown increased sensitiveness and particularly a tendency to be moist, this action is very desirable. As soon as this object has been gained, however, the resorcin application is to be discontinued, as it will in the same manner cause exfoliation of the new stratum corneum. When there is much infiltration and crusting, resorcin is contraindicated. If properly applied, tar will cause the disappearance of infiltration, scaling and discharge, and assist in the formation of an intact resistant epidermis. It must be remembered, however, that in some persons, tar may cause a dermatitis, a folliculitis or an acne. The patient's tolerance should be tested first by applying the tar preparation to a small area for a day. The tar may be used at night in the form of an ointment or paste spread on cloth and applied to the parts. A useful preparation for day use is camphor cerate, which may be rubbed in frequently. The petrolatum and the wax offer considerable protection. While some plan to increase the resistance of the worker's skin is being carried out, it would be desirable for him to have a temporary change of occupation. It is hardly necessary to add that with the improvement of his general health, his general recuperative powers, as well as the resistance of his skin, will be increased.

### DERMATOSES SIMULATING INJURIES

There are some skin diseases that may be mistaken for vocational dermatoses, but may be readily recognized by our making careful routine examinations, including a survey of the entire skin. For example, scabies, pompholyx, lichen planus, dermatitis exfoliativa, epidermolysis, urticaria, urticaria pigmentosa, syringomyelia, eczema seborrhoicum, eczema or psoriasis may be offered as vocational dermatoses by mistaken or unscrupulous claimants. It is true that some of these may be partly due to the work, or aggravated by it. Malingerers are prone to try to make capital out of existing skin eruptions, and it is sometimes difficult to determine to what extent the disability is self aggravated. The various types of self-inflicted injuries are easy to detect, because the malingerer is seldom clever enough to make his eruption behave in a consistent manner.

### SEBORRHEIC DERMATITIS

A troublesome class of cases is that in which the claimant's skin shows increased sensitiveness on account of digestive or metabolic disturbances, bad habits (particularly use of alcohol and other drugs), unhygienic home surroundings, or uncleanliness. Equally troublesome are those aggravated cases in which the condition has been complicated by maltreatment. Unfortunately, there are many such cases. The following record is a good example:

Case 1 (2858).—Mrs. S., aged 50, engaged in peeling tomatoes in a cannery, presented large infiltrated patches of subacute eczema on both hands, wrists, flexures or elbows, and lumbar and sacral regions. She claimed that this was caused by the irritating action of juice from the tomatoes. Her entire skin was seborrheal and her scalp covered with greasy, brownish crusts. She was of that obese type commonly seen with seborrhea. She had a pronounced enteroptosis which had existed for years. Concerning her history she was vague in her statements, excepting with regard to her dermatitis and its alleged relationship to peeling tomatoes. The patient was given advice regarding her diet and general conduct, and something was prescribed for her skin. When she was seen again seven months later, it was observed that she still had patches of seborrheic eczema on her inner thighs, intergluteal region, legs and feet, but her hands and arms were free.

A preexisting seborrhea and long-continued bad habits of eating made this patient liable to have seborrheic eczema after any general disturbance in health, or after injury by any external irritant. Such persons are poor "risks" for insurance companies, when their work brings them in contact with irritating substances, or when their habits and environment are such that indigestion or other metabolic disturbances may result.

### DERMATITIS VENENATA

Dermatitis venenata, due to poison oak and numerous other irritants, is often seen as a vocational disease. I have also observed cases in which the trouble was due to exposure to the primrose plant, irritating dye stuffs, dyed furs, Japanese varnish, irritating dust from working on teakwood, various "hair tonics," liquor formaldehydi, soaps, and solutions used in photography. In all obscure cases of dermatitis, it will be of great aid in making a diagnosis to investigate with these possibilities in mind. During the past year, there have been seen in increasing numbers cases of dermatitis resulting from contact with furs and various fabrics that probably do not have as good quality of dye as these materials formerly had. Some of the furs do not seem to be as well prepared as they were before the war. Idiosyncrasy is a very important factor in these cases. The list of substances for which individuals have shown an idiosyncrasy is extremely long.

The following report of a case of acute dermatitis illustrates difficulties sometimes encountered:

Case 2 (2811).—Mr. Q., a young stevedore, presented a severe dermatitis involving his scalp, ears, neck, forearms and elbows. Careful examination established the fact that it was a dermatitis of external origin. The patient stated that it was due to the irritating action of dust from niter, which he was unloading from a vessel. I sent in a report as required by law, and after describing the condition, stated that the dermatitis was due to an external irritant.

The employers, after some delay, replied that they would not pay the claim. The patient left for parts unknown. The insurance company declined to pay the medical fee because it "had not contracted for the service."

In this case, the medical attendant had rendered definite service of value to the patient, the state, the insurance company and the employers; and the insurance company and the employers took advantage of technicalities to avoid paying for it. Such experiences are only too common. Some insurance companies are prone to impose on the physician, by utilizing his expert knowledge, and not paying for it.

### RICE WORKERS' DERMATITIS

Since the rice-growing industry has developed in California, cases of dermatitis have been reported among the workers on the threshers and binders. Up to the present time, it has been impossible to determine whether in these cases the dermatitis was due to ordinary dirt, alkaline soil, secondary infection due to scratching, mosquito bites, an infectious dermatosis or the irritating action of some substance belonging to the rice plant. This matter is now being investigated. In this connection, an article by Mantegazza[1] is of special interest. The author describes a dermatitis caused by the presence in some of the rice fields of a water plant, *Najas minor*. This plant has numerous little thorns which work their way into the skin, thus starting the irritation. A dermatitis rapidly develops on the exposed parts of almost all workers in fields contaminated by this plant. The article ends by classifying the causes as (1) predisposing: warmth of the water, maceration, thinning of the skin, and foreign matter in the water, such as the products of disintegration of plants, chemical fertilizers and various organic substances; (2) determining: thorns of the naja plant, and (3) complicating: ordinary pus organisms.

### ECZEMA

Eczema of the hands is a common complaint among claimants. Probably it would be better to use the term "dermatitis," for the inflammation in these cases subsides promptly when the exciting cause is removed.

In eczema the process tends to become chronic. It must be borne in mind that eczema of the hands may develop out of a trade dermatitis in persons whose skins manifest eczematous tendencies. Some skins seem to have this tendency from infancy to old age.

There are certain occupations in which the condition is prone to occur. Naturally, it would be seen more commonly among those whose hands are exposed to irritating substances. The list of these substances is very long, and includes all the irritating chemicals, as well as those that cause trouble only when the worker shows an idiosyncrasy for a particular irritant. Sensitization to poison oak, teakwood dust, and various plant juices and varnishes is seen rather often.

Sometimes a patient with pompholyx or dyshidrosis of the hands will claim that his disorder is due to his occupation. Examination will often show the condition also on the feet, which fact helps in establishing the diagnosis.

Syphilis, scabies or psoriasis, which are readily differentiated from dermatitis of the hands because of the occupation, are practically the only diseases to be considered in this connection.

### SCARS AND KELOID

Painful scars and keloid resulting from various forms of injury, particularly acid burns, are met commonly. In one of these cases the disability had been prolonged and aggravated as the result of attempts at surgical removal on the part of the company's surgeon. Naturally there was a prompt recurrence, and the new keloid occupied a much larger area.

I have found roentgen and radium therapy the most satisfactory method of treating these cases. The pain is promptly relieved and the neoplasm caused to grow smaller. Occasionally scars are seen in which the epidermis is so thin that it affords little protection to the tissues beneath. In these cases artificial protection, such as varnishes, plaster, or powders, as well as alcoholic and astringent lotions, is of value. Case 3 illustrates the difficulties sometimes encountered:

Case 3 (2662).—A man had an extensive scarring of the scalp resulting from burns. During the process of healing the burns, various irritants, like tincture of iodin, ammoniated mercury and silver nitrate, had been applied by the company's surgeon. As the scalp would not heal, the patient was finally referred to Dr. Emmet Rixford and myself. Under the application of compresses of resorcin, 2 per cent., in 50 per cent. alcohol, the areas healed, but the resulting epidermis was extremely thin, except that here and there were seen a few "islands" of normal thickness. This thin, onionskin-like epidermis was so delicate that it broke down easily, and a skin grafting operation was decided on. This was successfully accomplished by Dr. Rixford, and the man now has a good resistant scalp.

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[1] Mantegazza: Arch. f. Dermat. u. Syph., 1911, pp. 108-314.

Only too often, patients presenting claims for compensation on account of vocational diseases have their disability unduly prolonged as a result of improper treatment. This treatment may consist of the use of home remedies or prescriptions by pseudodoctors. Maltreatment of a benign process will often convert it into something very troublesome and disabling. If those assuming the responsibility of looking after these cases will only remember that a dermatitis requires the most soothing treatment at first, there will be a great diminution in the number of complicated cases, with a corresponding reduction in the expense to the state and to the individual. With physicians, as with laymen, the impulse to use strong remedies is only too compelling. The feeling that if a 1 per cent. solution is recommended as being efficacious, "a 20 per cent. solution will be that much more effective and 50 per cent. even better" is responsible for many of these aggravated cases.

240 Stockton Street.

# THE DIAGNOSIS OF THE HIGHER GRADES OF MENTAL DEFECT

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The revelation that crime and mental deficiency are often interrelated, or that business failures are not always due to economic fluctuations, has brought to the medical profession a subject for serious consideration.

Officials of corporations are more than ever demanding efficiency and are keenly alive to the shortcomings of their employees. The public is manifesting a greater care in the selection of its adopted children, and there is a tendency among criminal jurists to treat offenders in the light of what they are rather than what they have done.

This widespread interest in mental defect on the part of the public has had its influence on medical science in the early recognition of these deficiencies. Valuable contributions on the various aspects of the subject are being made from time to time by able workers. Mental deficiency is considered no longer an entity, but is dependent on a great variety of underlying causes. Obviously, the grosser defects require no exhaustive study for classification, but to what extent the higher grades of mental deficiency may be recognized will depend on many factors.

In a study of the backward children in the Richmond public schools extending over a period of two years, four distinct groupings were made. It will be seen that the dividing lines separating the different groups may become obscure, as one type may easily assume the principal features of another. In fact, so closely may the so-called normal mentality resemble the abnormal that a true distinction may be impossible. With this classification as a basis, candidates for the special classes were selected and their program of instruction outlined.

In the first group is placed the child who, though normal, has been retarded in his academic progress by protracted illness or poor school advantages. Many children from the rural districts fall into this group. They may be several years behind in their grades, and to some people they may appear defective. Aside from manifesting evidences of an untrained mentality, their reactions are normal, and a hopeful prognosis for them can be given.

The second group is composed of children who are normal in every respect, yet who require a longer period of time in which to complete their grades. Their reactions are slow and their responses are correspondingly delayed. No cause can be assigned for the backwardness of this group, but their outlook for useful citizenship is good.

The third group is made up of children who, because of acquired conditions, have been unable to carry their work to a successful issue. For example, the retarding and debilitating influences of improper environment, and the lack of constructive sympathy, and of insufficient food and clothing in many instances, convert the normal child into the backward pseudodefective. His handicap prevents him from fulfilling his natural obligations, and he is incorrectly classified as subnormal. In like manner, the nervous instabilities of youth from various causes place the child at a disadvantage to such an extent that there is a tendency to question his mentality.

The fourth group is composed of the mental defectives. The well defined defective is recognized at a glance. His early history, slow development, and inability to profit by experience is typical in practically every case. He is unable to carry the usual performance tests to completion, he becomes fatigued easily, and there is a general deficiency in all of his mental processes.

The higher grade mental defective, however, because of his similarity to the normal, is a much more difficult problem, and is the subject of this discussion. The recognition of this type is not based on any specific tests or physical signs, as his attainments along many lines may frequently place him above the plane of inferiority.

It is necessary, therefore, in order to make an incontestable diagnosis of mental deficiency, to adopt a general plan of examination, the scope of which should include a study of the following headings:

1. The question of heredity should never be omitted. It should be remembered that an obtainable family history almost always means a bad heredity. There is a strong tendency on the part of relatives to suppress the suggestion that there exists in the family other cases of mental deficiency, such as epilepsy, insanity, alcoholism, and criminality. The various manifestations of family inferiority are most significant in view of the fact that presumably 65 per cent. of defectives come from feebleminded families.

2. The early or developmental history is of interest. Birth traumatisms and, particularly, long and tedious labors are of grave significance. Delay in the age of teething, walking or talking is a most frequent observation, and, associated with certain physical degenerative stigmata, such as facial asymmetry, dental irregularities, or abnormal variations in the size, shape or

relative positions of the ears, is strongly indicative of mental inferiority. Defective motor ability, as shown by a lack of alertness or dexterity, is another striking sign even among the highest grades of mental defectives. Various methods have been suggested to demonstrate this lack of motor control. I have found that the rapid pronation and supination of the hand on the knee will often reveal a poor motor coordination, not otherwise demonstrable.

3. The pedagogic history, as shown by a detailed account of the school life and progress, gives additional evidence of importance. There is the usual record of indifference, repeated failures, truancy and inability to profit by error. The memory or reading ability may be above normal, but when judgment or reasoning is necessary, the defect becomes manifest. There is no part of the examination of greater significance than the information obtained from a careful study of the school period.

4. The social reactions should be carefully observed. Is the person seclusive and noncommunicative? Is he well liked by his companions? Are his tastes above or below his station in life? Is he truthful and trustworthy? Does he associate with his equals in age? If he is an adult, are his business relations open to criticism? Is he capable of holding a position permanently? These and like questions must be asked in order to obtain a conception of his social development. The unmorality of the defective is well known. Inquiry should be made in regard to his general normal insensibility, domestic relations, perversions, vagrancy, court record or tendency to destructiveness. Closely associated with these stigmata are other antisocial tendencies, such as cruelty, selfishness, and to a greater or less extent, the absence of congeniality.

The routine physical examination as a rule reveals very little that may have a bearing on the ultimate diagnosis. It is needless to say that such gross abnormalities as hydrocephalus, paralysis and deformities should receive proper consideration. There are, however, certain definite points that should be emphasized.

Syphilis has long been recognized as an invader of nerve structure, but to what extent it has been congenitally responsible for mental defects has only recently been brought out. During the past year, 30 per cent. of the children who were admitted to the psychopathic clinic at Richmond gave a positive Wassermann reaction. This series presented several interesting features. From a physical standpoint, with few exceptions, no syphilitic lesions were found. Intellectually, they belonged to the higher grade and not to the idiot class. Temperamentally, they were incorrigible, nervous and high tempered. Even a negative Wassermann test does not necessarily exclude syphilis, as Nonne has shown that the serum of congenital syphilitics becomes less sensitive to fixation after the age of puberty. Our experience, therefore, has led us to believe that no other etiologic diagnosis of mental defect should be made until the possibility of a syphilitic infection has been eliminated.

We are indebted to Falta, Goetsch and others for pointing out the frequency with which one or more glands of the endocrine system are factors in the production of mental enfeeblement.

The mentality of the cretin is a matter of common knowledge, but the effect of minor disturbances of the thyroid is often overlooked. A slight puffiness of the eyelids, dryness of the skin, or lack of luster in the hair may be the only evidences in an irresponsible, nervous youth that thyroid therapy is indicated.

Of all the ductless glands, the pituitary gland is probably the most frequently involved. The interrelation of these bodies has made it difficult to designate definite syndromes for each gland; but out of the wealth of clinical and experimental material, sufficient data have crystallized by which many of these syndromes may be recognized. As the pituitary gland is composed of two lobes, the syndrome varies somewhat with the part involved. Briefly stated, when the secretion of the whole gland is overactive, glycosuria, loss of weight, excessive sweating, and osseous overgrowth will result. In states of underactivity, the condition is suggested by an increased carbohydrate tolerance, adiposity, hypotrichosis, and a reversion to the feminine type in the male. Further evidences are dryness of the skin, sexual underdevelopment, stubby fingers, and enlarged abdomen.

In both types, mental retardation is liable to occur. Whenever the hypophysis is suspected, a roentgen examination will often give corroborative evidence, but a negative result should carry little weight. It is not reasonable to suppose that the sella turcica always conforms to the size of the gland it encloses, or indicates the degree of its functioning ability.

Children, particularly of the Southern States, are exposed to another form of infection. Last spring our attention was directed to a boy from one of the ungraded classes in the public schools who was admitted to the clinic for diagnosis. His listlessness and inability to comprehend the various psychologic tests were strikingly noticeable. An examination of the blood showed an eosinophilia of 27 per cent., and the feces were found harboring many ova of the Uncinaria. His recovery and restoration to the regular grades was so prompt after treatment that it caused us to have more profound respect for uncinariasis as a cause of the higher grades of mental deficiency.

Having established an etiologic diagnosis, the physician finds the more difficult part of the examination in determining the degree and type of the mental defect.

The idiosyncrasies of the normal mind and the frequent flashes of normality in the defective mind are so commonly found that one hesitates to express an opinion until all methods of examination have been exhausted. We are indebted to the clinical psychologists for valuable contributions to this phase of the subject. Münsterberg, for instance, has pointed out the irregularities of the so-called normally functioning mind. By constructing miniature trolley lines, and placing his subjects in charge of these cars, he was able to demonstrate the utter lack of judgment and reasoning ability is some, as well as their inaptitude for that particular kind of work. His results suggest the practicability of applying certain psychologic tests for the purpose of determining the fitness of applicants for the different vocational pursuits.

The development of a normal mind varies materially in different individuals, and its progress is influenced by a variety of factors. It is only when these exceptions have been considered, and there still remains an erratic tendency, that one is justified in entertaining the suspicion of a subnormal mentality. On the other hand, one should not allow his conservatism to overlook the underlying defective background in the so-called one-talented child. Not infrequently are the hopes of fond parents crushed by the ultimate realization that the easy mastery of music or some other fine art is the extent of their child's ability. The younger the child, the less prominently do his defects stand out. But as responsibilities increasing with his age are placed on him, his weaknesses become more clearly manifest.

The criminal instinct may frequently be the only indication of a latent defect, and it is only after repeated conflicts with the law that his helpless condition is recognized. During the past three years it has been my privilege to examine a number of children who were referred by the judge of the juvenile court to the psychopathic clinic for examination. One of the most striking observations of this series is the contrast between the relatively high grade of mentality and the type of the crime. It has been a common experience to find a boy of fair intelligence guilty of the simplest forms of criminality. Psychologically, these lads often show evidences of academic ability and even commercial attainments; but after an analysis of their reactions in problems relating to moral procedure, the cause of their downfall becomes apparent.

In detecting the defects of the subnormal mind, it must be recalled that intelligence is composed fundamentally of memory, comprehension and judgment. Under these general headings, there naturally come other subdivisions, such as perception of form, retentiveness, planfulness, concentration, and constructive imagination. Definite psychologic tests must therefore be employed, the results of which will determine the integrity of these mental characteristics. The simple Binet questionnaire serves admirably for the detection of the low and the middle grade types; but when aid is most needed in the recognition of the moron, little dependence can be placed on it. Recently, the Terman revision of this test has greatly enhanced its value, having added many analytic problems as well as introduced a broader field of inquiry.

There is a growing belief among psychologists, however, that standardized performance tests offer the greatest field of usefulness. With such instruments in the hands of competent observers, much may be learned from the patient's reactions. Chief among these may be mentioned the form boards, cubes and cylinders, all of which may be used to advantage in psychologic examinations.

Finally, the practical personal examination of the child is indispensable. No definite syllabus can be followed, but interrogatories must be made to suit the age, and the educational, social and environmental advantages. Moral or ethical problems may be introduced in such a way as to bring out the child's ideas of ethics, which are usually at fault in the defective. It is surprising how frequently a high grade moron shows mature judgment in dealing with generalities, but is absolutely at sea in their practical application. He may be familiar with the laws governing his mode of living, but he fails to see the necessity of applying them to his own activities.

In examinations of this kind, it must be remembered that after all, the ability of the defective to earn a living, to maintain himself independently in the station of life in which he is born, is the supreme test of normality. The necessity, however, of recognizing the lack of this ability before the age of maturity arrives is obvious. When the supposed defect is not real, but is dependent on acquired conditions of a remediable nature, an early diagnosis is indispensable for complete restoration. Should the evidence, on the other hand, point to a mental enfeeblement, much may be accomplished by specialized training. The judicious selection of the defective's vocation, his mode of living, asd other environmental factors depend on the type of the defect. When the deficiency is without the pale of therapy or hope of alleviation, we are in no less degree under obligation to protect the individual and the community in which he lives.

1317 Park Avenue.

# THE VALUE OF THE FACE MASK AND OTHER MEASURES

## IN PREVENTION OF DIPHTHERIA, MENINGITIS, PNEUMONIA, ETC.*

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Health authorities generally consider that pneumonia, epidemic meningitis and epidemic poliomyelitis as a rule if not always are transferred directly or indirectly from the sick to the well. This places them among the infectious diseases that have previously been considered contagious.

Specific protective measures are available in smallpox, typhoid fever and diphtheria. In the other contagious diseases we must rely on mechanical measures and on germicidal agents and processes for the prevention of their spread.

The use of antiseptic agents in preventing the spread of contagious diseases has been gradually narrowed, and is now largely limited to the disinfection of various secretions and discharges. Even here heat has supplanted them to a large degree. Volatile antiseptics that were formerly extensively employed in fumigation have been largely abandoned as wasteful and inefficient.

The experience of a hospital in which patients with a variety of contagious diseases are housed simultaneously may be of some value in showing the efficiency of certain measures in preventing the production of cross infections among the patients and of infections and carriers among the attendants.

The Durand Hospital has about fifty beds, placed on two floors of a single building connected by stairways and an elevator. Each floor is divided by a corridor with a door at each end opening on the outside. To one side of the corridor are ten isolation rooms, each containing two beds. A common entrance vestibule with lavatory, and common bath room with toilet and lavatory are provided for each two adjoining rooms. On the opposite side of the corridor, at each end, is a small convalescent ward with five and six beds, respectively. Patients on entrance are placed in the isolation rooms, when required two patients in a room, but always only those with a common disease in a suite. Patients from a family are placed together, and when convenient an adult and a child are associated, since the adult is more likely to be immune to the usual diseases of childhood. Several different diseases are often treated on one floor. After isolation for about two weeks, patients with corresponding diseases are transferred to the convalescent wards. wo weeks cover the incubatiTon period of measles, but not quite that of mumps and chickenpox, and in a few instances patients infected with the latter diseases shortly before entrance have developed them in the convalescent ward. Cultures from the throat and nose for diphtheria bacilli are made on entrance and just before transfer to a convalescent ward. All girls with a vaginal discharge are supplied with individual toilet articles, and do not use the bath tub and toilet used by others.

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* From the Memorial Institute for Infectious Diseases.

No fumigation is used in the hospital except occasionally for patients' clothing which cannot be sterilized by steam. No antiseptic solutions are used for washing rooms or for the hands of nurses and attendants. Soap and warm water are used to wash walls, floors and furniture. Bedding is sterilized in an autoclave, as is all laundry before it is washed. All waste, soiled dressings, applicators, tongue depressors, etc., are collected in paper bags and burned. All eating utensils are sterilized by boiling after each use. The nurses and physicians wear caps which completely cover the hair. In the vestibule the nurse puts on the gown which corresponds to the room she is about to enter. On leaving the room she hangs the gown inside out in the vestibule, and thoroughly washes the hands with soap and running warm water. Nurses are impressed with the need of great care in avoiding the transfer of infection from one patient to others, and with the principal rôle of direct carriage, especially by contaminated hands. Except in the case of measles and chickenpox, distant aerial transfer is ignored. The doors of rooms are left freely open, except in case of the two diseases mentioned, when they are kept closed.

From March, 1913, to September, 1917, 2,500 patients were treated in the hospital. Among these patients, nineteen instances of secondary or crossed infection originating in the hospital occurred, that is, in 1 in 131 patients, or 0.76 per cent. These instances are scattered quite evenly among the admissions, seven occurring in each of the first and second thousands and five among the last 500. Almost all the crossed infections developed in isolation rooms, one of the occupants having been infected before entrance and developing the disease in the hospital and infecting the roommate. From the secondary cases no spread was observed. Only two instances of diphtheria were recognized as originating in the hospital. Both were in patients who had scarlet fever, in one of whom it was quite likely that the infection was present before entrance. The six cases of crossed infection by scarlet fever could be accounted for only by direct carriage. Four of these occurred among the first thousand cases, when our method was not fully developed. Our experience would indicate that if each patient could be isolated individually for three weeks, crossed infections could be practically eliminated from hospitals for contagious diseases. The expense of handling patients in this manner is relatively great, but that is counterbalanced by the shortened stay in the hospital and by the elimination of deaths due to crossed infections.

We have made special efforts to protect the nurses from infections, and experience has led us to improve our methods from time to time. The nursing staff has consisted as a rule of about eight graduates and ten pupil nurses. The graduate nurses are specially trained to care for contagious diseases. Pupil nurses are in the hospital three months, and usually have had no previous experience in caring for this class of patients. From March 12, 1913, to Nov. 1, 1914, sixty-nine nurses were on service in the hospital. Of these, nine, or 13 per cent. acquired clinical diphtheria. Beginning with Nov. 1, 1914, all incoming nurses have been given a Schick test, and those reacting positively have received an immunizing dose of diphtheria antitoxin. This has been repeated at intervals of three to four weeks during their stay. Since this procedure was adopted, there have been 116 nurses on duty; forty-four have given positive Schick reactions and have been immunized. During this time only three cases (2.6 per cent.) of mild diphtheria have developed. Two of these cases were in nurses who previously had positive Schick reactions and had been immunized. Their period of service being near the end, a retest was neglected, with the result that infection occurred.

Although active diphtheria practically has been eliminated from the nursing staff by this practice, carriers of diphtheria bacilli continued to be detected by weekly throat cultures. From Nov. 1, 1914, to June 1, 1916, ten carriers were found, that is 23.25 per cent. of forty-three nurses. About June 1, 1916, the practice of wearing gauze masks covering the nose and mouth when caring for active diphtheria patients was introduced, and since then six carriers have been detected among the seventy-three nurses on duty, that is, 8.2 per cent.

From March 12, 1913, to June 1, 1916, nine cases of scarlet fever occurred among 112 nurses on duty. Between June 1, 1916, and Dec. 1, 1917, when gauze masks were worn when all patients with scarlet fever in the acute stages were being cared for, no cases of scarlet fever have been observed among seventy-three nurses on duty.

In recent years, so much emphasis has been laid on contact infection in contagious diseases that the possibility of infection through the air at short distances has been sometimes forgotten. Infection through the air for relatively short distances, that is, within a few feet of the patient (or carrier), is quite possible in case the specific agent is present in the secretions of the nose and throat when forcibly thrown out in small particles in forced expiratory efforts, as in coughing, crying or sneezing.

The masks we have used consist of a double thickness of gauze, so shaped as to fit closely over the face from the chin well up over the nose, and held in place by two tapes tied behind the head. A mask is never worn twice until sterilized and washed, and is always replaced by a fresh one when evidently contaminated or when it becomes moist. Little objection is made to wearing the mask, and most nurses now wear them constantly when on duty. The attacks of tonsillitis, pharyngitis and rhinitis that were relatively frequent before the masks were used also have almost disappeared in the last year.

Last spring we cared for fourteen epidemic meningitis patients in the hospital. When caring for these patients, nurses and physicians always wore masks. Systematic nasopharyngeal cultures, repeated at short intervals, failed to reveal a single carrier of meningococci among the nurses and doctors who took care of these patients.

The physicians in the hospital always wear the gauze masks when doing intubations and taking throat cultures, and to a considerable extent when examining patients. Coincident with this use of masks there has been an absence of diphtheria or diphtheria bacillus carriers among the physicians, and only a limited amount of throat infections.

We feel that great protective usefulness resides in this mechanical measure, and think that it might be used to advantage also by persons caring for pneumonia patients.

In hospitals caring for pneumonia and epidemic meningitis, especially in those that deal with epidemic outbreaks, such as occur in military camps, gauze masks might be used with advantage by all physicians, orderlies and nurses. The importance of carriers in these diseases is apparently very great, and that those about such patients become carriers quite frequently is evident when, as I have learned, not less than 12 per cent. of carriers of meningococci occurred among the personnel of a hospital in which epidemic meningitis patients were treated. The mask not only protects the healthy person from infection and from becoming a carrier, but also prevents a carrier from spreading infection to others. Masks can be used to good advantage also in households in which are patients with diphtheria, pneumonia, scarlet fever, epidemic meningitis or other diseases spread by nasopharyngeal discharges.

637 South Wood Street.

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# GREENSTICK FRACTURES OF THE FOREARM

## CORRECTION OF THE DEFORMITY BY CONTINUOUS ELASTIC TRACTION

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At a meeting of the New York Surgical Society, Nov. 8, 1916, Dr. Alfred S. Taylor[1] described an elastic traction method of treating Volkmann's ischemic contracture. The apparatus consisted of a padded leather sleeve extending from the elbow to the wrist, and to the sides of this sleeve were attached two steel bars, with an adjustable offset at the wrist which could be made to project at any desired angle over the hand and fingers. A broad pad in the palm of the hand was later extended to support the fingers also; and elastic traction was applied by means of ordinary commercial rubber bands which passed under the palmar pad and over the notched projecting steel bars. The size and number of rubber bands varied in accordance with the requirements of the case. Taylor presented one case and reported several others which had been treated by this method with brilliant results, the continuous slight, but insistent, traction, day and night, ultimately overcoming the contracture.

Shortly after I had heard Taylor's paper and had seen the remarkable illustrative case which he presented, it occurred to me that use of the principle of elastic traction as demonstrated by Taylor would be of benefit in greenstick fracture of the forearm in children; but it was about three months later before the opportunity to test the method presented itself.

Bernard M., aged 17 months, came to my clinic at the New York Post-Graduate Hospital Dispensary, Feb. 27, 1917, with a history of having fallen about three weeks previously and having received an injury to the left forearm. Examination revealed marked bowing of the forearm; a diagnosis of greenstick fracture of both bones of the forearm was readily made, and confirmed later by roentgenoscopy. The callus was still soft enough so that the arm could be partially straightened, but there remained a certain amount of convexity of the posterior surface that tended to become more pronounced as soon as the corrective force ceased.

This seemed a suitable case for the application of elastic traction, and this was employed in the following manner:

A padded wooden splint reaching from the elbow to the palm was applied to the anterior surface of the forearm and held in position by adhesive plaster straps. A fairly thick gauze pad, about 1½ inches square and enclosing a bit of splint wood, was placed over the most prominent point on the back of the forearm, and a rubber band ⅛ or $^{3}/_{16}$ inch wide was slipped over the hand and arm so that it encircled the arm at the center of the gauze pad, and was held in position by a strip of adhesive plaster. The rubber band was under moderate tension, and caused no interference with the circulation below that point. A gauze bandage was applied so as to be snug but not compressive from the palm to the elbow. One mistake was made in the application of the rubber band which will be referred to in a moment. At the end of a week the bowing was found to have markedly decreased; but as the elastic band had been allowed to touch the skin at each border of the arm, the skin had been partially cut through at each of these situations. This is the mistake in technic referred to above, and was corrected in subsequent dressings in this and other cases by making the splint on the concave surface somewhat wider than the arm, and passing a broad strip of adhesive plaster rather loosely around the arm, over the splint and the gauze pad, which had been placed at the point of greatest convexity; the rubber band then being adjusted over this and held in position by short, vertically placed adhesive strips anteriorly and posteriorly.[2]

Since adopting this technic, I have had no excoriations of the arm. In the foregoing case, all traces of bowing had disappeared in less than three weeks; and since then I have used this device in several other cases of greenstick fracture of one or both bones, always with the same happy result. The results have been equally as good in cases of several weeks' standing as in those seen within a few days after the receipt of fracture, apparently the only difference being in the length of time the elastic traction has to be applied. Besides the simplicity of the method and perfection in results thus far obtained, another great advantage is that with proper technic the straightening process seems to be entirely painless. My experience with the method thus far (at least six cases) inclines me to the belief that if elastic traction is used from the outset in greenstick fractures of the forearm, it should rarely, if ever, be necessary to complete the fracture in order to insure a straight arm.

498 West End Avenue.

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[1] Taylor, A. S.: Volkmann's Ischemic Paralysis and Contracture, Ann. Surg., 1917, **65**, 28.

[2] This case was presented before the Surgical Section of the New York Academy of Medicine, Dec. 7, 1917.

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**Health of the Average Citizen.**—The first campaign of life extension work was conducted in Vance County. During six weeks about 400 persons were examined, one third of whom were women. Ninety-eight per cent. were found physically imperfect; 57 per cent. were in actual need of medical attention and were referred to physicians for treatment; 33 per cent. were unaware of any impairment, and some of these were carrying blood pressures of over 200, while a number showed signs of active tuberculosis and were still unaware of their condition.—North Carolina *Health Bulletin,* August, 1917.

# BISMUTH IODOFORM PETROLATUM PASTE IN THE TREATMENT OF RECENT WOUNDS

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Since May 1, 1917, Drs. Walton and Haig and I have used this paste, which consists of iodoform, 2 parts; bismuth subnitrate, 1 part, and liquid petrolatum sufficient to make a suspension, in 2,000 cases of recent injuries in hospital and private practice. Secondary treatments and infected wounds previously treated by any other method are not included.

We have had 725 cases of scalp wounds, and in none has there occurred a cellulitis about the forehead, the vertex or the occipital region. This was unusual, for in our hospitals there were generally one or two cases of scalp infection most of the time, no matter what treatment was used.

It is well known that because of an abundant blood supply, there is a great tendency for scalp wounds to heal without treatment. Yet, never during the past five years have we recorded so many consecutive cases without infection until we adopted this treatment. Therefore, we feel that we are justified in ascribing the results obtained to the efficacy of this paste. These scalp wounds varied in size from a small puncture to wounds 3 or 4 inches in length, and they were often complicated by fracture of the skull. There were stellate and gouge wounds, lacerations, and triangular flaps involving the periosteum.

## TECHNIC

Pressure with dry gauze is made on the wound until bleeding has ceased; then the hair is closely cropped or shaved about the wound. The scalp is next cleansed with 0.5 per cent. solution of iodin in benzin. The wound is laid open, dirt particles are removed with forceps, and ragged edges are trimmed with scissors, when necessary. The paste is applied freely to the wound. With a piece of gauze the iodoform crystals are rubbed thoroughly into the wound, so that the medicament is well embedded in the tissues. All surplus paste is then wiped away, and the edges of the wound are coaptated and held together firmly until hemorrhage ceases. Occasionally a spurting vessel will have to be crushed or twisted. No catgut is used. Mattress sutures of silkworm-gut will control severe bleeding. All scalp wounds are dressed dry.

One hundred and ninety-two wounds of the face gave a similar result. No infection followed in this group of cases. After being treated as outlined above, face wounds are carefully approximated and sutured with horse hair. Wounds not over an inch in length are seldom covered with dressings. The blood crust or serum seems to act as a suitable protection against sweat and dust. If dressings are applied, they soon become adherent, a superficial skin infection follows, and then an abraded surface. Face dressings and head bandages are too conspicuous, and are used only at home or in hospitals when compresses are required.

Macerated, contused and lacerated wounds, with maceration of skin and epithelium, are also recorded in this group. While they cannot be considered as healing by first intention, because of extensive maceration, yet in the absence of infection and pus, we have tabulated them as noninfected wounds. They healed slowly by granulation.

## REPORT OF CASES

Case 1.—S. M., a ship-fitter, sustained a fracture of the four metacarpal bones from a blow on the back of the hand by a 12 by 12 timber. Because of its glancing course, the blow caused a maceration of the entire extensor surface of the hand, denuding it of its skin, and exposing, but not injuring, the tendon sheaths. The reaction to the traumatism was very severe. The wound was immediately treated with the bismuth iodoform petrolatum paste. Infection did not take place, and the wound healed promptly.

Case 2.—J. S., a telephone construction worker, accidentally drove a meat hook into his hand, tearing wide open the thenar eminence and palm, and exposing and stripping the flexor tendon of their sheaths. The metacarpal joints were in plain view. The wound was not sutured. It healed without infection after the preliminary treatment with the paste, supplemented by a prophylactic dose of antitetanic serum.

Case 3.—Possibly the best type of a case for demonstrating the seemingly brilliant results obtained by this treatment is that of G. C., who sustained a compound multiple fracture of the elbow joint, the result of an angle-iron dropping across the elbow. The joint was laid wide open; the olecranon was separated from the end of the ulna, and the internal condyle from the humerus. The olecranon was nailed in place. The condyle was mashed to a pulp and could not be replaced.

The joint was treated freely with the paste, the crystals were firmly pressed into the exposed tissues, several strands of silkworm-gut were passed through the joint for drainage, and the wound was closed. There was no reaction to the injury. The silkworm-gut drain was removed in ten days. There was no pus nor elevation of temperature. Almost complete motion of the joint was restored. I have never witnessed equally satisfactory results in such a wound.

Case 4.—A dolly-bar fell several feet and hit J. B. over the left eyebrow, inflicting a contused and lacerated wound, 4 inches in length, and dislocating his eyebrow downward. The eyeball was not injured, and the supra-orbital ridge was not fractured. This was not a clean wound. Numerous particles of dirt were removed from the wound, the roughened edges were trimmed, the wound was sutured with horsehair, and a few straight strands of silkworm-gut were placed in the wound for drainage. The reaction was marked, but the wound apparently healed by first intention. Twenty-seven somewhat similar wounds healed without infection.

Of nineteen case of extensive, lacerated wounds over the tibia, two became infected. In both instances, the infection manifested itself several days after the injury. The wound became inflamed and painful, and when the lower portion of the wound was opened up, a seropurulent exudate was found. Both healed in a few days without cellulitis or complications. In the case of wounds of the leg caused either by a glancing blow from an adz or by striking the leg on the sharp corner of a heavy piece of iron, ripping up the skin and soft parts for several inches, the periosteum is often involved, with more or less bruising and scraping of the bone. Clean cuts seem to heal kindly, but gouge wounds or contused lacerated wounds which involve the periosteum always heal slowly, especially if the patient continues working.

A feature noted in leg wounds which were known to be infected, because of the abundance of dirt particles present, was the apparently slow healing. The edges of the wound seem inflamed, and remain so for from fourteen to twenty-one days. We do not know whether this is due to the traumatism of the underlying tissues or to the irritation from the paste. As contused and lacerated wounds are prone to discharge considerable exudate, drainage should be established. The swelling and edema are less. Therefore, we place a few strands of silkworm-gut into these wounds in the majority of cases.

Case 5.—J. W. sustained a lacerated wound of the thenar eminence of the left thumb, extending into the web of the thumb and index finger. This gaping wound was caused by a wire rope dragging the hand into a pulley. A palmar fascia and a tendon exposure with an abundance of dirt particles were prominent features of this wound. A mattress suture was used for coaptation. The wound healed in three weeks, apparently without infection.

### TENDON SUTURE IN THE PRESENCE OF INFECTION

I wish to record two cases of this kind, both involving the extensor tendons of the thumb, between the first and second joints. After removal of dirt particles, the tendons were sutured with fine chromic gut. Silkworm-gut drainage was made for one week. The thumb was splinted for six weeks. The wound healed by first intention, and the tendons evidently healed. This was an unusual experience, and contrary to previous results obtained in this type of infected wounds.

A compound fracture of the femur, tibia and fibula, in a boy, aged 12 years, healed without evidence of infection. We also had seven other compound fractures which healed without infection.

### COMMENT

While the iodoform mixture has been mentioned as one of the newer remedies, iodoform in one form or another has been used by surgeons for a number of years, usually in chronic or suppurating cases. However, because of its successful use in recent wounds in the present war, bismuth iodoform petrolatum paste is becoming more and more popular. Probably the best recommendation for its use lies in the fact that, after using the remedy for six months in all types of injuries, we still have a favorable opinion of it. The remainder of the wounds in our series were about the hands, face and feet, many of them being macerated or contused and lacerated, but all healing by granulation apparently without infection. Our records show less than 1 per cent. of infections.

There were three cases of local iodoform poisoning, but no case of systemic poisoning. As much as 1 ounce of the paste has been used in one dressing without any evidence of systemic iodoform or bismuth poisoning.

In cases of lacerated wounds in children, when the edges of the wound can be coaptated easily, we generally use narrow strips of adhesive plaster in lieu of sutures. In the larger wounds, in which the soft parts are macerated and dirt is ground into the exposed tissues, we recommend trimming the wound edges so as to get a fresh raw surface. The wound is then sutured and drained for a few days.

Particular stress is laid on the application of the mixture. It must be rubbed thoroughly into the wound and pressed into the tissues so that the entire raw surface is studded with the crystals. Hemostasis must be complete, and all excess of the mixture should be removed by wiping with a piece of gauze. There is no objection to suturing when this is necessary, if the buried catgut suture can be avoided.

Iodoform is practically insoluble in benzin, but quite soluble in benzene (benzol, $C_6H_6$). Three grains of thymol added to 1 ounce of the mixture will render it odorless without changing its chemical quality. One-half dram of thymol added to a 5-yard package of iodoform gauze will likewise render it odorless. The washing of hands, instruments or containers with turpentine or mustard water will likewise render them odorless.

The iodoform-bismuth mixture is an invaluable first treatment for various types of infected wounds, and it is on a par with iodin. It is more economical, and its use is not attended by pain.

It has been my intention, not to consider the treatment of suppurating wounds or to discuss the chemical qualities of iodoform, but to detail the results attained from the use of the paste in a series of cases.

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# SPONTANEOUS RUPTURE OF THE RENAL ARTERY *

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Because of its rarity, this condition is of more scientific than practical interest. But as it sometimes occurs, I wish to take this opportunity of reporting an interesting case which recently came under my care, especially as I am able to describe for the first time the actual rupture of the artery in any reported case.

### REPORT OF CASE

*History*.—G. C., man, aged 64, referred to me by Dr. J. L. Allan of Calgary, was married and was the father of eight children, one of whom died of tuberculosis after reaching an adult age. The others were healthy. There was no history of severe injury, nor of any venereal disease. He had never been a very hard worker, and was temperate in his habits. The patient was in his usual health and was ascending the stairs after his evening meal at the end of an ordinary day's work, when he was taken with a very severe pain in his right side, followed by vomiting. When seen by Dr. Allan a little later, he had a normal pulse and temperature, but very severe pain, the cause of which was not clear. When I saw him twenty-four hours later, he was still suffering severe pain. He was a sallow-looking man, apparently older than his age, and rather thin. An extreme grade of arteriosclerosis was apparent. His temperature was 98 F. and the pulse 80. Since the onset of the pain, he had urinated several times with no apparent blood, although the specimens had not been saved; nor had he, to his knowledge, ever passed any blood. For the past year, he had been getting up to urinate at night. There was no vomiting except with the onset of the pain. The right side of the abdomen was distinctly fuller than the left. There was some tenderness and an extreme muscular rigidity over the whole right side from the ribs above to the pelvis below, and from the midline around into the flank. An exact diagnosis was not made, but an exploratory operation was decided on.

*Operation and Result*.—On arriving at the hospital after a short ride in the ambulance, the patient was found nearly pulseless and in extreme shock, from which he shortly revived. The abdomen was opened by the right rectus incision. A small amount of blood was free in the abdominal cavity. The cecum was found much discolored and infiltrated with blood. Under it, a large fluctuating mass could be felt, extending over the midline and down to the brim of the pelvis. The appendix and other abdominal organs were normal. The abdomen was closed and an oblique kidney incision made behind. A very large hematoma was found surrounding the kidney, and as the blood clots were being cleared away, a profuse hemorrhage was encountered. This was controlled by clamps and ligatures of linen thread, and the remainder of the blood clot was washed away. It was then seen that the ligatures were on the renal artery about 1 inch from the kidney. A tube was inserted and the wound closed. The patient's condition did not permit the removal of the kidney, as he was suffering from a severe condition of shock. He was revived, however, with saline administered both intravenously and in the rectum. The next day his general condition seemed good, but he had complete suppression of the urine for nearly forty-eight hours. Later, he secreted a moderate amount of pale urine, of low specific gravity, containing albumin, and hyaline and granular casts. For several days his condition seemed fairly good, then he became delirious and eventually comatose, and died on the seventh day from symptoms resembling uremia. At necropsy, the renal artery was found ligatured about 1 inch from the kidney. It was much sclerosed and ruptured, but revealed no sign of aneurysm. Both kidneys presented marked signs of chronic interstitial nephritis, and apart from universal arteriosclerosis, no marked abnormality anywhere. The Wassermann reaction was negative.

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* Owing to lack of space this paper has been abbreviated for publication in The Journal by omission of case reports summarized from the literature. The complete paper appears in the author's reprints.

## COMMENT

In most cases, rupture of this artery results in an aneurysm, either true or false, and is usually described under this heading. In most instances, it is the result of an injury; but some of the cases give no history of injury, and of these I am able to find, together with my own, fifteen cases. An analysis of the cases brings forth the following facts:

*Etiology.*—Five cases revealed true sacciform aneurysms which gave no symptoms during life and were not a factor in the causation of death. They were found only at the postmortem examination. Three cases were supposed to have been caused by emboli. In one of these, the patient was actually suffering from an ulcerative endocarditis. It is also noteworthy that two of these cases occurred in children and the third in a young adult. The others were all in elderly persons whose ages ranged from 36 to 74 years, with an average of 56 years. Five of these patients were observed to have had marked arteriosclerosis. In the others, the malady was not observed, but I think we may assume that it is a prominent causative factor. My case is the only one in which the Wassermann reaction was taken, and it was negative. In no case is any mention made of the presence or absence of a history of syphilis. From our present knowledge of the large part that syphilis plays in the causation of aneurysm, we should expect its presence in many of these cases.

*Sex.*—Eight cases occurred in men and five in women, and in one case the sex was not observed. Four patients were definitely suffering from nephritis. This was probably due to the same factor that caused the rupture.

*Pathology.*—A variety of conditions may grow out of this rupture. The simplest is a small sacciform aneurysm which remains unruptured and apparently does not produce any changes in the kidney or the surrounding parts, although in each of two such patients one kidney was observed to be smaller than the other. The aneurysm may occur anywhere in the main artery or one of its branches, or even within the capsule of the kidney. It varies in size from a hazelnut to an orange. It may rupture, or the artery itself may rupture without first forming an aneurysm when more extensive damage is done. The aneurysm may rupture into the renal pelvis and give hematuria. In the cases in which the rupture occurred the hemorrhage was profuse—a condition that may cause death. The aneurysm may rupture into the peritoneal cavity, thus causing death, or there may be a mere transudation into the peritoneum without actual rupture. When a false aneurysm forms, it may be of enormous size. In Keen's[1] case, it reached from the pelvis to the ribs and from the flank to a point near the midline. In cases of this type, the kidney usually shows marked changes. In one case no remnants of it could be found. The blood may extravasate within the renal capsule, where it may break down and disintegrate the parenchyma, or it may spread between the parenchyma and the capsule. The tumor may displace and become extensively adherent to the surrounding structures. The matting together of the sac and surrounding structures, such as the liver, the spleen, the diaphragm and the peritoneum, is often so firm and intimate and the adhesions so dense and strong that the mass becomes almost inseparable. The contents of the sac are clotted blood in different stages of age, color and consistency. Rarely is it sufficiently fluid to aspirate on its removal. In eight cases, the aneurysm was on the right side, and in five, it was on the left.

*Symptoms.*—A rupture resulting in a small sacciform aneurysm gives rise to no clinical symptoms. A rupture ultimately giving rise to a false aneurysm produces symptoms of ruptures, as well as symptoms later given by the false aneurysm.

*Symptoms of Rupture.*—The symptoms of rupture are: acute and severe pain in the side which may radiate to the genitals and give retraction of the testicles; a certain amount of fulness of the flank, the amount of which depends on the extent of the hemorrhage; muscular rigidity over the flank, which may also be over the whole side of the abdomen; vomiting; a certain elevation of the pulse rate, but no elevation of temperature. If the hemorrhage is extensive, there may be considerable shock and other evidences of internal hemorrhage. Once a false aneurysm is formed, symptoms will sooner or later be manifest. Of these, a tumor is perhaps the most evident. It was observed in five cases, and it varies in size from a grapefruit to a mass filling the whole side of the abdomen. The tumor is usually fixed and does not move on respiration, and its surfaces are smooth. Pulsation was not observed in any case. As a reason for this fact Keen mentions the relatively small artery with a large sac, since the impulse of the blood is not sufficient to distend the large sac and produce pulsation. I think the more probable explanation is that these are false aneurysms, largely if not wholly filled with clot, and therefore they do not pulsate. The true aneurysms are small and deeply placed, and therefore not easily palpated. A bruit was not detected in any case, probably because it was not looked for. It would probably be present in some, if not many, of the cases. Pain apart from the rupture is not marked, though a dull aching was observed in some of the cases under consideration. There is usually no marked tenderness unless there is local peritonitis, as in one case in which the tenderness was extreme. Hematuria was present in four cases and was profuse, except in one case in which there was only a trace. In another case it was said to have been the cause of death. It is due to a rupture into the renal pelvis or into the calices. Albumin was observed in only two cases, although nephritis was said to have been present in four. Dysuria and frequent micturition were noted in a few cases. Loss of flesh, weakness, pallor and gastro-intestinal disturbances were complained of by some patients, but in others general good health was well maintained.

*Diagnosis.*—In five cases of true aneurysm there were no symptoms during life. It was, therefore, impossible to suspect their presence. All the others gave symptoms, but in no case was a correct diagnosis made. The rupture may be taken for ectopic gestation, renal colic, perforative appendicitis, or other forms of peritonitis. Pain in the right side with fulness of the flank and possibly signs of internal hemorrhage may here give one the correct clue. The tumor caused by the false aneurysm is also very difficult to diagnose. The condition with which it is most likely to be confused is a renal new growth. It may also be mistaken for hydronephrosis and cystic kidney. A new growth will have a more progressive character, especially in regard to general ill health. Enlarged veins, varicocele or metastasis may clear up the diagnosis. Hydronephrosis is usually more elastic, if not fluctuating, and varies in size simultaneously with the passage of large quantities of urine. At certain stages it is very painful. Pulsation cannot be depended on as a diagnostic feature, but a bruit can be heard in most cases and should be looked for.

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[1] Keen: Philadelphia Med. Jour., May 5, 1900, p. 1038.

*Prognosis.*—The prognosis without operation is most unfavorable. Some of the patients with smaller true aneurysms died from other causes, but all patients having false aneurysms died from the diseased condition, except one in whom the aneurysm was successfully removed by an operation. Two other patients were operated on and died. One of these cases should not be classed as operative, since the operation has been performed because of injuries, and death was due to these, while the aneurysm had been present for some time previously without giving symptoms.

In my case, death was due to the inability of the opposite kidney to provide for the body, and not as a direct result of the operation. The causes of death were profuse hemorrhage from rupture into the renal pelvis, hemorrhage into the peritoneal cavity, syncope, and exhaustion. In several cases, the causes were from rupture and extravasation of blood in the flank. In some cases, the cause of death was not stated. The length of time during which symptoms were present varied from a few days to five years. If the primary rupture does not kill the patient, it may go on increasing slowly for many months or years until the tumor becomes of enormous size.

*Treatment.*—The renal artery presents one place in the body where the part supplied by the artery can be wholly removed without producing serious consequences. The only prospect of saving life is by nephrectomy and the extirpation of the aneurysmal sac. In the recent cases and those with a small tumor this can be best done by the flank; but in cases of a large tumor it can best be managed by the transperitoneal route. The difficulties of the operation are considerable, as the adhesions may be dense and the tissues extensively infiltrated with blood clot. The operation will probably be undertaken for some other than the correct condition, and the correct diagnosis may not be at once recognized. An attempt should be made to tie off the artery before disturbing much of the blood clot, or alarming hemorrhage may be encountered. If the patient's condition can bear it, the sac and kidney should be removed. The dangers are hemorrhage and shock. In all cases in which operation was performed, the shock was considerable and required energetic treatment. There is also danger of injury to some of the abdominal contents when the mass is large and the adhesions firm.

# THE DISTRIBUTION OF MENINGOCOCCI IN THE UPPER RESPIRATORY TRACT OF CARRIERS *

R. D. HERROLD, M.D.
CHICAGO

This study was undertaken to compare the frequency of positive cultures from the nasopharynx in meningococcus carriers with their frequency from other parts of the upper respiratory tract, and to determine the relation, if any, that such other parts may have to the persistence of the cocci in the nasopharynx. No reference could be found in the literature to any observations on these points.

During an extensive experience with the detection of meningococcus carriers in a large body of men under control, ninety-three segregated men, without discrimination in selection, were examined soon after isolation with regard to the presence of meningococci elsewhere than in the nasopharynx.

TABLE 1.—THE INCIDENCE OF POSITIVE CULTURES OF MENINGOCOCCI FROM DIFFERENT SOURCES OF THE UPPER RESPIRATORY TRACT OF NINETY-THREE CARRIERS

| | Positive | |
|---|---|---|
| Source of Cultures | Number | Per Cent. |
| Nasopharynx | 66 | 70.9 |
| Tonsils | 29 | 31.2 |
| Anterior superior nares | 16 | 17.2 |
| Sputum | 12 | 12.9 |

TABLE 2.—SUMMARY OF RELATIONS OF POSITIVE CULTURES FROM ELSEWHERE THAN THE NASOPHARYNX

| | Number |
|---|---|
| Positive tonsil, negative nasal and sputum cultures | 25 |
| Positive nasal, negative tonsil and sputum cultures | 11 |
| Positive sputum, negative nasal and tonsil cultures | 8 |
| Positive tonsil and nasal, negative sputum cultures | 2 |
| Positive tonsil and sputum, negative nasal cultures | 1 |
| Positive nasal and sputum, negative tonsil cultures | 2 |
| Positive tonsil, nasal and sputum cultures | 1 |

TABLE 3.—A COMPARISON OF THE PERSISTENCE OF THE CARRIER STATE ACCORDING TO THE DISTRIBUTION OF MENINGOCOCCI

| | | Incidence of Persistence After Six Weeks | |
|---|---|---|---|
| Type of Carrier | Number in Each Group | Number | Per Cent. |
| Positive nasopharynx and elsewhere | 39 | 28 | 73.0 |
| Positive nasopharynx, negative elsewhere | 27 | 17 | 63.0 |
| Negative nasopharynx, positive elsewhere | 11 | 6 | 54.6 |
| Negative nasopharynx and elsewhere | 16 | 3 | 18.8 |

Cultures were made of the nasopharynx, the tonsils, the anterior superior nares, and the sputum of each individual on the same day. The examinations extended over several weeks as the carriers were detected. A sterile wire swab, with the tip bent at an angle of 30 degrees, was introduced through the mouth; the end was passed over the posterior wall of the nasopharynx and removed with care not to touch any other surface. The medium used was plain blood agar made as follows: Approximately 15 to 20 drops of defibrinated goat's blood were added to 10 c.c. of ordinary nutrient agar for each Petri dish. The tip of the swab was rubbed on a small area near the edge of the blood agar plate, and then streaks were made from this inoculation. With ordinary straight swabs, smears were made from the tonsils and anterior superior nares, and inoculations made as described. In case of the sputum cultures there is always the danger of contamination from the mouth. After forced coughing and expectoration into a sterile Petri dish, a loopful of material, which appeared to have come from the deeper bronchi, was fished out and streaked on the blood agar plate. Only those sputum cultures are reported as positive which give many colonies of meningococci, these being in most instances the predominating organisms. All cultures diagnosed as positive were agglutinated in a dilution of 1:100 or higher of a polyvalent antimeningococcus serum, control tests with normal horse serum giving no agglutination. Fermentation tests with strains from these carriers gave results typical of meningococci.

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* From the Memorial Institute for Infectious Diseases.

In Table 1, the relative incidence of positive cultures are summarized. The apparently large number of negative cultures from the nasopharynx is what would be expected for two reasons: First, a large percentage of newly isolated carriers will give negative cultures within a few days, and secondly, many chronic carriers give intermittent negative cultures. An analysis of Table 3 brings out the fact that a greater number of carriers persist as such after six weeks in those groups in which other parts than the nasopharynx give positive cultures.

### CONCLUSIONS

The nasopharynx is the most common seat of meningococci in carriers, but the carrier state persists longer, the wider the distribution of meningococci in the upper respiratory tract. The number of positive cultures from other sources than the nasopharynx seems sufficient to warrant the taking of cultures from other parts than only the nasopharynx.

## *Clinical Notes, Suggestions, and New Instruments*

### CARE OF THE EYES OF THE PATIENT DURING ETHERIZATION

Albert H. Miller, M.D., Providence, R. I.

It is fortunate that conjunctivitis is an infrequent postanesthetic complication as, when it occurs, the pain resulting from the conjunctivitis is likely to be so severe as to outweigh any other discomfort that may follow the operation. Conjunctivitis is supposed to follow exposure of the eyes to ether vapor, or to result from the spilling of the liquid anesthetic on them. In the anesthetic literature, mention of this question is limited to directions for covering the eyes with a towel, gauze handkerchief, or a strip of rubber tissue for the purpose of protection from the anesthetic vapor. In cases in which these precautions have been carefully taken, conjunctivitis occasionally develops. In a series of 3,000 cases of ether anesthesia by the open method in which the eyes were not covered, although they were exposed to the ether vapor and although liquid ether was without doubt accidentally spilled over the eyes in some cases, no conjunctivitis has occurred.

If the anesthetist allows a drop of liquid ether to be placed in his own eye, no severe reaction follows. Ethyl chlorid is equally harmless to the eye. If a quantity of liquid ether is accidentally spilled over the uncovered but closed eyes of the anesthetized patient, conjunctivitis does not usually follow. When the towel or gauze covering the eyes becomes saturated with ether and remains in this condition, a severe conjunctivitis will probably result. In case the patient's eyes do not completely close during anesthesia, or are held open by a carelessly applied protective covering, conjunctivitis is very likely to occur. There can be no doubt that the precautions usually taken to avoid postanesthetic conjunctivitis in reality increase the danger and often are the sole cause of the trouble.

The only conclusion to be drawn is that, during general anesthesia, the eyes should not be covered. If liquid ether is accidentally spilled over the eyes, they may be washed with saline solution or sterile water, or the lids may be carefully dried with soft gauze. The lids should be closed during anesthesia. In the cases in which there is tendency for them to remain open, they should be frequently closed with the tip of the finger. The lid reflex may be frequently tested with the finger tip and at the same time the condition of the pupil noted. The unclean and unnecessary practice of touching the conjunctiva to elicit the corneal reflex should rarely if ever be indulged in. By this simple technic, the eyes may be safeguarded during general anesthesia.

131 Waterman Street.

### DISLOCATION OF THE MIDDLE CUNEIFORM BONE

Frank Warner, M.D., Columbus, Ohio
Fellow of the American College of Surgeons

Dislocation of the middle cuneiform bone occurs so rarely that instances of its occurrence should be reported. Its rarity adds to the difficulty of recognizing the condition; but unless it is recognized, impaired usefulness of the foot will result. Stimson[1] was able to collect only seven instances of separate dislocations of the middle cuneiform bone, and eleven of fractures. All three cuneiform bones have been displaced together, and the second and third likewise.

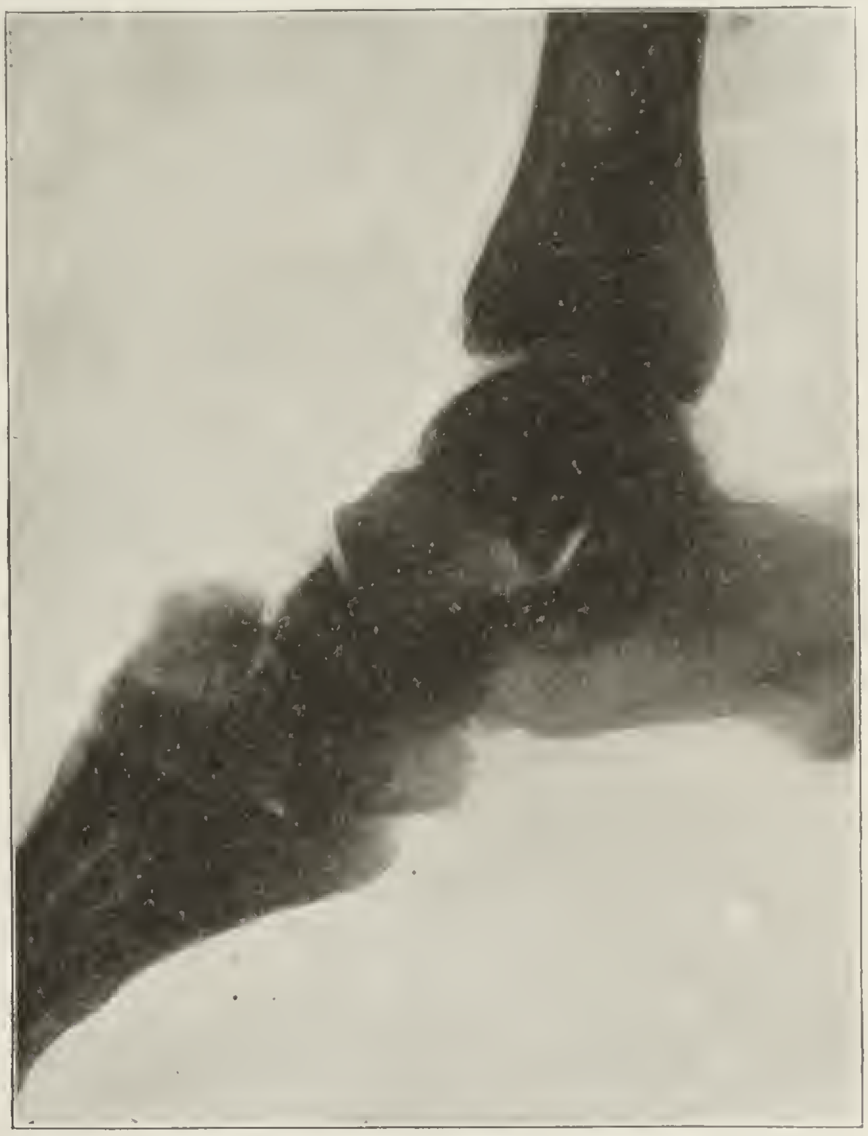

Fig. 1.—Dislocation of the middle cuneiform bone of the left foot.

March 2, 1917, V. G. E., aged 28, a railway conductor, while wearing a pair of heavy work shoes with extra thick, double soles, had his left foot run over by an empty dump car. The skin was not lacerated, but there was a bony protuberance on the dorsal surface, over the situation of the middle cuneiform. A diagnosis of dislocation of this bone was confirmed by roentgenoscopy. Failing to reduce the dislocation, first without an anesthetic and then with one, I made an incision over the protuberance, and skidded the bone back into position on a pry, when the torn ligaments were sutured together. The wound healed without infection. It was three months after the accident before any weight was permitted to be borne on the foot, that the ligaments might have ample opportunity to regain sufficient strength to bear the weight of the body with impunity.

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[1] Stimson, L. A.: A Practical Treatise on Fractures and Dislocations, Ed. 7, Philadelphia, Lea and Febiger, 1912, p. 914.

I saw the patient eight months after the accident, when he was walking perfectly and without pain or discomfort, the foot appearing quite normal again, without having shown any tendency to the breaking of the arch.

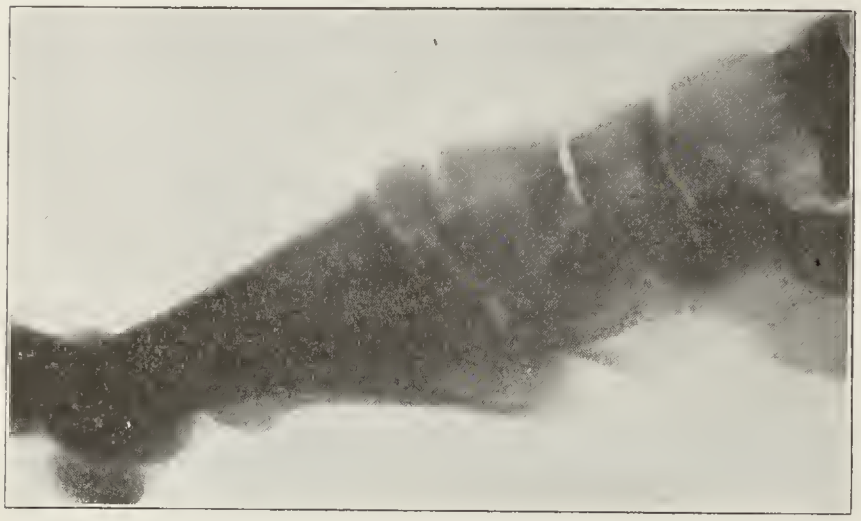


Fig. 2.—Evidence of a slight tendency toward the gliding of the middle cuneiform bone out of position, after reduction, which was overcome by compresses.

The foot is so wonderfully supported by ligaments and tendons that nothing but a powerful force can dislocate a bone situated as the middle cuneiform is. Such a force is usually so great that the foot is crushed rather than the bone dislocated.

During the healing process, there was a constant tendency for the middle cuneiform bone to be wedged out of its normal position, which was manifest by its increasing prominence on the dorsum of the foot; however, by the application of compresses, it was kept in position until the ligaments had sufficiently united to hold it in place.

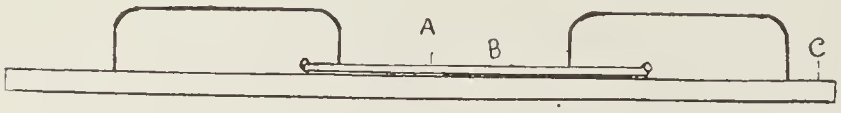
10 West Goodale Street.

## A SIMPLE AND RELIABLE METHOD OF MAKING PARTIAL-TENSION PLATES

M. B. Cohen, M.D., West Salem, Ohio

Although there are many methods for making anaerobic plate cultures that give good results, there are few described for partial-tension plates. Wherry and Oliver[1] have devised a technic which they thus describe:

> In making partial-tension plates we have inverted the inoculated plate upon a glass plate on which is fastened (with a small piece of plasticine) a smaller open Petri dish containing a freshly inoculated culture of *B. subtilis*. The inverted dish should be high enough to avoid any contact with the smaller dish. The edges of the inverted dish are then sealed with plasticine as recommended by Lentz[2] for the growth of anaerobes. Plates made in this way and sealed to pieces of window glass of suitable size may be stacked in the incubator.



Apparatus for use in investigations of the adaptation of organisms to various oxygen tensions: *A*, glass tube; *B*, Petri dish; *C*, glass plate.

In the use of this method as a routine in an investigation of the adaptation of certain organisms to various oxygen tensions, a number of serious objections were noted. Especially when relatively soft mediums were used, the water of condensation collected on the glass plate, became inoculated with *B. subtilis,* and unless great care was taken the culture was invariably contaminated. When it was necessary to add a fresh culture of *B. subtilis* to maintain the proper tension, the Petri dish containing the culture had to be lifted and exposed to further chance of contamination.

To avoid these difficulties the following method was devised: A small notch was ground (with a round file) in the edge of a standard Petri dish, which was sterilized and marked. The plate culture made in the usual way, in one of these dishes, was inverted on a glass plate so that the notch fitted over a small piece of glass tubing which had been fastened to the glass with dental sticky wax. The edges of the plate were then sealed with the same material. A similar plate was inoculated with *B. subtilis* and inverted over the other end of the glass tube on the same glass plate. It was also sealed with sticky wax.

This method may also be used for anaerobic cultures by placing the pyrogallic potassium hydroxid mixture in the second plate instead of the medium containing the *B. subtilis* growth.

If this technic is used, no contamination by *B. subtilis* is likely. The *B. subtilis* culture may be renewed as often as desired without disturbing the original culture..

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[1] Wherry and Oliver: Jour. Infect. Dis., 1916, **19**, 288.

[2] Lentz: Centralbl. f. Bakteriol., Orig., 1910, **53**, 358.

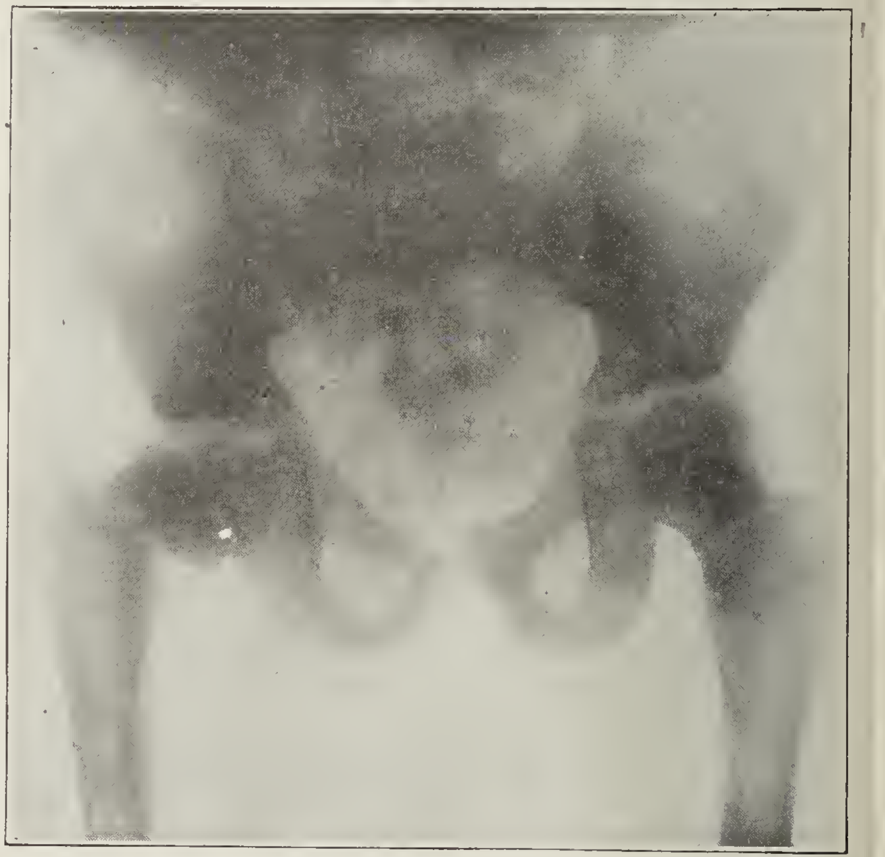
## FRACTURE OF THE NECK OF THE FEMUR IN A CHILD

Charles A. Parker, M.D., Chicago

On account of the rarity of fracture of the neck of the femur in children, this case is reported.

Oct. 5, 1917, a well developed boy, aged 9 years, was admitted to my service in the Cook County Hospital with the complaint of "interference with gait following trauma of the left hip." Two months before, he had fallen from a roof a distance of 15 feet, striking on his left side. After three weeks in bed he was allowed to walk.

There was no pain after his period in bed, but he walked with an obvious limp. This was his condition when he came to the hospital.



Fracture of the neck of the femur in a child.

The examination disclosed about one-half inch of shortening and a relatively high trochanter with almost normal movement of the joint. The roentgen ray cleared up the diagnosis. A plaster-of-Paris spica was applied, and recumbency advised, as the character of the union was in doubt.

7 West Madison Street.

**Publicity and Power.**—Publicity is the punch in public health work.—Cumberland (Md.) *Health Bulletin.*

## AN INVESTIGATION OF KIDNEY FUNCTION THREE YEARS AFTER RECOVERY FROM ACUTE MERCURIC CHLORID POISONING

George M. Goodwin, M.D., New York
Assistant Attending Physician, St. Luke's Hospital

In 1915, Lambert and Patterson[1] published an article on poisoning by mercuric chlorid and its treatment, and reported a series of cases so treated. They thus outlined their treatment: (1) continuous rectal irrigation by the drop method with 1 dram of potassium acetate to the pint of water; (2) washing of the stomach twice daily; (3) irrigation of the colon twice daily; (4) a daily sweat in a hot pack; (5) the administration every other hour of the following mixture: potassium bitartrate, 1 dram; sugar, 1 dram; lactose, one-half ounce; lemon juice, 1 ounce; boiled water, 16 ounces; on the alternate hours, administration of 8 ounces of milk.

Recently we have succeeded in following up one of the most severe of these cases, and had the patient readmitted to the hospital to investigate her present kidney function. The history in this case was as follows:

A woman, aged 22, admitted, March 26, 1914, had taken 30 grains of mercuric chlorid. Shortly afterward she had taken some castor oil and mustard which had made her vomit. One hour later she was given a thorough lavage by a physician. She was admitted to the hospital three hours after the ingestion of the poison. Her past history revealed that she suffered from congenital syphilis, that she had been deaf since childhood, and that she had had an interstitial keratitis for which she had received prolonged mercurial treatment and two doses of salvarsan. Physical examination on admission was negative.

THE URINE IN A CASE OF MERCURIAL POISONING

| Date | Amount C.c. | Reaction | Specific Gravity | Albumin | Sugar | Microscopic |
|---|---|---|---|---|---|---|
| March 27 | 396 | Acid | 1.010 | Faint trace | 0 | Hyaline and granular casts |
| March 28 | 137 | .......... | .......... | .......... | .......... | |
| March 29 | 45 | .......... | .......... | .......... | .......... | |
| March 30 | 45 | .......... | .......... | .......... | .......... | |
| March 31 | 2 | .......... | .......... | .......... | .......... | |
| April 1 | 55 | .......... | .......... | .......... | .......... | |
| April 2 | 396 | .......... | .......... | .......... | .......... | |
| April 3 | 853 | .......... | .......... | .......... | .......... | |
| April 6 | 1,462 | Neutral | 1.010 | Faint trace | 0 | Few leukocytes; hyaline casts |
| April 11 | 660 | Alkaline | 1.015 | Marked trace | 0 | Few leukocytes |
| April 13 | 1,310 | Neutral | 1.010 | Trace | 0 | Pus cells |
| April 30 | 3,991 | Alkaline | 1 002 | Very faint trace | 0 | Few leukocytes |
| May 10 | 4,640 | Neutral | 1.005 | Very faint trace | .......... | Few leukocytes |

The phenolsulphonephthalein excretion was as follows: April 7, 3 per cent.; April 9, 4 per cent.; April 17, 41 per cent.; April 23, 47 per cent.; May 10, 71 per cent.

Mercury tests on the patient's urine were positive from March 27 to May 29; on the stools from March 27 to April 24, and on the lavage fluid or vomitus from March 26 to April 26.

From the accompanying extract from the patient's urine chart it will be noted that on the fifth day of the poisoning the patient had almost complete suppression, the entire twenty-four hour quantity amounting to approximately 2 c.c.

The patient was readmitted, May 28, 1917, three years after the poisoning. She looked well, and stated that her health had been good since her last residence in the hospital, save for occasional headache and pain in the back. She brought with her the results of two urine examinations which had been done within the last two months, as follows:

April 13: 600 c.c., alkaline, clear, specific gravity 1.026, no albumin, sugar or casts.

May 2: alkaline, clear, specific gravity 1.028, no albumin, sugar or casts.

The red blood cells were 4,500,000; hemoglobin 95 per cent.; blood pressure: systolic, 115; diastolic, 65. A specimen of urine examined while in the hospital was acid and clear; the specific gravity was 1.020; there was a very faint trace of albumin; there was no sugar, indican, acetone or diacetic acid; there were a few leukocytes and epithelial cells, but no casts.

The nitrogen partition of the blood revealed, per hundred c.c., nonprotein nitrogen, 26.3 mg.; urea nitrogen, 16.7 mg.; uric acid, 2 mg.; creatinin, 1 mg.

The renal functional tests resulted as follows:

Phenolsulphonephthalein excretion for two hours, 71 per cent. Ambard determination (McLean modification):

Volume of urine: 5,200 c.c. per 24 hrs., weight, 51.7 kg.
Urine urea: 15 gm. per 24 hrs.; 2.88 gm. per liter.
Blood urea: 0.357 gm. per liter; index, 35.
Urine sodium chlorid: 15.08 gm. per 24 hrs.: 2.9 gm. per liter.
Plasma sodium chlorid: 5.96 gm. per liter (calculated); 6.06 gm. actual.
Difference: 0.10; threshold: 5.72.

An interesting feature of this case was the fact that this patient, a day after taking 30 grains of mercuric chlorid, gave a + + Wassermann reaction. Four weeks later, after recovery from the poisoning, the Wassermann reaction was + + + +. Since that time she had received no antisyphilitic treatment and on her last admission the Wassermann test was negative.

### SUMMARY

Three years after recovery from acute mercuric chlorid poisoning in which almost total urinary suppression occurred for twenty-four hours, this patient appeared in good health, showed a slight albuminuria, a normal phenolsulphonephthalein excretion, an increased blood urea and a high urea index, and a delay in salt excretion.

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[1] Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

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## A CASE OF BLASTOMYCOSIS WITH LARYNGEAL INVOLVEMENT

E. D. Downing, M.D., Woodmen, Colo.

This case is reported because the primary lesion, as far as could be determined, was in the larynx, and treatment with potassium iodid, and later with Koga's "cyanocuprol," failed to stop the progress of the disease.

*History.*—A man (Case 2960, Modern Woodman Sanatorium), aged 37, laborer in a grain elevator in Kansas, was sent to the sanatorium with a diagnosis of tuberculous laryngitis. His family physician noted on the admission application that the patient had no definite lung trouble and that tubercle bacilli had not been found. In August, 1916, the patient cleaned out some old wood from the bottom of the grain elevator shaft. A few days after this, he developed a severe cold and tonsillitis which "settled" in his larynx. He coughed and sneezed during this attack, but did not raise any sputum. He continued work in the elevator until Oct. 15, 1916, when he had to stop working because of weakness and loss of weight. His family and personal history are good. He entered the sanatorium, Nov. 10, 1916.

*Physical Examination.*—Skin: An area 3 by 7 inches on the outer side of the left leg was covered with branlike scales. A section of this skin showed nothing other than a thickening of the horny layer. Roentgen-ray exposures seemed to clear it up.

Chest: There was nothing definite in the chest except a slight dulness over the left apex. No râles were heard.

Teeth: There was marked general pyorrhea.

Larynx: There was a marked hoarseness, with pain at times in the ear. On the right tonsil were two small pinpoint yellowish spots. The epiglottis was eroded in a

V-shaped ulceration, the lesion extending well on the tongue. It was not swollen, enlarged or juicy, as often seen in tuberculosis. The entire mucous membrane of the larynx and the cords looked as if they had been treated with silver nitrate. Closer inspection revealed many small, slightly elevated pinpoint yellow spots. There was not the appearance of extensive infiltration that is seen in tuberculous laryngitis with the same amount of involvement. A piece of tissue was removed for diagnosis by Dr. Frank L. Dennis of Colorado Springs, who saw the patient in consultation. A diagnosis of blastomycosis was made, and confirmed by William Ophüls in the following report:

"Sections show marked inflammatory infiltration of connective tissue and considerable proliferation of the surface epithelium. In the proliferated epithelium, several microscopic abscesses. In the inflamed connective tissue, many large multinuclear giant cells of Langhans type. In the latter and in abscesses many small spherical, budding, encapsulated parasites. Blastomycosis of larynx."

*Laboratory Findings.*—In one of many smears made from the larynx, a few blastomyces were found embedded among bunches of cells. Many cultures were made, but we were unable to prevent other organisms from overgrowing the blastomyces. The urine contained a light cloud of albumin with a few granular casts and some cells. The leukocytes averaged 19,200 per cubic millimeter, with 75 per cent. polymorphonuclears. The red cells were normal. The Wassermann test was negative.

*Progress of the Disease and Treatment.*—The patient was given large doses of potassium iodid daily, and his throat treated with tincture of iodin every third day. He gained a few pounds in weight, and his temperature remained about normal; but the laryngeal lesion gradually narrowed the space in the larynx to a mere slit. In February, while eating supper, he choked up. Laryngeal examination revealed both cords in contact. Very little air was entering the lungs. A tracheotomy was performed at once.

A roentgenogram at this time disclosed considerable lung involvement. Physical examination revealed an increase of dulness on the left side. Six c.c. of "cyanocuprol," kindly furnished by Dr. Koga, were given intravenously once a week during April and May.

The temperature ran from 98.6 to 99.5, and mimicked an early tuberculosis. The patient was discharged, June 2, 1917, as his condition was hopeless. The dulness in both lungs was now quite marked, but evidence of moisture was still indefinite. The roentgenogram taken at this time disclosed extensive lung involvement.

The patient returned home. The lesion in his throat finally prevented him from swallowing, and he had to be fed by a tube. He died in October, 1917. A necropsy could not be obtained.

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## A CASE OF COMPLETE SYPHILITIC ALOPECIA

George C. Kindley, B.S., M.D., Dallas, Texas

In 1916 Thompson[1] reported a case of complete syphilitic alopecia, and stated that the textbooks either fail to mention the disease or dismiss it as being rare. Abraham and Davis[2] have stated that a few cases have come under their observation. In 1900 a case was presented by Chambers[3] before the Toronto Clinical Society.

In view of the medicolegal aspect of the case in hand and exceedingly limited number of similar cases to be found in medical literature, I desire to report the following case.

*History.*—G. H., a section laborer for several years, aged 49, white, and single, entered the Santa Fe Hospital, Temple, Texas, April 8, 1915, complaining of slight cough and some pain in the right side of the chest. The family history was negative. The patient stated that he had had typhoid fever, measles, mumps and whooping cough when a boy, and smallpox two months previously. Venereal history was denied.

*Physical Examination.*—The patient was of ordinary stature and weight and was fairly well nourished. The head was perfectly bald. There were no eyelashes, no whiskers, and no axillary or pubic hair; in fact, not a hair could be found anywhere on his body. The back of his neck had a pink appearance. The deep reflexes were considerably diminished, but there were no pupillary changes and no ataxia. His own story was substantially as follows: Four years previously he had begun to work for the Santa Fe railway near Lometa, Texas, handling creosoted ties. He had worked at this job for two years, during which time his hair had come out a little in places, and yellowish spots had appeared on the back of his hands and neck. One year after he had stopped handling ties, that is, in June, 1914, his hair had begun to fall out, and in two months it was all gone. He could rub the skin off his hands and neck, so the yellow spots disappeared in this way. He had thought it was all due to heat; but when a lawyer told him it was caused by the creosote, he had decided that at some future time he would sue the railroad.

*Subsequent History.*—At the suggestion of Dr. O. F. Gober, a Wassermann test was done by Dr. J. J. Terrill and found to be strongly positive. The patient refused antisyphilitic treatment, and in a few days left the hospital. In March, 1916, I saw him in Dallas and found that he had two short, white hairs on one side of his face. A year later, he brought suit against the Santa Fe railway for $20,000 damages, and the trial was had by jury in the Forty-Fourth District Court, in Dallas, from May 7 to 9, 1917. Before testifying as a witness for the defense, I was allowed to examine the plaintiff in private. There were a few short hairs on his face. He seemed comparatively a much older man than he had been two years previously. He claimed never to have seen me. The deep reflexes were purposely inhibited or exaggerated. His gait was somewhat ataxic and he had a marked Romberg's sign. The pupils were distinctly sluggish to light and only slightly responsive to distance. I felt that the history was unreliable, especially with regard to tabes. At the conclusion of the trial, the jury deliberated only fifteen minutes and returned a verdict in favor of the defendant.

*Attorney's Statement.*—Mr. P. T. Lomax of Fort Worth, Texas, attorney for the defendant, has kindly furnished the following statement in regard to the trial: "Though plaintiff testified that he had consulted several physicians, he had no medical testimony to support his case. No physician testified that creosote would cause the permanent loss of hair. On the contrary, we used two physicians from Somerville, Texas, who had served as local surgeons for the company there which treats ties and timber with creosote and which company, I believe, has one of the largest plants of its kind in the world. The combined service of these two physicians in the capacity indicated aggregated about fourteen years. During that time they had treated hundreds of cases of creosote burns. They both testified that such burns were no more serious at the beginning and progressed no further than ordinary sunburns, and that they had never seen or heard of a case in which any one ever lost hair permanently by reason of coming in contact with creosote. Some of the employees of this plant also testified, in our behalf, that although they had for years at times got their clothing wringing wet with creosote, and had had it all over their faces and in their hair, the consequences had never been more serious than as above indicated. They also suggested that the longer they handle the stuff the more immune they seem to become, and that unless compelled to expose themselves to the sun or to keep the creosote on for long periods of time they rarely experienced any ill effects."

611 Wilson Building.

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[1] Thompson, Loyd: Complete Syphilitic Alopecia, with Report of a Case, The Journal A. M. A., April 22, 1916, p. 1303.

[2] Abraham and Davis, in Power and Murphy: System of Syphilis, London, 1910, **5**, 100.

[3] Chambers, Graham: Alopecia Universalis; abstr., The Journal A. M. A., Jan. 5, 1901, p. 57.

## Military Medicine and Surgery

# VALUE OF THE CALIPER IN OBTAINING EXTENSION IN COMPOUND FRACTURES OF THE FEMUR

### A PRELIMINARY REPORT

FREDERIC A. BESLEY, M.D., CHICAGO
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FRANCE

All surgeons in civil practice have long recognized the inadequacy of most of the methods that have been in vogue for obtaining extension in cases of fracture of the femur.

Buck's extension by means of plaster, or Sinclair's glue, gave but indifferent results. So frequently does shortening, nonunion and malposition obtain that all sorts of methods and devices have been proposed for obtaining accurate apposition and retention of the fragments. During the last few years, many surgeons have gone so far as to propose the radical open operation in practically every case of simple fracture of the femur. The application of Lane plates, the putting in of an intramedullary bone splint, the sliding of a piece of the femur into a mortise, and suturing the fragments with wire and catgut are methods that have been employed with more or less success in maintaining apposition of the fragments.

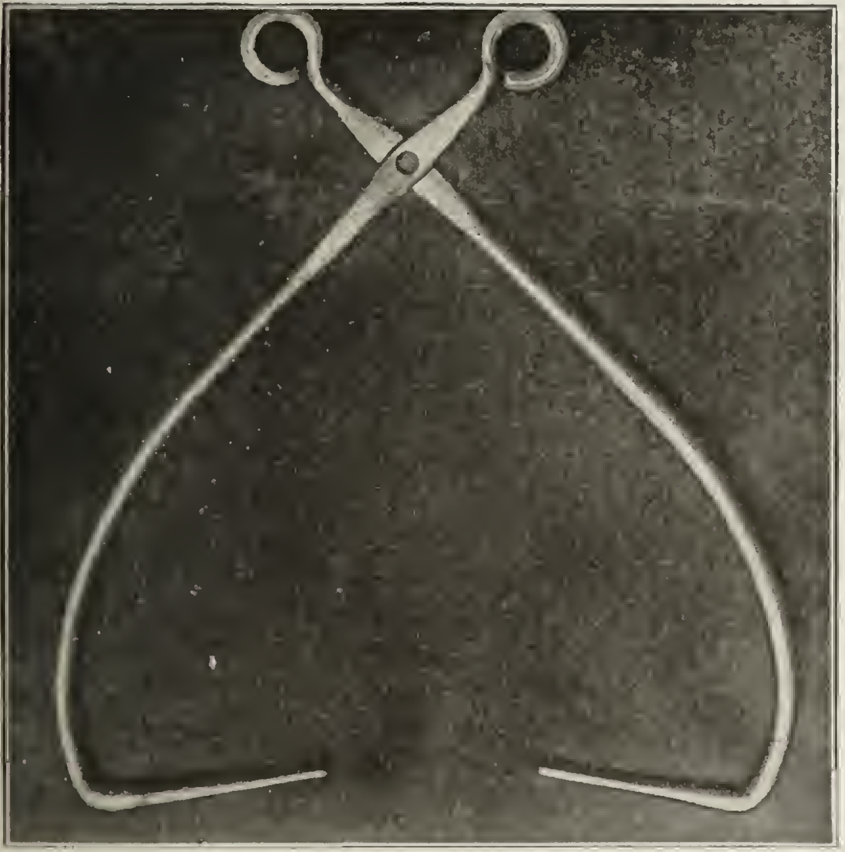

Fig. 1.—The crude caliper, constructed from meat skewers.

Obviously, the multiplicity of methods gives direct evidence that no one has as yet been eminently successful and satisfactory in all cases.

Experience has taught us that no foreign body should be implanted and applied to the factured ends of bone in a recent compound fracture. There is, I think, unanimity of opinion regarding this principle. What, then, shall we do with compound fractures of the femur that are seen in war surgery in which the wound is potentially infected, and there is usually a comminuting and shattering of the bony fragments and frequently a complete loss of several inches of bone structure?

One faces the problem of first dealing with the large open wound, and secondly the reduction and retention of the fractured bone. If a patient, immediately after being wounded, can be conveyed rapidly to a place where his wound can be adequately treated, I believe the ideal method is to remove the missile and the extraneous material, such as clothing and dirt, and to excise the contused, lacerated and devitalized tissues as widely as is necessary to secure a sterile and resistant surrounding area of tissue.

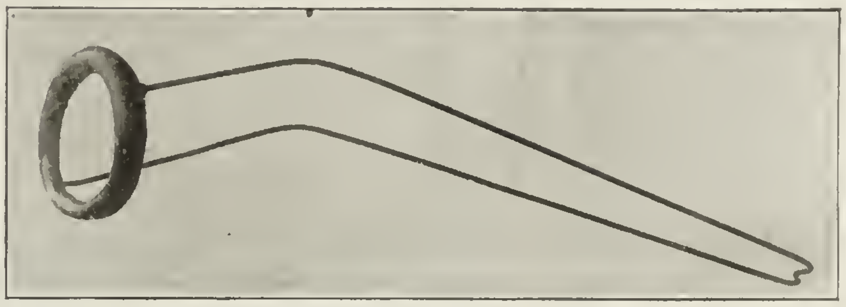

Fig. 2.—The bent Thomas knee splint.

This excision should include skin, superficial fat, fascia, muscle, and the bone that is involved. All loosened, detached fragments of bone should be removed, and the fixed bone cut away sufficiently to go beyond the contaminated bony tissue.

Following this, the wound should be closed either immediately, or within forty-eight hours, with sutures that are inserted at the time of the operation and left loose to be tied later.

If we are successful in obtaining a primary union, and experience is teaching us that this is frequently the case, we are still confronted with a simple fracture of the femur, and our problem is to obtain extension sufficiently great to overcome the pull of the strong spastic muscles of the thigh. More extension is required in the physically strong soldier, with his well developed thigh muscles, than would be necessary in patients with a lesser degree of muscular development.

Some surgeons have long contended that in applying a Buck's extension, or extension by means of bandages and Sinclair's glue, in cases of fractured femurs, the plaster or bandage should be placed above the line of fracture and as far up as the hip joint, in order to secure the most complete pull on, and relaxation of, the thigh muscles.

It has been my privilege to see a large number of compound fractures of the femur, which come to us soon after the wounds are inflicted. Nearly all of these fractured femurs have been dressed at the front and placed in a Thomas splint or some modification of it, and traction has been applied with adhesive plaster or Sinclair's glue. This traction has been maintained usually through a rubber band attached to the bottom of the splint.

During the first few months, we attempted to maintain and continue the traction by means of weights and pulleys. The weight was attached to the adhesive plaster or bandages put on with glue. The Thomas splint, as it has been modified from time to time, is the most valuable adjunct in the treatment of fractures with which we have ever come in contact. It is applicable to almost every type of fracture from the hip to the foot, and when correctly applied gives the patient more comfort in transportation and after treatment than any other method of fixation that I have been able to devise or observe.

In our early cases, we experienced many disappointments and often serious disaster from secondary hemorrhage and extending infection. It was necessary to sacrifice many limbs with compounds fractures of the femur. Our chief difficulty was in maintaining traction on the distal fragment. The adhesive plaster would become detached and excoriate the skin. The Sinclair's glue was somewhat better, but it was unsatisfactory in that blisters and macerations of the skin frequently occurred. In the glue which we applied ourselves we were reasonably careful in all details, always observing that it was not hot enough to blister the skin. Our chief difficulty with this method of extension was the discomfort it caused the patient without securing the desired results in maintaining the fragments in their proper position.

As an adjunct to this extension, we frequently used shoes around the ankle, plaster of Paris about the leg, and many other devices for attaching weight to the lower extremity.

Each new method of applying extension seemed more and more disappointing.

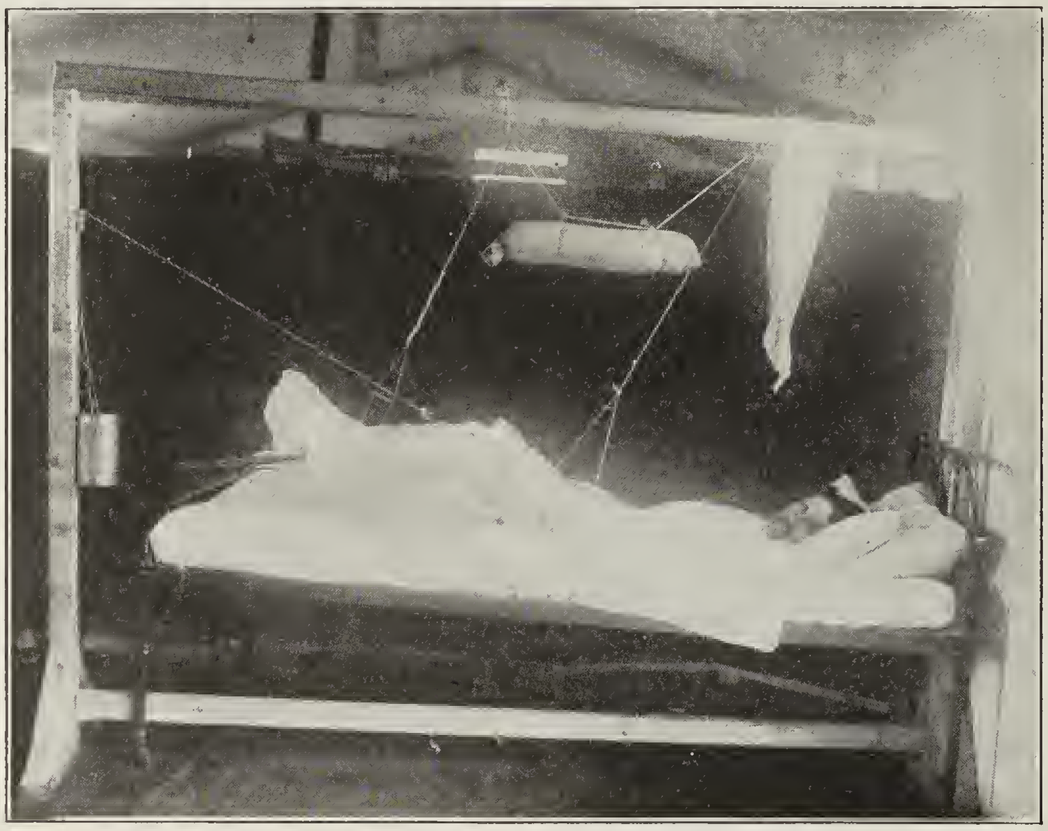
Fig. 3.—The caliper in position, and the Thomas knee splint slung by means of pulleys from the Balkan frame. Note that the pull on the caliper is in the direction of the long axis of the femur.

At this stage we began to use the Steinmann nail. In a few cases, we attempted to obtain an extension by putting the nail through the os calcis. This was unsatisfactory, for the reason that we were not able to obtain enough extension by weight without producing pain, swelling and effusion in the knee joint.

In the fractures of the upper third of the femur, the Steinmann nail was used with very satisfactory results. In the fractures of the lower third, we hesitated to drive a nail through the bone for fear of adding to the shattering of the already comminuted femur. In the use of the nail driven through the femur, there is always the danger of carrying infection into the medulla.

Some years ago, Ransohoff advocated the use of the caliper or ice tongs applied to the condyles of the femur for the purpose of securing extension. I had used this a few times in civil practice, and it had appealed to me very strongly.

Our difficulty in this area was in obtaining proper devices. Through the ingenuity of Lieut. Cyril J. Glaspel, who has charge of the fractured femur ward, we were able to construct a very satisfactory caliper out of meat skewers. A handy orderly aided us greatly in the making of these crude calipers.

We began to use them on every fractured femur. The comfort that is secured for the patients, and the satisfaction one experiences in being able to control and keep in apposition the lower fragment by this method, are most gratifying. We are now using this method exclusively as a means of extension, and applying it to all fractures of the femur regardless of where the fracture may be.

### PLAN OF APPLICATION AND AFTER-CARE

Nearly every patient coming to us has been operated on before reaching this general hospital, and the foreign body has usually been removed and the wound excised. As a rule, no attempt has been made to close the wound and secure primary union; therefore they are practically all open, infected wounds.

If the patient's condition warrants it, when he enters the hospital he is taken as soon as possible to the operating room and given an anesthetic. If adhesive plaster or glue with bandages has been applied, it is removed from the leg and the thigh. The knee is then shaved, and the surface of the skin over the condyle is cleaned with alcohol and iodized.

A small incision about one-fourth inch long is made just over the most prominent point of the internal and external condyles of the femur, and the soft tissues incised to the bone. The caliper is then inserted through the upper angle of this small wound, and the soft tissues pushed slightly upward and backward; and the points of the caliper are then driven into the bone just proximal and posterior to the most prominent point of the condyle.

Careful dissection of the lower end of the femur and of the knee joint has shown that there is practically no danger of opening the synovial sac of the knee joint at this point. It is our aim to drive the caliper into the bone to the extent of about one-fourth inch.

From Figure 1 it will be seen that the caliper is so constructed as to point downward and inward; when the traction is applied to the handles, there is a tendency to push the points a little farther into the bone, and we have had but one case in which there was any slipping. That was one of the early cases in which the caliper was not properly constructed.

The condition of the wound of the thigh is now considered. It is carefully inspected; and if further drainage is required, it is secured with the removal of any loose fragments of bone or foreign bodies that may be present.

In most cases we make no violent effort at reduction, depending entirely on our extension to paralyze the muscles and pull the fragments into position by subsequent gradual traction. The fragments are manipulated as little as possible, in the hope of preventing the distribution of infection or the unhappy complication of blood or fat embolism. A Thomas knee splint is now applied and is bent at the knee, the acuteness of the angle depending on the location of the fracture.

This knee splint is supplemented by supports which are placed under the thigh and under the leg and secured with soft metal clips to the rods, thus providing for their daily removal for the purpose of dressing the wounds. The Thomas splint is so adjusted that the rods are parallel to the anterior surface of the thigh and of the leg. These supports, attached to the side rods, are devised in such a way as to distribute the pressure equally and uniformly, care being taken to secure an adequate amount of padding.

Over the bed of the patient is placed a Balkan frame, to which are attached the necessary pulleys for the securing of correct and adequate traction. The traction applied through the caliper is always in the direction of the long axis of the thigh, this angle varying, of course, with the amount of bend in the Thomas splint, and the location of the fracture. The distal fragment is brought into alinement with the upper fragment.

It is our practice to apply about 15 pounds of weight attached to the caliper. The Thomas splint is also swung by means of pulleys and weights to the Balkan frame. The latter mechanism provides for the easy lifting and handling of the patient. As a matter of fact, with the aid of a sling, attached to the Balkan frame above the patient's head, he is able to lift himself entirely from the bed, the weights elevating the Thomas splint and the injured limb. This provides for the care of the patient's toilet and the dressing of the wounds. At present we have about forty cases being treated by this method. It is a source of the greatest satisfaction to walk through these wards and observe the comfort and contentment of these patients, comfort that it was impossible to obtain by any other means of traction that we were capable of employing.

In those cases in which the union has been secured, the roentgenograms show most satisfactory results both as to position of fragments and length of limb.

It can be said, however, that no plan of treatment that can be outlined and carried out for fractures of the femur can be adequate unless it is accurately controlled by roentgen-ray observations. This can be accomplished only by the use of a portable roentgen-ray machine, which we hope to have in the wards within a short time. This will enable frequent observations, either with the fluoroscope or by means of plates, with the fractures in the position that they occupy during traction.

It is apparent that it is impracticable and impossible to move these patients to the roentgen-ray laboratory and maintain the position that the fracture occupies when traction is acting. Needless to say, without the roentgen-ray control, the exact amount of weight necessary in a given fracture to secure accurate apposition is a matter of conjecture.

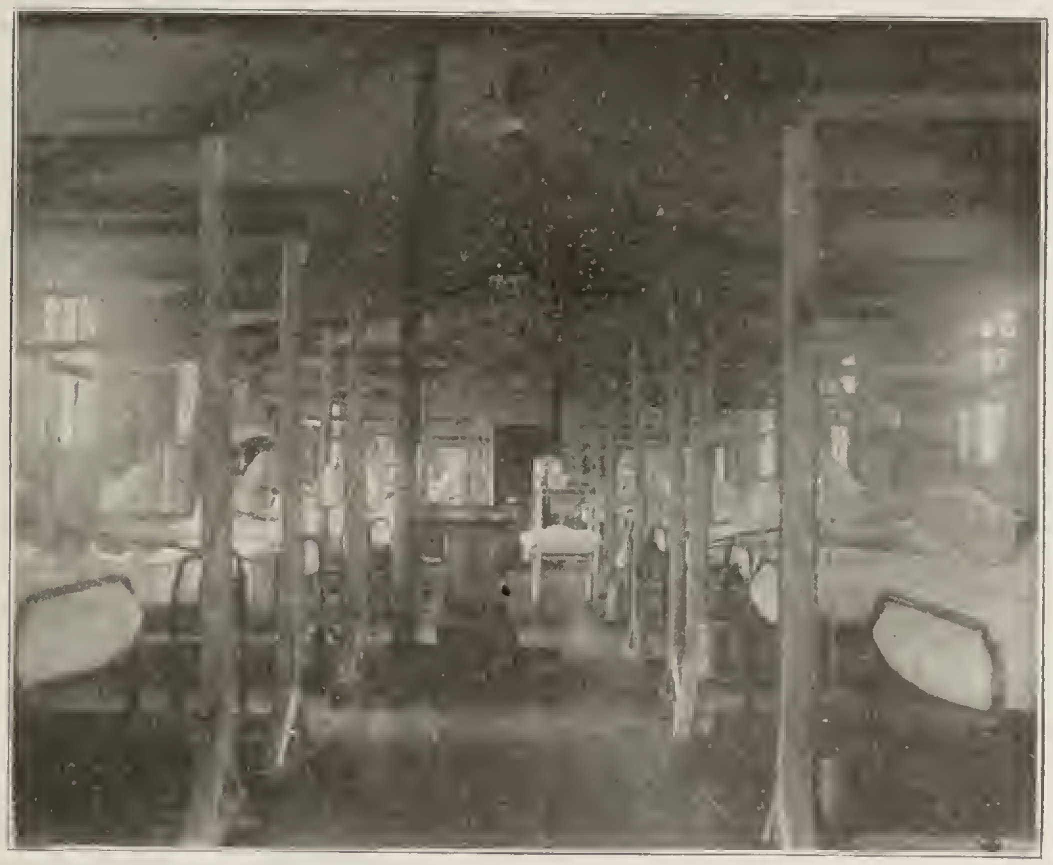
Fig. 4.—Fracture ward, accommodating thirty patients, with the fractured extremity suspended in Thomas knee splints with the extension attached to Balkan frames.

I should like to advocate and to urge most strongly the use of the caliper applied to the condyles as being the best method of securing traction in all compound fractures of the femur that it is necessary to treat in the war zone. I regret that my roentgen-ray facilities up to the present have not allowed me to secure roentgenograms of all my end-results. These will be secured later and presented in a subsequent article.

Col. H. A. Ballance, A. M. S., the consulting surgeon in this district, has given us many valuable suggestions, and he is now measuring and keeping records of 100 patients treated by this method of traction as compared to 100 treated by other methods. I desire to express my appreciation of his cordial cooperation.

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**The Hands as Disease Spreaders.**—The great agent in the spread of those diseases whose causative organism is present in the secretions of the mouth and nose, is the human hand; and if saliva was bright green we would be amazed at the color of our fingers. As a matter of fact most of us carry our fingers to our mouth or nose many times daily, there to implant the germs of disease which other careless people have spread about, there to collect a fresh cargo of infectious material to scatter for somebody else.—*Public Health Bulletin.*

# A STRADDLE STAND FOR PROPHYLAXIS AND TREATMENT OF SEXUAL INFECTIONS IN THE ARMY

James Bayard Clark, M.D., New York
Major, M. R. C., U. S. Army

The illustrations and the title almost completely describe this simple wash stand arrangement.

## CONSTRUCTION

It is made of cast iron, enameled white.

It is built from an anatomic standpoint to seat comfortably almost any sized man.

It has hot and cold inlets to its faucet, so that the temperature of the water can easily be regulated.

It has a rubber hose attachment under which the hands are washed before the hose is flexed to flush the genital region of the soldier sitting in position.

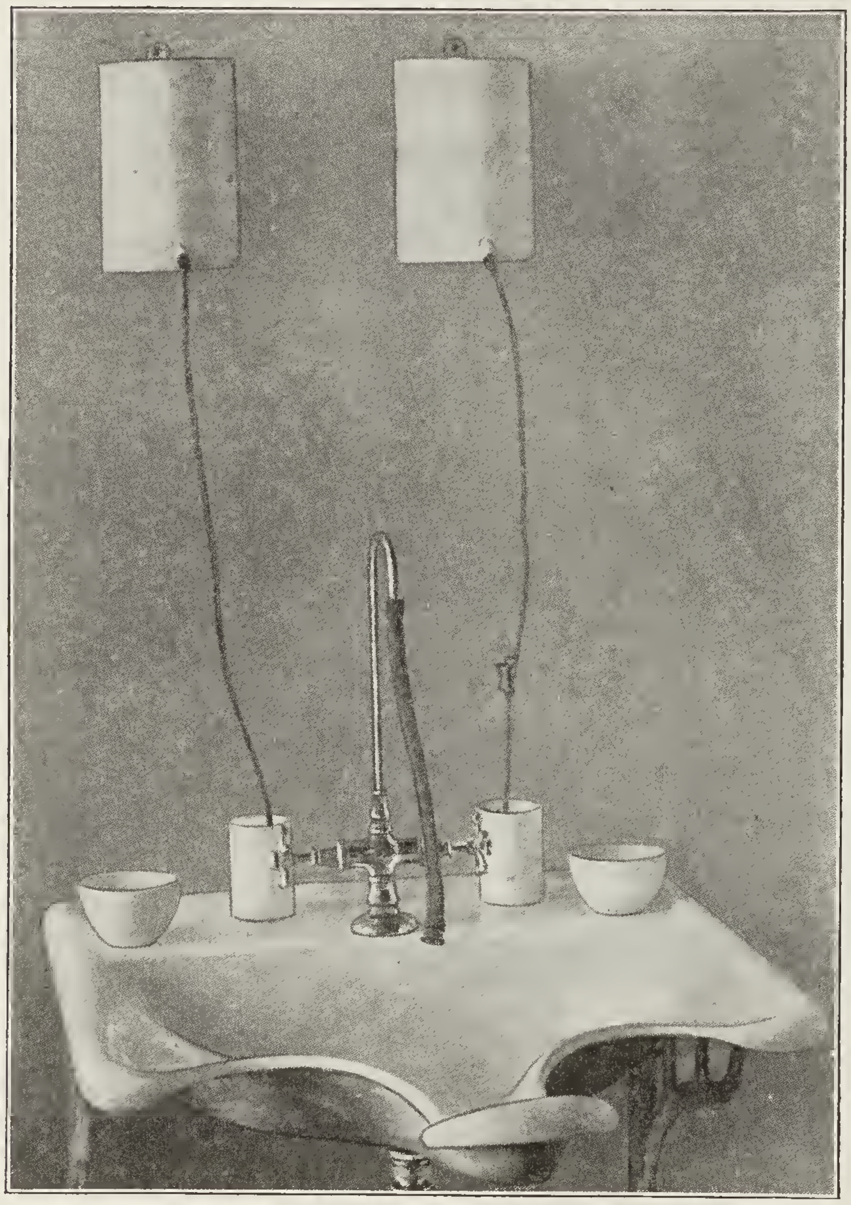

Fig. 1.—Front view of stand.

The most important feature of this equipment is that it will standardize a clean and correct performance of the present prophylactic treatment.

## ADVANTAGES

Its advantages can be told in a few words. Practically no other furniture will be necessary. It forces the soldier to make an adequate exposure for the proper treatment, and furnishes an opportunity to inspect the skin for rash or to observe a discharge or any other obvious disease.

It gives the advantage of a thorough soaping followed by a running water wash, which are perhaps the most important points in prophylaxis. With all the paraphernalia within easy reach on the stand and laid out in order of its using, rapidity and accuracy are assured.

It is a lesson in cleanliness and order to the soldier, and it completely protects his clothing from wetting or staining.

When an inspection is made of the prophylaxis station, all the details of the equipment and its cleanliness are told at a glance. Its economy is easy to estimate. The cost of a single stand is less than the cost of a single case of sexual sickness; yet one stand should protect and help in the curing of innumerable cases.

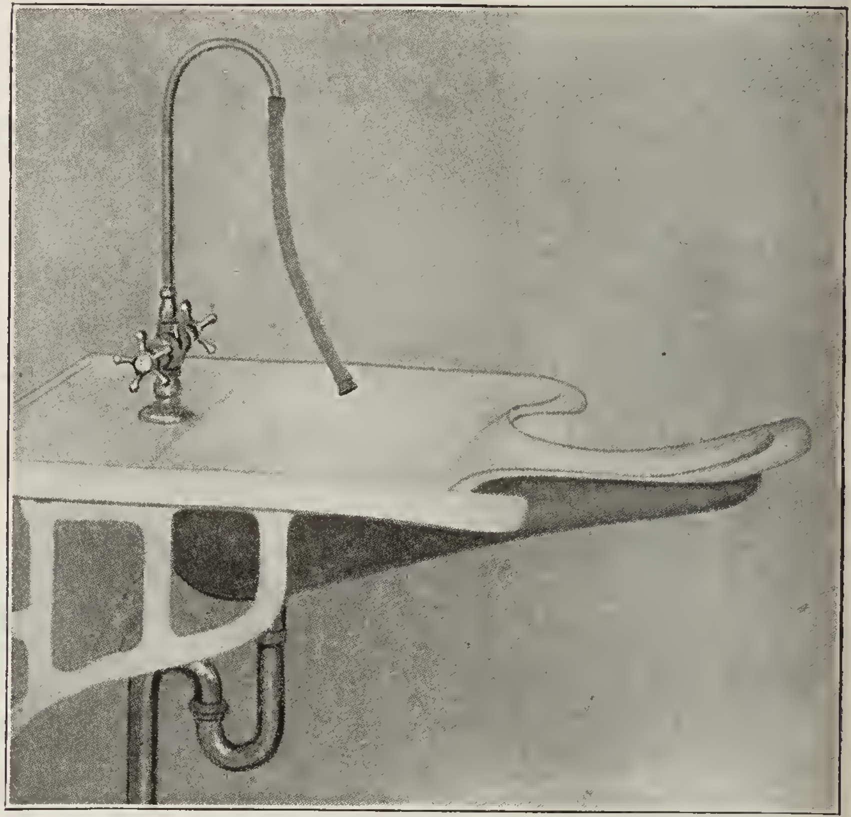

Fig. 2.—Side view of straddle stand for prophylaxis and treatment of sexual infections in the Army.

The straddle stand has some points of advantage in the treatment of genital infections, such as gonorrheal urethritis, balanitis, chancroids and chancroidal phimosis.

The patient in a perfectly relaxed position can be thoroughly cleansed and easily given the necessary treatment of injections or irrigations. Irrigation for balanitis, chancroids or chancroidal phimosis, either warm or hot, can be given.

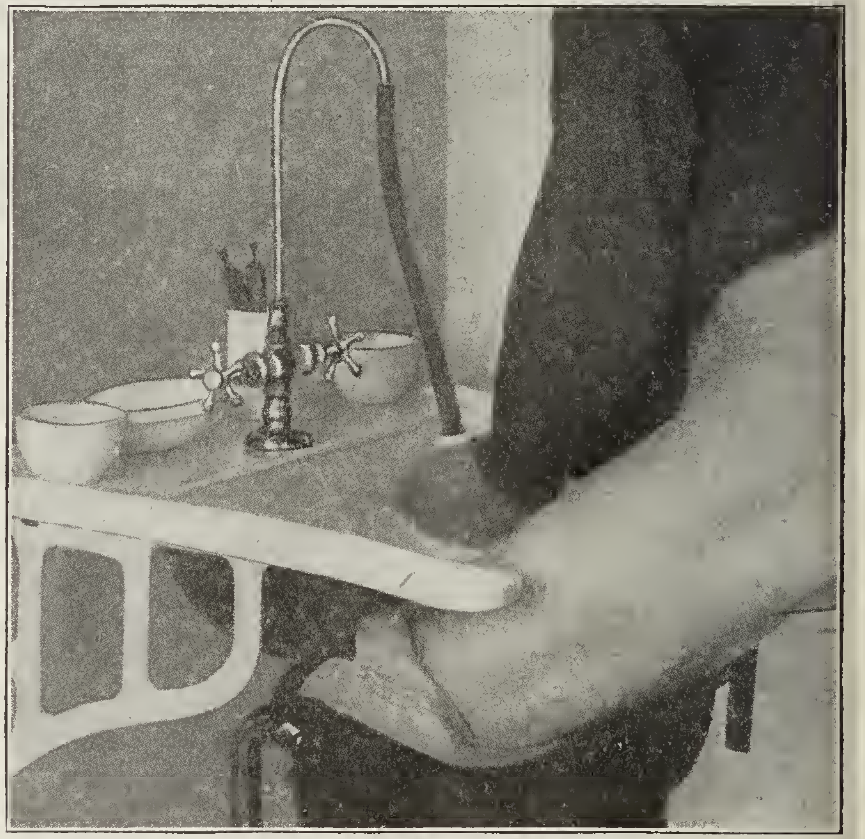

Fig. 3.—Straddle stand in use.

In either prophylaxis or treatment, it will insure the confidence of the soldier, and impel the medical attendant toward uniformity.

## Therapeutics

### SWEATING OF THE FEET AND AXILLAE

Excessive perspiration of the feet and the skin of the axillae is a most annoying condition, and one that frequently is difficult to control satisfactorily. Besides keeping the parts properly bathed and cool, attention should be given to the clothing and shoes. Rubber soled shoes are objectionable if there is excessive sweating of the feet. Impenetrable dress shields should likewise be discarded.

Various remedies have been suggested. Most recent and quite efficient is the remedy suggested by Stillians.[1] He states that a 25 per cent. solution of aluminum chlorid in distilled water dabbed gently on the part every second or third day and allowed to dry will cause a rapid amelioration of the excessive sweating. Three applications are usually sufficient. If the condition recurs, the treatment may be repeated.

An old remedy is the application of a 2 per cent. solution of the official liquor formaldehydi in water to the axillae, and up to a 5 per cent. solution for the feet.

Pure glycerin rubbed on the feet will at times stop offensive sweating. Potassium permanganate solutions of about 5 parts to 1,000 have been found efficient as a wash for the feet. More active, and therefore to be used with more care, especially in the axillae, are "chromic acid" solutions, as:

| | | gm. or c.c. | |
|---|---|---|---|
| ℞ | Chromium trioxid............ | 2 | 5 |
| | Water ...................... | 50 | |

Use as a paint once a week.

Less active, but more pleasant than the foregoing, is:

| | | gm. or c.c. |
|---|---|---|
| ℞ | Tannic acid................. | 5 |
| | Alcohol .................... | 100 |
| | Water ................up to | 200 |

Use as a wash twice a day.

Various drying powders have also been suggested for this condition, as:

| | | gm. or c.c. |
|---|---|---|
| ℞ | Boric acid.................. | 10 |
| | Purified talc............... | 100 |

| | | gm. or c.c. |
|---|---|---|
| ℞ | Salicylic acid............... | 5 |
| | Bismuth subnitrate........... | 40 |
| | Zinc stearate................ | 20 |

| | | gm. or c.c. |
|---|---|---|
| ℞ | Salicylic acid............... | 2 |
| | Bismuth subnitrate........... | 20 |
| | Starch ...................... | 20 |

In very severe cases, treatment with the roentgen ray will control the condition. This treatment is of course expensive, and in unskilled hands not altogether safe.

The use of the various solutions of aluminum chlorid, formaldehyd or chromium trioxid may, in some cases, cause a mild dermatitis, perhaps with itching. This may be ameliorated with protection of the parts against scratching, and the application of ointments, such as cold cream containing 12 per cent. boric acid, or a calamine lotion. If there is much itching, 0.5 per cent. phenol may be incorporated in the calamine lotion.

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[1] Stillians, A. W.: The Control of Socialized Hyperhydrosis, The Journal A. M. A., Dec. 30, 1916, p. 2015.

## New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

**COAGULEN-CIBA** (See N. N. R., 1917, p. 127).

The following dosage forms have been accepted:

*Sterile Solution Coagulen-Ciba (3 per cent.), 1.5 Cc. Ampoules.*—Each ampule contains 1.5 Cc. of a 3 per cent. sterile solution of coagulen-Ciba.

*Sterile Solution Coagulen-Ciba (3 per cent.), 20 Cc. Ampoules.*—Each ampule contains 20 Cc. of a 3 per cent. sterile solution of coagulen-Ciba.

*Tablets Coagulen-Ciba, 0.5 Gm.*—Each compressed tablet contains coagulen-Ciba 0.5 Gm. and sodium chloride 0.46 Gm.

**HALAZONE.** — Parasulphonedichloramidobenzoic acid.—$C_6H_4(SO_2NCl_2)COOH$-1 : 4.

*Actions, Uses, Dosage, Physical and Chemical Properties.*—The same as those of halazone-Abbott (see The Journal A. M. A., Oct. 6, 1917, p. 1166).

**Halazone (Calco).**—A brand of halazone.

Manufactured by the Calco Chemical Company, Bound Brook, N. J. No U. S. patent or trademark.

**DICHLORAMINE-T.**—Paratoluenesulphonedichloramide.—$CH_3.C_6H_4.SO_2NCl_2$. — The dichloramide of paratoluenesulphonic acid, $CH_3.C_6H_4.SO_2OH$.

*Actions, Uses, Dosage, Physical and Chemical Properties.*—The same as those of dichloramine-T, Abbott (see The Journal A. M. A., Sept. 29, 1917, p. 1081).

**Dichloramine-T (Calco).**—A brand of dichloramine-T.

Manufactured by the Calco Chemical Company, Bound Brook, N. J. No U. S. patent or trademark.

**CHLORAMINE-B (CALCO).** — Sodium Benzenesulphochloramine.—$C_6H_5SO_2NaNCl + 2H_2O$.

*Actions and Uses.*—Claimed to be essentially similar to those of chlorazene (see New and Nonofficial Remedies, 1917, p. 140).

*Dosage.*—The same as those of chlorazene (see New and Nonofficial Remedies, 1917, p. 140).

Manufactured by the Calco Chemical Co., Bound Brook, N. J. No U. S. patent or trademark.

Sodium benzenesulphochloramide was introduced in medicine by Dakin (Dakin, H. D.: *Brit. Med. Jour.*, Aug. 25, 1915). It was first made by Chattaway (*Tr. Chem. Soc.*, 1905, **87**, 153) by the action of sodium hydroxide on benzenesulphodichloramide. It may also be made by treating benzenesulphonamide with a cold alkaline solution of sodium hypochlorite.

Chloramine-B (Calco) is a white, crystalline powder, having a slight chlorous odor. It may be rendered anhydrous without decomposition by drying.

When a small amount of chloramine-B (Calco) is heated, it melts at 170 to 180 C.

In neutral solutions chloramine-B (Calco) liberates iodine from iodides, but not bromine from bromides; when acidified with hydrochloric acid, the bromine will then be liberated.

Hydrochloric acid added to a solution of chloramine-B (Calco) produces a white turbidity; on heating chlorine is liberated. Chloramine-B (Calco) is decomposed by acids (even boric acid), alcohol and hydrogen peroxide solutions.

If about 0.1 Gm. of chloramine-B (Calco) be treated with a few drops of strong sulphuric acid, chlorine is evolved, but no blackening occurs (*readily carbonizable matter*).

If 0.1 Gm. of chloramine-B (Calco) is dried at 97 to 110 C. in a flat-bottomed dish for two hours, it loses not less than 10 per cent., nor more than 14.4 per cent. of its weight (*water of hydration*).

If about 0.5 Gm. of chloramine-B (Calco) (accurately weighed) is dissolved in 50 Cc. of water, 10 Cc. of potassium iodide solution (10 per cent.), and 5 Cc. of acetic acid (36 per cent.) added and titrated with tenth-normal sodium thiosulphate volumetric solution, the available chlorine should not be higher than 15.0 per cent. or lower than 13.0 per cent. Each Cc. of tenth-normal thiosulphate volumetric solution is equivalent to 0.0177 Gm. of chlorine.

**Wartime Juvenile Delinquency.**—The wartime record of juvenile delinquency abroad shows, according to the Children's Bureau, that the sure penalty for neglecting the home, the school, and the play needs of children is an increasing stream of young delinquents brought to court for offenses that community foresight and care should have prevented. —*Bulletin*, Children's Bureau.

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SATURDAY, JANUARY 12, 1918

## THE FORM IN WHICH PROTEIN DIGESTION PRODUCTS ARE ABSORBED

The conception now held of the amino-acid structure of proteins, and the specific need of certain amino-acids in the construction of tissue components, has lent a new interpretation to the purpose of proteolytic digestion in the alimentary tract. There is no longer any question regarding the possibility of an extensive cleavage of proteins during their sojourn in the gastro-intestinal canal. Considerable quantities of amino-acids have actually been isolated from the intestinal contents during the progress of digestion of proteins in the body. Furthermore, the researches of Folin, Van Slyke and others in this country have left little doubt that amino-acids are actually absorbed as such during the digestive cycle; for, by the use of microchemical methods, a noteworthy increase of amino-acids circulating in the blood can be discovered during the period at which the height of digestion may be expected to occur.

Shall we assume, on this account, that proteins are as a rule completely disintegrated into amino-acids in the course of digestion, and that these relatively simple fragments represent the form in which the bulk or all of the nitrogenous foodstuffs are absorbed? Years ago it was believed that the extent to which proteins are altered before absorption went little beyond a stage wherein they became soluble. That a very small proportion of ingested protein may under certain circumstances be absorbed practically unchanged cannot be denied; for foreign proteins have at times been detected in the blood stream by the anaphylactic or other tests. This result for the most part is observed only when large quantities of such poorly digested proteins as uncooked egg-white are administered under conditions of unusual susceptibility or altered permeability on the part of the bowel wall. Thus it appears that in the early days of life the lining of the alimentary canal tends to be somewhat more permeable to certain unaltered proteins; but this condition disappears in a short time as development proceeds. In the case of normal persons, however, it is currently taught that practically all of the protein eaten is presented for absorption and passage into the circulating fluid in the form of amino-acids.

Is there no intermediate possibility between these extremes of belief? Cannot some of the protein be absorbed in the form of proteoses and peptones or polypeptids, which are intermediate stages in its breaking down? Several facts have tended in recent years to exclude this alternative from serious consideration on the part of physiologists. Foremost is the fact that the great majority of careful investigators have been unable to discover proteoses in the blood in health, though these products might reasonably be expected to appear there if they are absorbed as such to any extent. Extensive investigations by Abderhalden seem particularly conclusive in this respect. Furthermore, the demonstrated possibility of adequate nutrition for considerable periods on diets in which amino-acids furnish the sole sources of nitrogen make it evident that there is no actual necessity for the absorption of more complex protein derivatives.

The problem of the precise form in which the protein digestion products are absorbed has been brought into prominence anew by the observations of Abel, Pincoffs and Rouiller[1] of Johns Hopkins University on the unexpected widespread occurrence of proteoses in tissues. Like Abderhalden and others before them, they have been unable to separate a proteose of any kind from the plasma of the blood. From gastric and intestinal mucosa, however, proteoses could be isolated by the Baltimore investigators. Indeed, they found that the gastro-intestinal mucosa may contain as much as five times more proteose during digestion of meat as after deprivation of all food except water. The amount of proteoses or higher polypeptids thus taken up by the entire mucosa during an entire digestive period may be very considerable in the light of these statements. Accordingly, Abel and his collaborators remark that they cannot accept the theory that proteins are taken up by the absorbing surfaces of the digestive apparatus only in the form of amino-acids, but must believe rather that proteoses as well as amino-acids are freely absorbed, as has long been maintained for the former by certain investigators. While Abel, Pincoffs and Rouiller are able to trace the further passage of amino-acids from the mucosa to various organs by way of the blood current, they find it impossible at present to do this with proteoses. These cannot be traced further than into the absorbing mucosa, unless it should be assumed that the cellular elements of the blood are distributing agents for them—a point of view which at the moment one is not justified in advancing. The details of the fate of the absorbed proteoses still remain to be determined. The weakest feature in the new claim lies in the possibility, debated but by no means disproved, that the proteoses found in the mucosa of the alimentary tract and elsewhere in the body are actually absorbed and not produced anew in situ by synthesis.

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[1] Abel, J. J.; Pincoffs, M. C., and Rouiller, C. A.: On the Presence of Albumoses in the Tissues and in the Blood, with Special Reference to Their Occurrence in the Gastro-Intestinal Mucosa, Am. Jour. Physiol., 1917, 44, 320.

## THE FUNCTIONS OF THE CEREBROSPINAL FLUID

The present wide utilization of lumbar puncture and the examination of the cerebrospinal fluid for diagnostic and therapeutic purposes has focused attention on the fluid as never before. To speak of it merely as the lymph of the brain, as has sometimes been customary, conveys to the average physician no very clear conception of its function or physiologic relations, even though the arrangement of the perivascular and perineuronal systems, filled as they are with cerebrospinal fluid, certainly resembles that of a lymphatic system. Furthermore, it appears no longer to be justifiable to class the cerebrospinal fluid as a lymph of the familiar type. The very essence of a lymph, said Halliburton,[1] in his presidential address before the Section of Neurology of the Royal Society of Medicine, is that it should be in free communication with the blood stream, except for an intervening membrane, and that this membrane should be equally permeable to water and other substances in both directions. This essential character, we are reminded, is lacking in the cerebrospinal fluid; in all probability the lining membrane of the cerebrospinal spaces is permeable to substances passing from it into the blood, but it appears to be impermeable (except for oxygen) in the direction from the blood to the fluid. The nutritive materials the fluid contains appear to be formed in the choroid gland, and not to be merely exuded from the blood stream; otherwise one cannot explain why the protein it contains is not similar to that in the blood or in exudations (lymph) formed from the blood.

We have pointed to the growing evidence that the cerebrospinal fluid is the product of an act of typical secretion. The contents of the craniospinal spaces are not mere residual "leakages" through the walls of the blood capillaries. The pressure of the cerebrospinal fluid is not merely the result of something passively transmitted to it from other circulating systems, even though it may be affected by changes in arterial or venous pressures. Often it may be quite independent of these. The fluid, says Halliburton in his summary, is primarily formed by the secreting cells, which are most prominently found covering the choroid plexuses in the cerebral ventricles, so that this structure may be appropriately designated, as Mott first suggested, the choroid gland. The true cerebrospinal pressure is the result of the secretory pressure of the choroid epithelium cells.

What are the possible functions of a fluid which, though resembling the bathing lymph of other tissues, differs in normally containing only traces of coagulable protein and in having its volume carefully regulated by a special secretory mechanism? A structure so sensitive as the nervous system needs to be bathed by an ideal physiologic solution. "Thanks to Ringer some thirty years ago," Halliburton fancifully expresses it, "physiologists were provided with a suitable fluid for experimental work; but the choroidal epithelium knew the secret of extracting it from the blood for untold ages before Ringer was born. For what after all is cerebrospinal fluid but Locke's modification of Ringer's fluid? . . . The choroidal epithelium, in its wise choice of a suitable circumambient medium for the neurons, is really exercising a protective function. In order to keep out harmful proteins (toxins and the like), the comparatively harmless ones are kept back also, almost completely; all share the same process of exclusion. This protective action applies in addition to the majority of soluble drugs."

To look on a large content of protein as a menace in the fluids bathing the nervous system is to adopt a comparatively new point of view. Yet it is known from the study of anaphylaxis that smaller doses of proteins act when introduced into the brain than when given elsewhere. The nervous system is singularly sensitive to drugs introduced by way of the cerebrospinal fluid. Until we understand the function of the apparently great surplus of proteins in the blood, we shall scarcely be able to interpret the comparative lack of them in the fluid bathing the nervous system. Meanwhile there is certainly nothing improbable in the rôle of a perfect yet simple physiologic medium which Halliburton, one of the most active investigators of this secretion, has assigned to the cerebrospinal fluid.

## GREEN OYSTERS

As a result of the efforts of the U. S. Food Administration to decrease the consumption of certain meats, notably beef and hog products, attention is necessarily focused on other forms of foods that may in some degree replace the proscribed animal tissues. Poultry, eggs, fish and shellfish, accordingly, are gaining an enforced popularity beyond all previous experience. The readiness with which our population is cooperating in the attempt to save certain desired foods for our allies in the war is commendable. The use of substitutes for what has thus voluntarily been given up by a patriotic people should be safeguarded, therefore, in every essential way.

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[1] Halliburton, W. D.: The Possible Functions of the Cerebrospinal Fluid, Proc. Roy. Soc. Med., 1916, **10**, 1.

This statement may be taken as the preface to certain comments on the American oyster. The use of this palatable food received a serious setback a few years ago when the possibility of infection was first traced to it. There can be no doubt that the feeding habits of oysters and clams make it probable that they will contain considerable numbers of bacteria of the types characteristic of the waters in which they live. Hence when these shellfish have been kept in sewage-polluted waters, they may easily contain bacteria of the intestinal types and may thus become carriers of typhoid organisms as well as those responsible for less serious intestinal disorders. It is only fair to the oyster industry to say that it has been sinned against all too freely by individuals and cities that have not hesitated to discharge raw sewage into waters which form the natural habitat of the oyster. State and federal agencies are at length taking steps not only to prevent the sale of contaminated shellfish but also to regulate the noxious features of the sewage problem. We apprehend that in due season the oyster will once again be delivered from its undeserved and objectionable micro-organisms.

The luscious oyster deserves further to be acquitted from the possible charge of harm that may come from "epidemics" of green coloration that have been reported in recent years in certain parts of the eastern United States. It is not generally recognized that green coloration, long known in Europe, may be due to at least two distinct causes. One of these is the presence of copper, leading to so-called copper-green oysters. Green-gilled oysters, on the other hand, such as those at Marennes, which are highly popular in some quarters, represent a quite different abnormality. Their coloration is not due to any metallic component, but rather to a pigment derived from diatoms of the species *Navicula ostrearia* which the oysters ingest.[1]

The United States Fisheries biologic station at Woods Hole, Mass., has at length furnished the demonstration[2] that the Chesapeake green-gilled oyster is the same as the so-called Marennes oyster. This conclusion has been reached because the Virginia oyster corresponds exactly to the descriptions of the Marennes oyster in general appearance and in microscopic examination. The green gills and palps of our southern oyster coincide precisely with the descriptions and drawings of the French oysters; and the method of distribution by secretion cells and the location of the pigment in definite tissues of the gills, as explained by Lankester, is the same as has been found in these observations of the Lynnhaven oyster. A diatom answering the same description as the *Navicula ostrearia,* recognized as the cause of the greening of Marennes oysters, has been identified wherever green oysters are found in the Chesapeake. The frustules of the diatom have also been obtained from the intestines of the green oysters in this observation, exactly as Lankester noted in his study of the Marennes oyster. Again, this investigation agrees thoroughly with the conclusions of several European workers that the pigmentation of the gill can occur by allowing the oyster to remain in sea water in which *Navicula ostrearia* is present, but that there is no coloration if the *Navicula* is absent. There is no evidence that the coloration of the gills of Chesapeake Bay green oysters is due to bacteria. Thus both economic and sanitary considerations are satisfied by the explanation furnished by the biologists of the Bureau of Fisheries.

## EMOTIONAL STATES AND THE SUPRARENAL SECRETION

There has been a tendency in the past few years to assign functions of unexpected or unanticipated importance to the suprarenal glands. Through the medium of the epinephrin that they secrete, these structures are assumed to reinforce the action of the sympathetic nervous system. Introduction of epinephrin into the body has long been known to produce hyperglycemia, which is nearly always accompanied by glycosuria. In connection with this fact, the opinion has been ventured that some or perhaps most of the familiar forms of experimental hyperglycemia are dependent primarily on excitation of the suprarenal glands to increased secretion of epinephrin, which then causes an accelerated mobilization of sugar in the same way that epinephrin does when artificially introduced. As evidence that the suprarenals intervene in the production of such phenomena as the glycosurias following asphyxia, anesthesia, etc., it is contended that they cannot be obtained after removal of the glands. It has even been stated that after suprarenalectomy the normal sugar content of the blood is not maintained. Finally, since sugar is an important source of energy in muscular contraction, it has been contended that a tendency to hyperglycemia may accompany fright, anger and other emotional states that are likely to lead to augmented activity. Thus the alleged discharge of epinephrin into the circulation is made an important factor in the response to environmental stress, enabling the individual affected to "react for the preservation of its life either by offense or flight."

The chain of sequences formed by emotion, discharge of epinephrin, mobilization of carbohydrate, and increased muscular efficiency represents a formidable physiologic phenomenon. Of late there have been signs from several quarters that the importance thus assigned to the suprarenals is exaggerated, if not unproved.[1] A serious blow has been dealt to this structure of hypotheses regarding suprarenal function by the critical observations of Stewart and Rogoff[2] of the Laboratory of Experimental Medicine at the Western Reserve University. Starting with the fact, demonstrated by them, that the liberation of epinephrin can be practically abolished or reduced to an insignificant fraction of its normal amount by dividing the nerve supply of one suprarenal and excising the other gland, these investigators have studied the effect of experimental procedures supposed to depend on suprarenal contributions for the genesis of hyperglycemia. They have found that the hyperglycemia associated with asphyxia and ether anesthesia is obtained in animals that have undergone the suprarenal operation described, even when no detectable residual liberation of epinephrin is present. No essential difference could be made out in this regard between these animals and control normal animals. From these results, we admit with the Cleveland experimenters, it seems impossible to draw any other conclusion than that the hyperglycemia associated with asphyxia and with etherization is not produced through the intervention of epinephrin liberated from the suprarenal glands, or at least that the liberation of epinephrin is not essential to the production of the hyperglycemia. Accordingly, the mobilization of sugar, of which these experimental hyperglycemias are the expression, is not mediated through the epinephrin secretion of the suprarenals.

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[1] Lankester, E. R.: On Green Oysters, Quart. Jour. Microscopical Sc., 1886, **26**, 71. Herdman, W. A.: Oysters and Disease: An Account of Certain Observations on the Normal and Pathological Histology and Bacteriology of the Oyster and Other Shellfish, Lancashire Sea-Fisheries Memoir No. 1, London, 1899.

[2] Mitchell, P. H., and Barney, R. L.: The Occurrence in Virginia of Green-Gilled Oysters Similar to Those of Marennes, Bull. Bureau of Fisheries, 1915-1916, **35**, 137.

Nor is this the only feature of the widely quoted hypothesis relating the suprarenals to emotional states that has been brought seriously into question. Stewart and Rogoff have directly attacked the problem of the so-called emotional hyperglycemia for which the suprarenals have also been held responsible. Their experiments do not reveal any essential difference between the results of emotional excitement in normal animals and in animals that have survived the procedure already described. The investigators do not assert that their observations disprove the existence of a true emotional hyperglycemia; but they do suggest that if it exists it is a rather infrequent phenomenon, not to be elicited at will as the asphyxia hyperglycemia can be elicited, and so insignificant in amount that numerous observations would be necessary to disentangle it from the uncontrollable variations in the sugar content. But if so-called emotional hyperglycemia is an uncommon phenomenon or maybe a myth, and if emotional excitement does not actually lead to an increased output of epinephrin from the suprarenals, what becomes of the beautiful theories built on this crumbling superstructure?

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[1] Is Epinephrin Indispensable for the Organism? editorial, The Journal A. M. A., July 7, 1917, p. 40; The Suprarenals and Shock, Sept. 1, 1917, p. 729; Pituitary Functions, Nov. 17, 1917, p. 1697.

[2] Stewart, G. N., and Rogoff, J. M.: The Alleged Relation of the Epinephrin Secretion of the Adrenals to Certain Experimental Hyperglycemias, Am. Jour. Physiol., 1917, 44, 543.

# Current Comment

## UNIVERSAL MILITARY TRAINING VERSUS PHYSICAL TRAINING

From the purely sanitary point of view, the physical development of the youth of this country is a matter of extreme importance. For that reason, physical training naturally has many strong advocates. Unfortunately, physical training has not been universally required, and has not produced anything like the remarkable physical development seen in the various military training camps since the opening of the world war. Heretofore it has lacked that "touch of elbow" which comes only from military training. It lacked that indescribable something — esprit, courage, discipline, patriotism, respect for the obligations of citizenship — which is essential in any state, and particularly in a democracy. Again, the very requirement that all young men alike at a certain time shall don the uniform of the United States will do more to engender patriotic sentiments and to call their attention to their duties to the nation than can result from any other method. Such training can readily be made to emphasize the things for which a democracy stands, and is one of the best means of amalgamating the various nationalities that make up the citizenship of this country. Incidentally, since universal military training is for the young men, some parallel training might also be provided for the young women.

## OUR ARCHAIC PATENT LAWS

In this issue we publish two reports of the Council on Pharmacy and Chemistry which illustrate the weaknesses of the present working of the United States patent laws. In the first report the Council presents an investigation of a recently granted patent, and shows that the patent was issued on the mere claims of the applicant and without the presentation of any evidence for such claims. The second report —"Need for Patent Law Revision"— is an appeal to the Patent Office for a more enlightened administration of the patent law, and it presents a few illustrations of the unfair protection which has been granted by the Patent Office. The protest of the Council appears at an opportune time. In *Science*[1] the "Patent Office Society," an association of employees of the U. S. Patent Office, announces that a committee has been created on request of the National Research Council to make a study of the U. S. Patent Office and its service to science and to arts. It states that this committee will meet in Washington shortly to consider the adequacy of the present Patent Office equipment and the simplification of procedure as well as responsiveness to present national and international requirements. The committee also hopes to coordinate, in the interest of an improved public service, the endeavors of the various national societies, manufacturing interests, patent bar associations and all others aiming at genuine patent reform. Unquestionably, there is a growing conviction that in the case of medicines the monopoly given by the patent laws, if granted at all, should be granted with a greater consideration of the public welfare. Too often the United States Patent Law has been used to obtain an unfair monopoly on a medicament or to abet quackery. There is no question that one of two things is needed: either a radical change in the patent law itself or the application of more brains in its administration.

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[1] Dec. 28, 1917, p. 629.

### THE USE OF THE FACE MASK AND OTHER PRECAUTIONS AGAINST PNEUMONIA AND OTHER DISEASES SPREAD BY NASOPHARYNGEAL SECRETIONS

The nasopharynx is the portal of entrance into, as well as exit from the body, of the germs of many important acute diseases. Diphtheria, scarlet fever, measles, epidemic meningitis, poliomyelitis and pneumonia are all spread by nasopharyngeal secretions, and are sometimes called "sputum-borne" diseases. These diseases are spread in this way not only by patients in the acute stages of the disease but also by carriers who harbor the germs in the nasopharynx for a longer or shorter time. Persons coming in close contact with such patients or carriers may take up the germ-laden droplets or nasal discharges, running the risk of falling sick, and whether stricken or not, of handing the germs on to others, perhaps more susceptible. In view of these considerations, the precautions, including the use of a simple protective face mask, recommended by Weaver[1] in this issue, should be adopted and conscientiously enforced, not only in hospitals, but also generally, since every case of sputum-borne infection is a potential source of new cases, and even an endless chain of new cases. The evidence presented by Weaver of the efficiency of the precautions which he describes for nurses and physicians is quite convincing — that is, there was less infectious disease in the nurses, and less cross infection in the patients. In other words, the spread of sputum-borne diseases was lessened. This was, of course, to have been expected because the measures described necessarily lessen the chance of infection for these diseases. The precautions used against diphtheria, measles, scarlet fever, epidemic meningitis and poliomyelitis are also recommended for pneumonia because this is as much a sputum-borne disease as any. No physician familiar with the dangers of infectious nasopharyngeal secretions in pneumonia and the other diseases mentioned will care to run the risk of omitting any precautionary measure that obviously tends to lessen the danger for the attendant and to diminish the chances of spreading the infection by carriers. For this reason the advisability of wearing face masks by medical officers, nurses and noncommissioned medical attendants in base hospitals and isolation camps in large cantonments is worthy of careful consideration. The measure is so simple, and at the same time appears to be so thoroughly efficient, that the question arises whether the Medical Department should not make the use of this simple measure obligatory on the part of those in direct contact with the diseases mentioned. Personally, those tending the sick may feel that they are not susceptible to such diseases as measles, diphtheria, scarlet fever and similar infections — that is, those likely to attack children — but will they care to take any chances with pneumonia?

### REPORT OF THE SURGEON-GENERAL OF THE ARMY

The report of the Surgeon-General of the Army, an interesting document at any time, becomes especially important in war time. The report issued for 1917 covers the fiscal year ending June 30, 1917, and the calendar year 1916. It is the one hundredth consecutive report of the Surgeon-General, the first having been compiled in the year 1818. Special emphasis is placed on the excellent work accomplished by medical officers of the Regular Army in connection with the expedition into Mexico and the mobilization of the Army and National Guard on the border in 1916. A short statement is made as to the work of the Medical Department in the present war. The details of this important work will, of course, be properly the subject of future reports; but as evidence of the unprecedented extension of the activities of the medical department it is stated that more than 13,900 officers were engaged in the work of the Army Medical Department on June 30, 1917. The total number of hospital beds is to be placed on a basis of 25 per cent. of the strength of the Army. The general health conditions of the United States Army for the calendar year 1916 were very satisfactory. Special attention is given to typhoid fever, paratyphoid, malarial fever, measles and venereal diseases; also to hookworm, lobar pneumonia and cardiovascular disease. The Army Medical School and the Surgeon-General's Library have functionated with the greatest efficiency. In the Mexican expedition the service of the Medical Department was thoroughly capable, as also in the mobilization on the border. Most of the extensive report is given over to special reports of the various departments of the Army, and of the various posts, the health of the troops, etc. The bibliography of articles written by medical officers from July 1, 1916, to June 30, 1917, indicates that as usual splendid research work is being done by Army men. A separate statement lists the articles by medical officers of the Army detailed as medical military observers abroad, but these reports are not yet available.

### CHILD LABOR IN WARRING COUNTRIES

"Protect labor if you would conserve the health of the nation" is one of the important messages that comes to this country from the depths of Europe's bitter experience. The early part of the war witnessed a breakdown of the safeguards to labor, especially to the labor of women and children, in practically every belligerent country, as well as in the neutral countries of Holland and Switzerland. So appalling have been the consequences of this policy to the health of the workers, that already the governments of England, France and Italy have taken steps to restore the protective provisions of their labor laws. New Zealand, the Canadian provinces and Australia are the only countries that have sturdily refused to lower the standards of their school attendance and child labor laws. On the contrary, such states as Manitoba and Australian Victoria have shortened the legal period of overtime since the beginning of the war. In a pamphlet on child labor in warring countries,[1] issued by the federal Children's Bureau, these facts are freely discussed, together with kindred labor conditions in Austria-Hungary, France, Germany, Great Britain, Greece, Italy, the Netherlands, Russia and Switzerland. Attention is called to the fact that the relaxation of labor standards has proceeded along three lines: 1. The hours of work have been lengthened to include night work, Sunday work and more or less overtime. 2. The age limit for children entering industry has been lowered. 3. Women and boys and girls have been employed in dangerous and heavy work in which their presence was formerly prohibited by law. As an example of the last abuse, the report cites the war legislation of Germany and Russia, where women and young persons are permitted to work underground in the coal mines. Facts are presented to show that, in most of the belligerent countries, employers have not only worked women and children beyond the pace demanded by the exigencies of war, but also in many cases, have ruthlessly exploited them for profit. Government interference was necessary, therefore, in order to check the widespread and alarming deterioration in the workers' health. These observations should prevent the United States from repeating the disastrous mistake made by the European nations.

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[1] Weaver, George H.: The Value of the Face Mask and Other Measures, The Journal A. M. A., this issue, p. 76.

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[1] Rochester, Anna: Child Labor in Warring Countries, Pub. 27, Industrial Series 4, Children's Bureau, Department of Labor, Washington, Government Printing Office, 1917.

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**The Endemic Index.**—Massachusetts, which has a decentralized form of health organization, has a system of arriving at and coping with epidemics of disease in any community, one of the features of which is an endemic index. The essentials of a satisfactory control of the communicable diseases are a satisfactory system of morbidity reports and a standard by which to judge the variation in the prevalence of any disease. The system of reporting diseases in Massachusetts, as set forth in *Public Health Reports* (Dec. 14, 1917), by State Epidemiologist Walter H. Brown, is as follows: The state department of health fixes the list of reportable diseases. Physicians and householders must report such diseases by postal card to the local authorities, and each twenty-four hours these local authorities report to the state board of health and to the state district health officer. The health administrator is furnished with a sensitive indicator of the prevalence of communicable diseases by the endemic index, which is constructed as follows: All reported cases of a given disease for a given month for the preceding five years are tabulated on sheets. These sheets indicate when an epidemic has occurred, and the total reports of cases of this epidemic are excluded from the tabulation. The remaining figures are totaled and represent the endemic occurrence of the disease, the average being the so-called endemic index. In the application of the system a card has been devised for each city and town in the state showing for each disease the daily incidence, the monthly incidence for the corresponding month of the previous year, a monthly endemic index for each disease, and a weekly and a monthly total of deaths from all diseases. As soon as any disease in any city exceeds the endemic index, the card is sent to the administrator, who at once takes the proper administrative action.

# Medical Mobilization and the War

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*"We entered this war because violations of right had occurred which touched us to the quick and made the life of our own people impossible unless they were corrected and the world secured once for all against their recurrence. What we demand in this war, therefore, is nothing peculiar to ourselves.*

*"It is that the world be made fit and safe to live in; and particularly that it be made safe for every peace-loving nation which, like our own, wishes to live its own life, determine its own institutions, be assured of justice and fair dealing by the other peoples of the world as against force and selfish aggression.*

*"All the peoples of the world are in effect partners in this interest, and for our own part we see very clearly that unless justice be done to others it will not be done to us."—The President's Address to Congress, Jan. 8, 1918.*

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## HOSPITAL TRAIN STARTS FOR FRANCE

The first of six American hospital trains, which are being built in England, for service in France, started from London for American headquarters, December 31. The train consists of sixteen cars, and was built in less than eleven weeks, at the carshops of the Midland Railway at Derby.

## COLONEL GOODWIN RETURNS TO GREAT BRITAIN

Col. T. H. Goodwin, who since last May has been in the Surgeon-General's Office in Washington, representing the British Medical Service in this country, has returned to England. During the eight months he was here, Colonel Goodwin visited medical officers' training camps and addressed medical and other society meetings in various parts of the country; thus he had become personally known to a large number of physicians. A delightful personality, an earnest, forceful speaker—one who could speak from actual experience as an army surgeon at the front—a gentleman in the best meaning of the term, Colonel Goodwin's departure will be regretted by all who knew him or who had met him. He will be succeeded by Lieut.-Col. C. K. Morgan, C. M. G.

## COUNTRY BOYS NOT PHYSICALLY SUPERIOR TO CITY BOYS

In order to determine whether the average of physical soundness is higher among country boys than among city boys, the following comparison was made: Selection was made of a typical set of cities of 40,000 to 500,000 population, with no large immigrant element, and distributed over ten different states (Alabama, Arkansas, California, Colorado, Kansas, Montana, Nebraska, New York and South Carolina), and a corresponding set of counties of the same total size, located in the same states and containing no city of 30,000 population, the total number of registrants in the two areas being 315,000. The result of the comparison was as follows: Of 35,017 registrants in urban areas, 9,969 were rejected; of 44,462 registrants in rural areas, 12,432 were rejected, or 28.47 per cent. of city boys and 27.96 per cent. of country boys. The result, therefore, was practically a tie, showing that the country boy does not possess a greater degree of the physical soundness necessary for his acceptance as a soldier.

## NEWS OF THE BASE HOSPITALS

**Base Hospital Unit No. 13**, the Presbyterian Hospital, Chicago, under the command of Lieut.-Col. Chandler Robbins, M. C., U. S. Army, and directed by Major Dean D. Lewis, has been ordered to mobilize and is awaiting orders for departure.

**Base Hospital Unit No. 26,** the University of Minnesota, has been ordered to Fort McPherson, Ga., and left, December 28, for the place. This unit is commanded by Col. Joseph H. Ford, M. C., U. S. Army, and Major Arthur A. Law, Minneapolis, as the director.

**Base Hospital Unit No. 34,** Episcopal Hospital, Philadelphia, headed by Major Astley P. C. Ashhurst, M. R. C., has reached France safely. This unit includes twenty-four physicians, sixty-five nurses and 150 enlisted men. It is equipped with four automobile ambulances and two motor trucks.

**Base Hospital Unit No. 37,** King's County, Brooklyn, organized by Major Edwin H. Fisk, M. R. C., Brooklyn, and under the command of Col. Basil H. Dutcher, M. C., U. S. Army, was ordered to mobilize at the Twenty-Third Regiment Armory, Brooklyn, January 4.

## REGULATIONS FOR ARMY NURSE CORPS MODIFIED

The immediate need of nurses for the United States Army, both for assignment to duty and for reserve, is very urgent. It is necessary to increase the enrollment nearly 1,000 per cent. to procure the 37,500 nurses needed for an army of 1,500,000. The present strength of the Army Nurse Corps is but 4,000. Two hundred and ninety nurses are still needed to bring the quotas of nurses in the hospitals at the cantonments up to the necessary minimum of 65 nurses to each hospital. The United States Army is therefore appealing to every one of the 80,000 registered and 200,000 graduate and practical nurses in the United States to volunteer their services.

### ACTIVE RESERVES

As soon as the immediate need of cantonment hospitals has been cared for, a reserve of 100 nurses will be organized for emergency service in the United States. The Lakewood Hospital at Lakewood, N. J., has been leased by the government for use as a general hospital and provisions are to be made for housing nurses there.

### MODIFICATIONS OF REQUIREMENTS

The following modifications in the requirements governing the admission of nurses to the Army Corps are announced to be in force for the period of the war: Although registered nurses are preferred, registration may be waived, and all graduate nurses who are professionally, physically, and morally qualified for service will be given consideration; the age limits which have heretofore been from 25 to 35 have been widened to include the ages between 21 and 45; nurses who have graduated from hospitals of less than 100 beds will be eligible for appointment; those already possessing white uniforms need not purchase new ones, but if new ones must be obtained, these should conform to Army specifications; not only nurses who are citizens of the United States, but those who are citizens of any of the countries of our allies, are eligible for the Army Corps; appointment may be made for three years or for the period of the war emergency only; a nurse need not be a member of the Red Cross Nurse Service.

A nurse traveling under orders is given a first-class ticket, Pullman car accommodations included, and is reimbursed for incidental traveling expenses, not to exceed $4.50 per day, for meals and tips.

Requests for information, applications and enrollment should be made to the Surgeon-General, U. S. Army—attention of Superintendent, Army Nurse Corps, Mills Building, Washington, D. C., or to the Director, American Red Cross Nurse Service, Washington, D. C.

## ZONE SANITATION FOR CAMP SHELBY

In *Public Health Reports*, Dec. 21, 1917, Passed Asst. Surg. J. A. Watkins gives an account of the establishment and organization of zone sanitation in the region about Camp Shelby, near Hattiesburg, Miss. The area of the extracantonment zone comprises fourteen of the southernmost counties of the state with an estimated population of 239,000. For administrative purposes this area is divided into three zones. The first comprises an area surrounding the camp site not less than 1 mile wide at any point; the second, an area surrounding the first of approximately 20 miles, and the third, the remainder of the area of the counties included in the zone. The activities of the zone organization in the third zone include sanitary regulation of production and shipment into Zone 1 of all food products, the prevalence of disease, and cooperation with the health officers of the area. The activities in Zone 2 are the same as those in Zone 3, but closer attention is given to all matters, especially with reference to communicable diseases, surveys being made of all communities in the area as far as relates to the health of the troops, information of which is communicated to the military authorities. In Zone 1, every branch of health activity is being prosecuted intensively. The sanitary conditions of the whole area and the health organizations, including those of the city of Hattiesburg, the largest town in the area, were in a very backward condition, and improvement involved an immense amount of work, including the reorganization of health departments, the amendment of health ordinances, and the obtaining of increased appropriations, the cooperation of the people of all the communities, as well as of the established health organizations, being obtained after a campaign of education. Much of this work, of course, centered about Hattiesburg, where, among the things requiring attention, were the disposal of human excreta, milk and meat problems, the handling of foodstuffs, the manufacture of ice cream and other milk products, soft drink bottling, garbage disposition, water supply, health organization, the reporting of diseases, and special sanitary problems, such as the establishment of civilian labor camps, the strain placed on public utilities on account of the great influx of people into communities not prepared to receive them, the scarcity of labor and materials, etc. The report says that not the least of the problems to be solved was the lack of a general public sentiment in favor of better health conditions, and the absence of knowledge on the part of the community as to the necessity for the acquisition and maintenance of a rigid control and for the adoption of measures for the prevention of the spread of communicable diseases. Malaria presented a distinct and formidable problem, as conditions throughout the whole area, including that close to the camp site, were extremely favorable to the propagation of malaria, which was present. In Forrest County, the location of the camp and of Hattiesburg, the case rate for malaria in 1914, 1915 and 1916 was respectively, 81.90, 101.85 and 99.049 per thousand of population. The report of the engineer of the Public Health Service on the location and establishment of the camp was that "the situation is serious. . . . The topography of the zone is such as to offer abundant opportunity for the breeding of mosquitoes." *Anopheles* was found in abundance. The work involved tremendous labor in draining, filling and oiling breeding areas. Over 60 miles of ditches were dug, and more than fifty swamps of various sizes were drained. The sanitary work of the zones includes, of course, many other subjects, not the least of which is the control of venereal diseases. All of these subjects have received proper consideration, and with the aroused cooperation of the local authorities and the people, good sanitary order is being brought about.

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Dec. 28, 1917

1. Annual admission rate per 1,000 all troops in U. S. (disease only) .......... 1,280.4
   Noneffective rate per 1,000 on day of report .......... 39.2
2. National Guard Camps—
   Admission rate per 1,000 all divisions (disease only) .......... 1,247.8
   Noneffective rate per 1,000 on day of report .......... 46.6

   Divisions showing admission rate for diseases higher than average: Camps Wheeler, Doniphan, Beauregard, Cody, Shelby and Kearny.

   Divisions showing noneffective rates higher than average: Camps Wheeler, Beauregard, Kearny, Shelby, Doniphan, Bowie, Cody and MacArthur.
3. National Army Camps—
   Annual admission rate per 1,000 all divisions (disease only) 1,465.8
   Noneffective rate per 1,000 on day of report (all divisions) .. 41.2

   Divisions showing admission rate for disease higher than average: Camps Travis, Pike, Funston, Lee, Dodge and Zachary Taylor.

   Divisions showing noneffective rate higher than average: Camps Funston, Pike, Lee, Travis, Zachary Taylor, Dodge, Lewis and Jackson.
4. Venereal Diseases—
   Annual admission rate Regulars in United States .......... 82.3
   Annual admission rate National Guard (Divisions in U. S.) .. 43.8
   Annual admission rate National Army (Divisions in U. S.) .. 67.1

   National Guard Divisions having rate above average: Camps Wadsworth, Logan, Wheeler, Doniphan, MacArthur and Cody.

   National Army Divisions having rate above average: Camps Pike, Dodge and Jackson.
5. Number of cases of pneumonia .......... 693
   Highest number in any one Division (34th) .......... 78
   Number of cases of meningitis .......... 93
   Highest number in any one Division (81st) .......... 30

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING DEC. 28, 1917

| Divisions | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffective per 1,000 on day of report |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 27th, Wadsworth... | 12 | ... | ... | 70 | .. | .. | ... | .. | .. | 1 | 32.4 |
| 28th, Hancock...... | 3 | ... | ... | 18 | .. | .. | ... | .. | .. | 0 | 22.0 |
| 29th, McClellan..... | 13 | ... | ... | 16 | .. | .. | 30 | 1 | .. | 4 | 30.1 |
| 30th, Sevier......... | 12 | ... | 1 | 2 | .. | .. | 10 | 1 | .. | 8 | 26.8 |
| 31st, Wheeler........ | 30 | ... | 3 | 25 | .. | .. | 2 | 1 | .. | 15 | 81.8 |
| 32d, MacArthur.... | 8 | ... | ... | 31 | .. | .. | 41 | 1 | 20 | 0 | 46.8 |
| 33d, Logan........ | 3 | ... | ... | 51 | .. | .. | 64 | 2 | .. | 0 | 57.0 |
| 34th, Cody.......... | 78 | ... | ... | 18 | .. | .. | 47 | .. | 1 | 11 | 52.3 |
| 35th, Doniphan..... | 20 | ... | ... | 26 | .. | .. | 228 | 12 | 2 | 4 | 58.1 |
| 36th, Bowie......... | 53 | ... | 1 | 19 | .. | .. | 2 | 3 | .. | 15 | 54.3 |
| 37th, Sheridan...... | 4 | ... | ... | 4 | .. | .. | 15 | .. | .. | 2 | 17.5 |
| 38th, Shelby........ | 20 | 1 | 2 | 16 | .. | .. | 11 | 1 | .. | 13 | 58.3 |
| 39th, Beauregard... | 17 | ... | 3 | 11 | .. | .. | 1 | 7 | .. | 18 | 81.0 |
| 40th, Kearny........ | 29 | ... | ... | 1 | .. | .. | 122 | 2 | 21 | 17 | 73.8 |
| 76th, Devens........ | 6 | ... | ... | 17 | .. | .. | 38 | 1 | 1 | 0 | 26.9 |
| 77th, Upton........ | 7 | ... | ... | 7 | .. | .. | 2 | .. | 1 | 0 | 19.4 |
| 78th, Dix............ | ... | ... | ... | ... | .. | .. | ... | .. | .. | 2 | 28.0 |
| 79th, Meade......... | 5 | ... | ... | 21 | .. | 1 | 50 | 3 | .. | 0 | 21.9 |
| 80th, Lee............ | 18 | ... | 1 | 39 | .. | .. | 123 | 1 | .. | 6 | 56.8 |
| 81st, Jackson....... | 6 | 1 | 1 | 33 | .. | .. | 25 | 30 | .. | 17 | 47.3 |
| 82d, Gordon....... | 26 | ... | ... | 13 | .. | .. | 169 | 5 | .. | 6 | 36.2 |
| 83d, Sherman...... | 4 | ... | ... | 16 | .. | .. | 22 | .. | 2 | 2 | 27.3 |
| 84th, Taylor........ | 33 | ... | ... | 13 | .. | .. | 96 | .. | .. | 8 | 55.2 |
| 85th, Custer........ | 1 | ... | ... | 5 | .. | .. | 22 | .. | 1 | 0 | 21.8 |
| 86th, Grant......... | 6 | ... | ... | 12 | .. | .. | 19 | .. | .. | 0 | 20.8 |
| 87th, Pike........... | 67 | ... | ... | 253 | .. | .. | 504 | 3 | 25 | 33 | 64.8 |
| 88th, Dodge......... | 10 | ... | ... | 43 | .. | .. | 48 | 2 | 4 | 3 | 48.4 |
| 89th, Funston...... | 6 | ... | ... | 9 | .. | .. | 338 | 5 | .. | 12 | 72.1 |
| 90th, Travis........ | 63 | ... | ... | 25 | .. | .. | 81 | 9 | .. | 13 | 55.7 |
| 91st, Lewis......... | 1 | ... | ... | 28 | .. | .. | 248* | 1 | 27 | 1 | 48.5 |

* German measles.

7. ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

| | Regulars, U. S. Army, In U. S. only, 1916* | Regulars in U. S., Week Ending Dec. 28, 1917 | National Guard, All Camps, Week Ending Dec. 28, 1917 | National Army, All Camps, Week Ending Dec. 28, 1917 | American Expeditionary Forces, Week Ending Dec. 28, 1917 |
|---|---|---|---|---|---|
| Pneumonia............ | 2.59 | 14.4 | 47.1 | 33.0 | 21.4 |
| Dysentery............ | 3.97 | 0.0 | 0.1 | 0.1 | 1.6 |
| Malaria............... | 12.52 | 0.0 | 1.7 | 0.2 | 0.0 |
| Venereal............. | 91.23 | 82.3 | 43.8 | 67.1 | 74.8 |
| Paratyphoid.......... | 0.31 | 0.0 | 0.0 | 0.0 | 0.0 |
| Typhoid.............. | 0.21 | 0.5 | 0.0 | 0.1 | 0.3 |
| Measles.............. | 20.28 | 66.5 | 81.5 | 189.5 | 43.9 |
| Meningitis............ | 0.29 | 1.1 | 4.4 | 7.4 | 5.0 |
| Scarlet fever.......... | 0.59 | 2.2 | 6.2 | 7.5 | 6.7 |

* Enlisted men only, both white and colored.

## NEWS OF THE CANTONMENTS

### Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Dec. 29, 1917.

It has been found that some patients with epidemic cerebrospinal meningitis do well on a particular strain of injected organism and others on a different preparation, but it is difficult to cultivate the strains.

Captain Stone, division gas instructor, is scheduled to give an address on "The History of the Prostitute" the second Friday evening of January at a meeting of the surgeons of the division, to which are invited as guests the members of the Richmond County Medical Society and surgeons of the base hospital.

A field day has been planned at which the hospital corps men of the various units will compete in litter drill and first aid contests.

PERSONAL

Announcement is made of the birth of a son to Dr. and Mrs. George J. Jacquin.——Dr. George M. Laws recently left the base hospital to join the University of Pennsylvania Unit.——Dr. Parkinson has just returned from an interesting course at the Rockefeller Institute.

### Thirty-First Division, Camp Wheeler, Macon, Ga.

Jan. 5, 1918.

The pneumonia epidemic at Camp Wheeler is at an end. A few cases come in and will probably continue to come throughout the winter. It is an interesting fact that there were three times as many cases proportionately among the Florida troops as among those from Alabama and Georgia. Furthermore, there were ten times as many among those of less than eight months' service as among those of over eight months' service. Almost 50 per cent. of all cases followed measles, and in these, almost 30 per cent. of the patients died.

The measles epidemic came to an end before the pneumonia. There is now a case every few days. Three thousand cases made up the total.

MUMPS

Mumps is the principal disease of the camp at present. On some days there are more than 100 admissions, and between 600 and 700 cases are in the hospital. What the grand total will be cannot be estimated. It now appears that there are more men not immune to mumps than there were not immune to measles. There is general opinion that if all the draft men could have been put in camp during the summer and allowed to have measles when there was no danger of pneumonia complications, such a course would have saved many lives in this camp.

With the arrival of ample warm clothing, tents and equipment generally, and the greatly improved conditions of sanitation and health, it is hoped that the ban on the arrival of new men at the camp will soon be removed, so that the division may be filled up to war strength. It is evident that we cannot go until it is filled up. It is the general desire of officers and men to go to the scene of actual conflict at the earliest possible date.

A few scattering cases of meningitis are found—about one each week. No case has yet been traced to any other case, although the disease has been confined to three regiments. All throats are being examined for infection in the regiments affected.

The medical officers of the Seventh Division, which follows us, are beginning to arrive in this camp, together with other detachments of that division.

The announcement that a lieutenant-colonel would be authorized to command the sanitary train has caused not a little commotion among certain majors, who would not put aside the proffered crown.

BASE HOSPITAL

The number of patients in the base hospital has been reduced considerably, and a number of nurses and medical officers there are being relieved.

ONE HUNDRED AND SIXTH SANITARY TRAIN

With the coming of the new year and a letting up on the demands on the train for details and transportation, it is hoped that a marked advance will be made in the technical training of both the ambulance and field hospital sections.

Major George F. Keenan has returned from his ten day leave of absence, spent in Boston.

Ambulance Company No. 123 has relieved Ambulance Company No. 121 on the divisional ambulance service for the month of January. Field Hospital No. 123 has relieved Field Hospital No. 122 in the management of the dispensary of the One Hundred and Sixth Sanitary Train.

Capt. Fred W. Boyd, commanding Ambulance Company No. 124, is departing on a ten day's leave of absence, and it is strongly rumored that he will come back to us a full-fledged benedick.

Lieut. Joseph B. Penniston has been transferred to Field Hospital No. 123. Lieut. William J. Stewart of this company has been transferred to Ambulance Company No. 122. This leaves the train with only four vacancies in the commissioned personnel.

As only twenty-four hour Christmas passes were issued in this division, quite a number of men decided that they needed more time at home and remained A. W. O. L. It is pleasing to note that in the published order showing the A. W. O. L.'s in each organization, the One Hundred and Sixth Sanitary Train was lowest in the division, there being only five A. W. O. L.'s in the ambulance section and none in the hospital section.

### Thirty-Third Division, Camp Logan, Houston, Texas

Dec. 28, 1917.

Camp Logan, in which the Illinois contingent of the federalized National Guard is encamped, is exceeded in size by only three or four of the thirty-two great training camps.

We have been fortunate in our situation so far as the cold weather is concerned. Our lowest temperature thus far has been 24 F., and we have seen frost only three or four times. Before our stoves were put up we suffered from the cold in a mild way, but have been fairly comfortable since.

### PERSONAL

Our division surgeon is Lieut.-Col. L. M. Hathaway, and the commanding officer of our base hospital, Major J. M. Willis, both of the Medical Corps of the Regular Army. Most of the other medical officers belong to the Medical Reserve Corps and Medical Corps of the National Guard.——Major Gustavus M. Bloch has been giving the medical officers a most interesting and practical course of instruction on military map making.——Capt. Robert J. Gay has been recently promoted to the rank of major, taking the place in the One Hundred and Twenty-Second Field Artillery made vacant by the transfer of Major Harry D. Orr to the position of director of ambulance companies of the division.——On the resignation of Major William J. Swift, director of field hospitals, Major E. G. Clancy, commander of the Second Field Hospital, has succeeded to his position.——We have at least three marriages to note among our younger medical officers, Lieuts. Claude Weldy, Norman Zolla and W. L. Blomgren being the fortunate ones.

### BASE HOSPITAL

In our base hospital we have about 900 patients, with only a small percentage of serious cases. We have so far escaped any notable outbreaks of pneumonia, measles or cerebrospinal meningitis, which have been so frequently noted at some of the southern camps.

One of the most interesting activities is the Camp Logan Medical Society, organized as soon as the medical men began to gather, by the commanding officer of the base hospital, Major J. M. Mills. The society meets at the hospital weekly, and a great many interesting clinical cases are presented with the usual society program.

### CAUSES FOR REJECTION

From a scientific standpoint, the most interesting study in the camp has been that of the causes for the rejection of soldiers sent before the surgeon's certificate of disability board (S. C. D. Board) to determine their fitness or otherwise for service. One of the important duties on the organization of any military force is the weeding out of the unfits. For months our board, consisting of Major John H. Blackburn, chief of surgical service; Major J. N. Hall, chief of medical service, and Lieut. T. R. Knowles, surgical service, base hospital, has met daily. The regular current of disabilities has been reinforced at certain intervals by waves of some certain type, as the candidates broke down in their training.

First of such waves came the asthmatics. With the vigorous exercise of the training and the inhalation of the dust inevitable in the new camps in a dry season, these men contracted a bronchitis, generally with the classical signs of the affection, and shortly asthmatic attacks supervened. A family history of the disease was generally obtainable. These men were of no value in the service.

Next the cardiac group appeared, and in fairly regular sequence. The boys with well marked aortic regurgitation broke at once, and the trouble was so obvious that they were sent in promptly. Almost as soon came those suffering with advanced mitral stenosis. I had never before seen a clinic in which this valvular affection was encountered more frequently than mitral regurgitation. The latter is more generally recognized by its physical signs, by the profession everywhere, and obviously the men more seriously affected were thrown out before enlistment. After some weeks, as the heart "broke" under the strain, the decompensated cases came before us.

When target shooting began we saw a wave of men with defective vision, and with the bayonet practice, jumping, etc., another of hernia. At this time flatfoot, hammer toes and other foot troubles were at the height of their run. Flatfoot is said to occur in from 5 to 10 per cent. of the men in all armies, being most common in the people of Central Europe, where the 10 per cent. figure is accepted. It is certainly a trial to the army surgeon.

Our present worry is with the cases of hyperthyroidism, of which we see several in a day. It seems that violent exercise must bring out the latent cases or else that this trouble is especially common in the men of Illinois. A comparison with figures from other cantonments will be most interesting. Lieut. J. H. Brown, our cardiovascular referee, is anxiously awaiting an opportunity to see what such a comparison will reveal

Defective hearing has been one of the most frequent causes for dismissal, especially in association with suppurative otitis media. The number of cases of fracture with deformity, notably at the elbow, and synovitis of the knee, has been a source of surprise to us.

In the main we have a fine body of men in the camp, and the proportion of rejected will not be extremely unfavorable.

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## Eighty-Third Division, Camp Sherman, Chillicothe, Ohio

Dec. 31, 1917.

On Friday, December 7, the blizzard set in at Camp Sherman with a fall of snow of about 10 inches and a drop in temperature to — 15 F. The succeeding ten days found the mercury level moving between — 15 and 20 F. Following this weather change there has been an increase of diseases of the respiratory tract. To date there have been fifty-two cases of pneumonia, thirty cases of measles and thirteen cases of epidemic meningitis.

A comparison of the noneffective rate from all causes in different groups of Army camps and Camp Sherman is most interesting: National Guard camps, 43.9; all camps, 37.4; National Army camps, 32.5; Camp Sherman, 26.8. To date there have been twenty-two deaths. The noneffective rate from venereal disease is 36.

Among the soldiers returning from target practice at Camp Perry there were a few with frost-bitten fingers, ears and toes, but there was no serious damage from cold.

Among sanitary changes worthy of note is one that cooks and bakers and those handling food shall manicure their nails and keep their hands clean; another that men in barracks shall sleep with head and feet alternating with those in adjacent cots, thus permitting 5 foot intervals between heads; and lastly there shall be not less than 50 square feet of floor space for each man sleeping in barracks.

### COMMUNITY CENTER

Responding to the efforts of Major General Gleen, the Ohio Red Cross, the Daughters of the American Revolution, the Young Women's Christian Association and the Commission on Training Camp Activities have made possible the building of a group of buildings to serve as a "community center." The center main building is in the form of a cross-shaped bungalow building 200 feet in length in the arms. The building faces a large open park or plaza looking toward the east. The low spread-out effect is relieved somewhat by a low central pyramidal tower. The broad veranda, carried three quarters of the way about the house, gives promise of comfort and sociability. The entrance in the east end of the cross opens into a foyer with the desk on the left and check rooms on the right. Opposite in the west end is a large fireplace and reading room, and conversation facilities. The south end has the dining room and the north has a stage, while the center has a high rotunda effect with galleries on three sides giving a view of the stage. To the north and east is the lodge built by the D. A. R., while directly to the north is the house built by the Masons of Ohio. To the southeast opposite the D. A. R. building, and facing northward across the intervening plaza, is the building erected by the Y. M. C. A. When completed, there will be accommodations for 700 guests. The rates will be very low.

Colonel Roosevelt, when visiting the camp recently, seemed greatly impressed, and expressed his admiration of the opportunities for the cultivation of the true democratic spirit in this beautiful and serviceable group of buildings.

At another central location is a large theater building with a seating capacity of 3,000.

### PERSONAL

The most important social event of the season will be the marriage of the daughter of General Glenn, Miss Edwina Glenn, to Capt. James A. Garfield of the Artillery on New Year's eve.

Major Dudley DeV. Roberts has been relieved from duty at the base hospital and assigned to the Medical Service at the U. S. General Hospital No. 1, New York.

Major Roger Morris, having completed his duties here, has returned to Cincinnati to continue his duties there as professor of medicine in the medical school.

Dr. Alfred Friedlander has been commissioned as major in the Medical Reserve Corps and assigned as chief of the medical service.

Capt. Malcolm Douglas has been ordered to join the Red Cross Unit Base Hospital at Albany, N. Y., his home city.

The special board for examination of the command for cardiovascular and pulmonary diseases has completed more than half its work. It has discovered only about 0.25 per cent. of pulmonary cases previously overlooked.

Among recent promotions are those from captains to majors: W. F. Marting, F. A. Rupp, R. S. Hooker, H. J. Repman, E. Van Camp and R. H. Halsey.

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### Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Dec. 31, 1917.

It has been surprising to find the frequency of empyema complicating pneumonias at Camp Zachary Taylor. So frequent has this been found at the base hospital that an exploratory paracentesis is done in all the pneumonias, as physical findings do not show the effusion in many cases. Rib resections have usually been done, and with high mortality.

#### CAMP SUPPLIES

This camp seems to be one of the few which is equipped with sufficient supplies for the last of the first quota, and these are expected here by January 15. The general staff states they have been notified to be ready at any time, though no definite date has been set.

#### MEDICAL SCHOOL

The School of Hygiene and Sanitation continues to hold its regular sessions, with about eighty-five medical officers constantly in attendance. A school has also been organized at the base hospital which it is hoped each medical officer may be able to attend.

Among the lectures given at Camp Taylor in the School for Hygiene and Sanitation were "The Army Ration, Cooking and Baking," and "Disposal of Liquid and Waste Products."

A compulsory course of lectures on venereal diseases has been carried on by Dr. Chenoweth for the drafted men. Three thousand men attended these lectures.

Orders have been issued, on recommendation of the division surgeon, that no furlough or pass be given any man who has any venereal infection. This will add materially toward stopping the spread of this scourge.

Colonel Allen reports that at Camp Zachary Taylor, there is no suffering from lack of supplies, food, clothing, heavy underwear or fuel. Men are universally taking on weight. One company, the Three Hundred and Thirty-Third Ambulance Company, of 120 men, has gained just 1 ton in weight since being in camp. The average gain of weight for men in camp is 10 to 20 pounds.

Measles have been found among the soldiers at the remount station, Three Hundred and Thirty-Third and Three Hundred and Ninth Infantry. These commands are in quarantine.

#### BASE HOSPITAL

At the base hospital the cubicle treatment will be applied in each of the general medical wards. Wires have been strung across the wards on which sheets will be hung between the beds of those suffering from communicable diseases. The sheets will not be used except in those wards in which cases are confined, capable of transmitting bacteria to their neighbor.

At the base hospital there are 933 cases; in the medical service of twenty-one wards, an average of thirty to the ward.

One case of varioloid has developed in a drafted man who was vaccinated two months ago. Within twenty-four hours every civilian about the camp was vaccinated, newspaper men, laborers, telephone workers and operators.

At the base hospital there are 52 cases of pneumonia, 3 new this week; 326 measles, 4 new; 24 cases mumps; 11 cases meningitis; 3 meningitis carriers; 17 erysipelas; 2 German measles; 1 typhoid fever case. There were two deaths from bronchopneumonia.

With 185 under treatment in quarters and 933 in the base hospital there is a grand total under treatment of 1,118 medical cases.

One hundred and three cases of venereal disease are at the base hospital; 9.19 per cent. of all sickness is venereal; venereal prophylaxis was given in thirty-six cases.

The percentage of sickness to the entire command is 4.54 total, 4.21 less wounds and injuries.

#### PERSONALS

Major Blair from the Surgeon-General's Office at Washington inspected the surgical department of the base hospital. ——Capt. John W. Price, M. R. C., is away on a furlough following his marriage, December 27, to Miss Barbara Atwood of Louisville.

### Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

Jan. 1, 1918.

In previous letters, we have spoken of the isolation camp that has been instituted in this division. At first, whenever a case of measles, meningitis, mumps or scarlet fever broke out, the patient was promptly isolated, and the entire company was sent to the isolation camp. At this camp, they kept on with their regular routine work, and were carefully watched for the outbreak of fresh cases; and in the case of meningitis contacts, cultures were invariably made for carriers as well. This plan has not proved feasible. In its place a new plan has been instituted, which consists of sending only proved contacts to the camp and the two men who have been sleeping on either side of the patient. This plan has worked out satisfactorily, and is the one at present in use.

In addition to the isolation camp, a detention camp has been built, and all men returning to Camp Funstion from their holiday vacations are to be kept there for a period of three weeks. This should aid in effectually preventing new cases of infectious disease from being carried into the camp by these men.

#### LAUNDRY

An extremely large government laundry has been built here, and is in operation. In it, all the laundry of the camp is cared for. It is run by civilian employees. A supposed case of smallpox among these employees caused quite a furor for a few hours, but it turned out to be only chickenpox. Since that time, all of these employees have been vaccinated against smallpox and paratyphoid and typhoid fevers.

#### PERSONAL

Lieut.-Col. Frank Weed, M. C., has been relieved as division sanitary inspector, and his place has been taken by Capt. Frank L. Morse, M. R. C., who came here from Washington. Colonel Weed will proceed to Washington for duty at once. ——The following promotions have occurred in the Medical Reserve Corps, Eighty-Ninth Division, since the last letter: From Lieutenant, M. R. C., to Captain, M. R. C., Albert G. Bower, William Chris Finoff, Theodore Henry Koefoot and Herbert Spencer Valentine.

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## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To New York City*, for instruction, and on completion *to his proper station*, Major CHARLES P. BRADY, Lieuts. CARL J. CUBBISON, HOMER E. HALFORTY, A. J. LOGIE.

*To Philadelphia, Pa.*, for instruction, and on completion *to their proper stations*, Lieuts. JOSEPH J. FERNER, T. H. SNOWWHITE.

*To New York City*, for instruction, and on completion *to their proper stations*, Lieuts. ALFRED F. COMPTON, JOHN J. LYNCH.

*To Camp Travis*, Fort Sam Houston, Texas, *Camp Bowie*, Fort Worth, Texas, *Camp Shelby*, Hattiesburg, Miss., *Camp Jackson*, Columbia, S. C., and such other places as may be necessary to inspect, and on completion *to his proper station*, Col. PERCY M. ASHBURN.

*To Colfax, Iowa*, to inspect properties offered as sites for hospitals, and on completion *to his proper station*, Lieut.-Col. ERNEST G. BINGHAM.

*To Washington, D. C.*, and report in person to the Surgeon-General of the Army for consultation, and on completion *to his proper station*, Col. DAVID BAKER.

*To Camp McClellan*, Anniston, Ala., for duty as division surgeon, Major PAUL L. FREEMAN.

*To Washington, D. C.*, for duty in the Surgeon-General's Office, Lieut.-Col. FRANK W. WEED.

*To Camp Dodge*, Des Moines, Iowa, for duty, Lieut. ARTHUR M. ALDEN.

*To Camp Logan*, Houston, Texas, base hospital, Major GEORGE A. CLOTFELTER.

*To Asheville, N. C.*, to inspect a site for a tuberculosis hospital, and on completion *to his proper station*, Major EARL H. SPANS.

*To Charleston, Columbia, S. C., Augusta, Ga.*, for duty in connection with the medical department of the Army, and on completion *to his proper station*, Col. WILLIAM C. OWEN.

*To Army Medical School*, as instructor in bacteriology, Lieut. ERIC A. FENNELL.

*To Daytona, Sebring, Tampe, Fla.*, for duty in connection with the medical department of the Army, and on completion *to his proper station*, Lieut.-Col. JOSEPH Y. PORTER, Major EDGAR KING.

*To Lakewood, N. J.*, for duty, Major FELIX R. HILL.

*To Camp Fremont*, Palo Alto, Calif., for duty as division surgeon, Lieut.-Col. LLOYD L. SMITH.

*To Washington, D. C.*, for duty in the Surgeon-General's Office, Major EDGAR C. JONES.

*To Camp McArthur*, Waco, Texas, for duty, Lieut. PLACIDO R. V. HOMMEL.

*To Hoboken, N. J.*, to inspect Hospital Train No. 1, and on completion *to his proper station*, Major WILLIAM L. HART.

*To Camp Lee*, Petersburg, Va., for duty, Lieut. ARTHUR M. ALDEN.

*To Ottawa, Canada,* to inspect the Canadian hospital cars and trains, and on completion *to his proper station,* Major WILLIAM L. HART.

*To Washington, D. C.,* and report in person to the Surgeon-General of the Army for consultation, and on completion *to Edgewood, Md.,* for duty in connection with the establishment of a hospital, Major GLENN K. JONES.

*To Camp Beauregard, La.,* to be inducted into federal service and assigned to duty, Lieut. JOSEPH R. SMITH.

*To Fort Rosecrans, Calif.,* for duty, Major SWIFT.

*To Camp Sherman,* Chillicothe, Ohio, to give instruction, and on completion *to his proper station,* Col. THOMAS H. GOODWIN.

*To Fort Sill, Okla.,* for commanding U. S. Army General Hospital, Col. FRANK R. KEEFER.

*To Fort Oglethorpe,* for duty as commanding officer, Evacuation Hospital No. 8, Lieut.-Col. JAMES F. HALL.

*To Fort Riley,* as commanding officer of Evacuation Hospital No. 12, Lieut.-Col. HORACE D. BLOOMBERGH.

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## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Army Medical School,* Washington, D. C., for duty, from New York City, Lieut. JOHN D. DICKSON, Birmingham.

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. ROBERT B. DODSON, Grand Bay.

*To Charleston, S. C.,* 61st Artillery, from Fort Oglethorpe, Lieut. RAYFORD HODGES, Woodville.

*To Fort Leavenworth, Kans.,* for duty, from Fort Oglethorpe, Lieut. LEROY H. WOODRUFF, Anniston.

*To Fort Oglethorpe,* Evacuation Hospital No. 8, from Fort Oglethorpe, Lieut. JULIUS W. McCALL, Montgomery. For instruction, Lieuts. JAMES H. BLUE, CARL A. HARRIS, Bessemer; THOMAS C. SAVAGE, Demopolis; JAMES E. WHITE, Detroit.

*To Philadelphia, Pa.,* University of Pennsylvania, for instruction, Lieut. LONNIE W. GROVE, Tuscaloosa.

*To Rochester, Minn.,* for instruction, and on completion *to his proper station,* from Camp Sheridan, Lieut. THOMAS B. HUBBARD, Montgomery.

*To San Antonio, Tex.,* Kelly Field, for duty, Lieut. ROBERT B. PRYOR, Sprott.

*To South San Antonio, Texas,* for duty, Capt. ALFRED P. WEBB, Atmore.

### Arizona

*To Fort Riley,* for instruction, Lieut. ISAAC L. GARRISON, Phoenix.

*To Fort Sam Houston, Texas,* Department Laboratory, Lieut. MARTIN R. REIBER, Tereva.

### Arkansas

*To Camp Pike,* Little Rock, Ark., for duty, from Fort Riley, Lieuts. HUGH L. RAINES, Bay; WILLIAM W. MARTIN, Martinsville.

*To Fort Oglethorpe,* for instruction, Lieuts. RUPERT N. BLAKELY, Coal Hill; CARL S. BUNGART, Fort Smith, Hospital Train No. 35, from Fort Oglethorpe; Lieuts. WILLIAM B. CENTER, Garland; SHEROD A. DRENNEN, Rush.

*To Fort Sam Houston, Texas,* for assignment to duty, from Fort Oglethorpe, Lieuts. EVERETT N. LIPE, Scranton; MARTIN V. B. WADDLE, Success.

*To Philadelphia, Pa.,* University of Pennsylvania, for instruction, HORACE P. ROUTH, Little Rock.

*To Rochester, Minn.,* for instruction, and on completion *to his proper station,* from Camp Grant, Lieut. CHARLES W. HALL, Greenwood.

*To South San Antonio, Texas,* for duty, Lieut. WILLIAM R. RAYNIE, Haynes.

### California

*To Camp Dix,* Wrightstown, N. J., for duty, from Allentown, Pa., Lieut. FRANK E. McCULLOUGH, Lincoln.

*To Camp Kearny,* Linda Vista, Calif., for temporary duty in his specialty, Capt. THOMAS J. ORBISON, Los Angeles; for duty, Lieuts. GEORGE D. TROUTMAN, Los Angeles; RALPH W. AVERY, South Pasadena; WILLIAM R. REEVES, Spreckles.

*To Lakewood, N. J.,* for duty, from Fort Oglethorpe, Lieut. FRANK M. MILLER, San Francisco.

*To Los Angeles, Calif.,* for duty, Lieut. CHARLES G. STIVERS, Los Angeles; as a member of examining board and recruiting officer, from San Diego, Calif., Lieut. ARTHUR N. BOBBITT, San Diego.

*To report by telegraph to the Commanding General, Western Department,* for assignment to duty, Lieut. CHARLES PIUS, Montague.

*To report in person to the Commanding General, Western Department,* for assignment to duty, Lieut. JAMES M. SMITHWICK, San Francisco.

*To his home* and honorably discharged, Major JOHN J. KYLE, Los Angeles; Lieut. WALTER I. SUNBURNT, Sacramento.

### Colorado

*To Fort Riley,* for instruction, Lieut. CYRUS W. POLEY, Boulder.

*To Rockefeller Institute, New York,* for instruction in laboratory work, from Fort Oglethorpe, Lieut. ARTHUR W. STAHL, Denver.

### Connecticut

*To Army Medical School,* Washington, D. C., for duty, from New York City, Lieut. WILLIAM M. STAHL, Danbury.

*To Camp Lee,* Petersburg, Va., for duty, from Fort Oglethorpe, Capt. ROBERT E. PERDUE, South Norwalk.

*To Fort Leavenworth, Kansas,* to examine the command for mental and nervous diseases, from New York City, Lieut. HAROLD A. BANCROFT, Hartford.

*To Fort Oglethorpe,* for instruction, Capt. CHARLES J. LEVERTY, Bridgeport; Lieut. WALTER L. BARBER, Jr., Waterbury.

*To Hoboken, N. J.,* for duty, from Camp Mills, Capt. NELSON L. DEMING, Litchfield.

*To Rockefeller Institute, New York,* for instruction in laboratory work, from Fort Oglethorpe, Lieut. JACQUES H. GREEN, Waterbury.

*To his home* and honorably discharged on account of being physically disqualified for active service, Capt. G. WIGHT, Bethel.

### Delaware

*To Fort Oglethorpe,* for instruction, Lieut. WILLIAM R. PIERCE, Milford.

*To Philadelphia, Pa.,* University of Pennsylvania, for instruction, Lieut. EDWIN H. LENDERMAN, Wilmington.

### District of Columbia

*To Fort Oglethorpe,* for instruction, Lieut. LANE B. KLINE, Washington.

*To New York City,* to inspect roentgen-ray equipment, and on completion *to his proper station,* Major ARTHUR C. CHRISTIE, Washington.

### Florida

*To Fort Oglethorpe,* for instruction, Capt. HENRY C. DOZIER, Ocala; Lieut. JACOB J. SPENCER, St. Augustine.

*To Fort Sam Houston, Texas,* for assignment to duty, from Fort Oglethorpe, Capt. THOMAS A. NEAL, Sanford.

### Georgia

*To Army Medical School,* Washington, D. C., for duty, Lieut. ERNEST B. SAYO, Milledgeville.

*To Camp Gordon,* Atlanta, Ga., base hospital, from Philadelphia, Major FRANK E. BOLAND and Capt. CHARLES E. DOWMAN, Atlanta.

*To Camp Hancock,* Augusta, Ga., base hospital, Lieut. FRANCIS C. NESBIT, Norcross.

*To Camp Lee,* Petersburg, Va., base hospital, Capt. EDWARD M. COLEMAN, Athens.

*To Fort Oglethorpe,* for instruction, Lieuts. JOHN B. FITTS, HENRY C. SAULS, Atlanta; HENRY J. PARVY, JR., Byron; JAMES P. McGEE, Dahlonega; JAMES A. PRICE, Experiment.

*To Fort Totten, New York,* Fifty-Eighth Artillery Regiment, from Fort Oglethorpe, Lieut. ROBERT F. McLEOD, Pineview.

*To New Orleans, La.,* for instruction, and on completion *to Fort Oglethorpe,* for instruction, Lieut. JOSEPH R. BARFIELD, Atlanta.

*To South San Antonio, Texas,* for duty, Capt. CLINTON R. RINER, Summit; Lieuts. LEO W. WIGGINS, Atlanta; WILLIAM D. SLOAN, Valdosta.

### Idaho

*To Camp Lewis,* American Lake, Wash., base hospital, Lieut. ONES F. PAGE, Sandpoint.

*To South San Antonio, Texas,* for duty, Lieut. AUSTIN G. BYRD, Boise.

### Illinois

*To Army Medical School,* Washington, D. C., for duty, Lieut. BURREL O. RAULSTON, Chicago; from New York City, Lieuts. JOHN HRABIK, Murphysboro; THOMAS R. MAXWELL, New Berlin.

*To Boston, Mass.,* Fifty-Fifth Artillery Regiment to be organized in the Coast Defenses of Boston, from Fort Oglethorpe, Lieut. JOHN G. HANSEN, Wyoming.

*To Camp Fremont,* Palo Alto, Calif., as assistant to division surgeon, from Fort Riley, Lieut. FRANK M. BARKER, Waukegan.

*To Camp Greene,* Charlotte, N. C., Fifty-Eighth Infantry, from Fort Oglethorpe, Capt. WALTER VERITY, Chicago.

*To Camp Hancock,* Augusta, Ga., base hospital, Major ALBERT E. HALSTEAD, Chicago.

*To Camp Jackson,* Columbia, S. C., base hospital, from Philadelphia, Capt. THOMAS E. CHERRY, Cowden.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., to examine the troops for nervous and mental diseases, from Washington, D. C., Lieut. WALTER A. FORD, Kankakee.

*To Camp Lee, Petersburg, Va.,* for duty, from Fort Oglethorpe, Lieut. ALONZA W. SAUNDERS, Chicago.

*To Camp Meade,* Admiral, Md., for duty, from Fort Oglethorpe, Lieuts. FRANK T. DUFFY, Chicago; RALPH A. CLARIGE, Kaneville.

*To Camp Sevier,* Greenville, S. C., for duty, Capt. ARTHUR F. STOTTZ, Galesburg; Lieut. ALFRED A. WILKANDER, Rockford.

*To Camp Wheeler,* Macon, Ga., base hospital, from Philadelphia, Capt. CHARLES J. SWAN, Chicago.

*To Charleston, S. C.,* Sixty-First Artillery, from Fort Oglethorpe, Lieut. HARRY E. WILSON, Centralia.

*To Chicago, Ill.,* to examine applicants for appointment in the Officers' Reserve Corps, Major EDMOND J. DOERING, Chicago.

*To Fort Oglethorpe,* for instruction, Capt. ROBERT T. GILLMORE, Chicago; Lieuts. ALEXANDER W. BURKE, Chicago; CHESTER W. TROWBRIDGE, Oak Park.

*To Fort Riley,* for instruction, Lieut. BERTON W. HOLE, Ashland; from Camp Dodge, Lieuts. WALTER C. BISSON, Charleston; ARTHUR W. DOWNS, Chicago; CHARLES M. COEN, Cornell.

*To Fort Sheridan, Ill.*, Hospital Train 52, Lieuts. LEON G. BRACKETT, FRANCIS J. CONROY, Chicago.

*To Lakewood, N. J.*, for duty, Major DANIEL A. K. STEELE, Chicago.

*To Rochester, Minn.*, for instruction, and on completion *to his proper station*, from Camp Gordon, Lieut. GUY A. LONGBRAKE, Galesburg; from Camp MacArthur, EUGENE Y. YOUNG, Mansfield.

*To San Antonio, Texas*, for duty, from Mineola, L. I., N. Y., Lieut. ROLLEN W. HARROD, Avon; Kelly Field, for duty, Lieut. IRVING W. STEINER, Harvey.

*To South San Antonio, Texas*, for duty, Capt. HENRY J. JURGENS, Quincy; Lieuts. HARLAN E. KISE, Chicago; JOHN E. REED, Thompsonville; from Rantoul, Lieut. RALPH G. CRESSMAN, Oglesby.

*To Waco, Texas*, for duty with aviation troops, Lieuts. ELLSWORTH J. CARROLL, Beaver Creek; WILLIAM C. WILLIAMS, Chicago.

*To his home* and honorably discharged, Capt. ROBERT G. McCARTHY, Chicago; Lieut. CLIFFORD J. SPRUCE, Chicago; on account of being physically disqualified for active service, Lieut. SHERMAN DAVIS, Chicago.

## Indiana

*To Fort Logan H. Roots, Arkansas*, for temporary duty, from St. Louis, Lieut. WARREN W. HEWINS, Evansville.

*To Fort Oglethorpe*, for instruction, Lieut. WILL C. MOORE, Summitville.

*To Fort Riley*, for instruction, Major EUGENE BUEHLER, Indianapolis; Lieut. PAUL V. LYNCH, Indianapolis.

*To Hoboken, N. J.*, for duty, from Camp Mills, Lieuts. WALLACE C. DYER, Evansville; FRANK A. BRAYTON, Indianapolis.

*To Rochester, Minn.*, Mayo Clinic, for instruction, Capt. GEORGE R. OSBORN, Laporte.

*To San Antonio, Texas*, for duty, from Mineola, L. I., N. Y., Capt. WALDO C. PARNHAM, Fort Wayne.

*To South San Antonio, Texas*, for duty, Capt. WILLIAM C. MOSS, Bunker Hill.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. THOMAS I. PADGETT, Jasonville.

## Iowa

*To Camp Fremont*, Palo Alto, Calif., for duty as sanitary inspector, from Fort Riley, Capt. RUSSELL M. YOUNG, Red Oak.

*To Charleston, S. C.*, Sixty-First Artillery, from Fort Oglethorpe, Lieut. ARTHUR C. STRONG, Burlington.

*To Edgewood, Md.*, the American Milling Plant, from Aberdeen, Md., Lieut. MILTON J. FREEMAN, Carroll.

*To Fort Sam Houston, Texas*, for assignment to duty, from Fort Oglethorpe, Lieut. ELMER A. CARBERRY, Maynard.

*To Jackson Barracks*, New Orleans, La., for duty, from Fort Oglethorpe, Lieut. CHARLES B. RENTZ, Hornick.

*To Rochester, Minn.*, for instruction, and on completion *to his proper station*, from Camp Dodge, Lieut. GERALD V. CAUGHLAN, Pacific Junction.

*To San Francisco, Calif.*, Sixty-Fifth Artillery, from Fort Riley, Capt. LEROY A. WESCOTT, Cherokee; Sixty-Second Artillery, from Fort Riley, Lieut. FRANKLIN J. DRAKE, Webster City.

*To South San Antonio, Texas*, for duty, Lieuts. MURDOCH BANNISTER, Ottumwa; OTTO J. BLESSIN, Postville.

## Kansas

*To Camp Meade*, Annapolis Jct., Md., for duty, from Fort Riley, Lieut. CASPER MIDDLEKAUFF, Hays.

*To Camp Pike*, Little Rock, Ark., for duty, from Fort Riley, Lieut. ALEXANDER P. WILLIAMS, Nedoesha.

*To Fort Logan H. Roots, Arkansas*, for temporary duty, from St. Louis, Lieut. CLYDE M. ZINK, Wellington.

*To Fort Oglethorpe*, for instruction, Lieut. EDWARD K. LAWRENCE, Great Bend.

*To Pittsburg, Pa.*, Carnegie Institute of Technology, for one month's intensive instruction in automobile maintenance and gas engine operation, and on completion *to his proper station*, from Fort Riley, Lieut. WILLIAM F. SMITH, Atchison.

*To Rockefeller Institute, New York*, for instruction in laboratory work, from Fort Oglethorpe, Lieut. RICHARD C. HENDERSON, Pittsburg.

*To San Antonio, Texas*, for duty, from Garden City, L. I., N. Y., Lieut. HUGH D. McGAUGHEY, Jamestown.

*To San Francisco, Calif.*, Sixty-Second Artillery, from Fort Riley, Lieut. DWIGHT C. SMITH, Girard.

*To Seattle, Wash.*, Sixty-Third Artillery, from Fort Riley, Lieuts. DAVID W. MANSON, Burlington; ARTHUR R. NASH, Parsons.

*To South San Antonio, Texas*, for duty, Lieut. GEORGE W. THUME, Winona.

## Kentucky

*To Camp Grant*, Rockford, Ill., base hospital, from Camp Sherman, Capt. PORTER C. LAYNE, Ashland.

*To Camp Pike*, Little Rock, Ark., for duty, from Fort Riley, Lieuts. HARRY H. MAYO, Allen; LAWRENCE L. WASHBURN, Benton; ROBERT L. COLLINS, Hazard; GEORGE PURDY, New Liberty; ROBERT C. MOSS, Rockfield.

*To Camp Sevier*, Greenville, S. C., for duty, Lieut. JAMES M. STAUGHTON, Covington.

*To Camp Zachary Taylor*, Louisville, Ky., base hospital, from Philadelphia, Lieuts. WILLIAM D. REDDISH, Lexington; DAVID C. DONAN, Morganfield.

*To Fort Oglethorpe*, for instruction, Capt. GUY P. GRIGSBY, Louisville.

*To Philadelphia, Pa.*, University of Pennsylvania, for instruction, Capt. BENJAMIN F. ZIMMERMAN, Louisville.

*To South San Antonio, Texas*, Kelly Field, for duty, Capt. LESLIE LOGAN, Barbourville.

*To his home* and honorably discharged, Lieut. WALTEL C. SIMMONS, Smith's Grove.

## Louisiana

*To Fort Oglethorpe*, for instruction, Lieut. WALTER B. HUNTER, Shreveport.

*To Fort Sam Houston, Texas*, for assignment to duty, from Fort Oglethorpe, Lieut. SIDNEY F. BRAND, New Orleans.

*To New York City*, for temporary duty, from Camp Wheeler, Major JOHN T. HALSEY, New Orleans.

*To Rochester, Minn.*, for instruction, and on completion *to his proper station*, from Camp Beauregard, Lieut. ALONZO T. PALMER, Oakdale.

## Maine

*To Army Medical School*, for duty, from New York City, Lieut. CARL G. BENNETT, Unity.

*To Camp Doniphan*, Fort Sill, Okla., base hospital, from Fort Logan H. Roots, Lieut. ALLAN WOODCOCK, Bangor.

*To Camp Gordon*, Atlanta, Ga., base hospital, Capt. HARVEY H ROBERTS, South Portland.

*To Camp Sevier*, Greenville, S. C., for duty, Capt. LORING S. LOMBARD, South Portland.

*To Fort Oglethorpe*, for instruction, Lieut. HAROLD M. GOODWIN, Lincoln.

*To Philadelphia, Pa.*, University of Pennsylvania, for instruction, Capt. WALTER E. WHITNEY, Bangor.

## Maryland

*To Army Medical School*, Washington, D. C., for duty, from New York City, Lieut. ROBERT S. CUNNINGHAM, Baltimore.

*To Camp Jackson*, Columbia, S. C., base hospital, Capt. ANDREW J. N. REIK, Baltimore.

*To Camp MacArthur*, Waco, Texas, for duty, Lieut. DANIEL of St. Thomas Jenifer, Towson.

*To Camp Travis*, Fort Sam Houston; *Camp Bowie*, Fort Worth, Texas; *Camp Shelby*, Hattiesburg, Miss.; *Camp Jackson*, Columbia, S. C., for inspection, and upon completion *to his proper station*, Major WILLIAM H. WELCH, Baltimore.

*To Edgewood, Md.*, U. S. Milling Plant, for duty, from Fort Myer, Capt. MAYNARD J. SIMMONS, Indian Head.

*To Fort Oglethorpe*, for instruction, Lieut. ALBERT G. HAHN, Baltimore.

*To Newport News, Va.*, as a member of a board of medical officers for the special examination of the troops for tuberculosis, from Allentown, Lieut. ISRAEL J. FEINGLOS, Baltimore.

## Massachusetts

*To Army Medical School*, Washington, D. C., for instruction in tuberculosis examinations, Capt. WILLIAM M. GAY, Sharon; for preparation for nutritional survey, Capt. RICHARD D. BELL, Somerville; for duty, from New York, Lieut. DAVID L. BELDING, Boston.

*To Boston, Mass., Military School of Aeronautics*, Institute of Technology, from Boston, Capt. CHARLES S. BUTLER, Boston; Aviation Section, Signal Corps, as medical member of Examining Board No. 2, and recruiting officer, Lieut. EDWARD F. W. BERTOL, Milton.

*To Camp Devens*, Ayer, Mass., for duty as commanding officer of the base hospital, from Camp Devens, Major CHANNING FROTHINGHAM, JR., Boston.

*To Camp Hancock*, Augusta, Ga., base hospital, Lieut. JOHN H. DOYLE, Fall River.

*To Camp Pike*, Little Rock, Ark., to examine the command for mental and nervous diseases, from Fort Snelling, Capt. CHESTER C. BECKLEY, Lancaster.

*To Fort Logan H. Roots, Arkansas*, for temporary duty, from St. Louis, Lieut. JOHNSTON L. CHERESKIN, Springfield.

*To Fort Oglethorpe*, for instruction, CAPT. NATHANIEL ROBERT MASON, Boston; Lieuts. JOHN B. FITTS, Boston; GEORGE A. WHITE, Cambridge; WILLIAM R. MORRISON, East Boston; ALFRED T. DALRYMPLE, South Boston; from duty as a private at Camp Getty, Jamestown, R. I., Lieut. ERNEST G. LA RIVIERE, New Bedford.

*To Jackson Barracks*, New Orleans, La., from Fort Oglethorpe, Capt. STARR A. MOULTON, Winthrop.

*To New York City*, Postgraduate Medical School and Hospital, for instruction in urology and dermatology, Lieuts. EVERETT A. MERRILL, East Lynn; CLARENCE G. LANE, Woburn.

## Michigan

*To Camp Greene*, Charlotte, N. C., Fifty-Eighth Infantry, from Fort Oglethorpe, Lieut. WILLIAM WESTTRATE, Holland.

*To Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. WORTH W. WALTON, Mancelona.

*To Camp Wadsworth*, Spartanburg, S. C., base hospital, from Camp Wadsworth, Lieut. HEINRICH A. REYE, Detroit.

*To Camp Zachary Taylor*, Louisville, Ky., base hospital, from St. Louis, Lieut. LELAND H. TOWER, Battle Creek.

*To Charleston, S. C.*, Sixty-First Artillery, from Fort Oglethorpe, Lieut. JOSEPH G. KNAPP, Ford.

*To Cleveland, Ohio*, for instruction, and on completion *to his proper station*, from Camp Sherman, Lieut. EDGAR J. MILLER, Romeo.

*To Edgewood, Md.*, for duty, from Camp Custer, Capt. THOMAS B. HENRY, Northville.

*To Fort Oglethorpe,* for instruction, Lieuts. ALBERT H. KROHN, ERNEST C. SCHULTZ, Detroit.

*To Fort Riley,* for instruction, Capt. NORMAN J. PIKE, Saginaw.

*To Fort Totten, New York,* Fifty-Seventh Artillery Regiment, from Fort Oglethorpe, Lieut. CHARLES J. FOLEY, Detroit.

*To Hoboken, N. J.,* for duty, from Camp Mills, Lieut. CHARLES F. KUHN, Detroit.

*To Philadelphia, Pa.,* University of Pennsylvania, for intensive training in brain surgery, Lieut. LEO J. DRETSKA, Detroit.

*To Rochester, Minn.,* for instruction, and on completion *to his proper station,* from Camp Taylor, Lieut. HARLEN MACMULLEN, Manistee; from Fort Sheridan, Lieut. JAMES RHINES, Lawrium; Mayo Clinic, for instruction, and on completion *to Camp Bowie,* Fort Worth, Texas, base hospital, from Camp Grant, Lieut. WILLIAM LaR. SHERMAN, Detroit.

*To South San Antonio, Texas,* for duty, Capt. HOWARD T. CARRIEL, Marquette.

*To his home* and honorably discharged from the Medical Reserve Corps, Lieut. WESLEY A. GRIFFIN, Deckerville; on account of being physically disqualified for active duty, Lieut. FRANK M. GOWDY, St. Joseph.

## Minnesota

*To Boston, Mass.,* Fifty-Fifth Artillery Regiment to be organized in the Coast Defenses of Boston, from Fort Oglethorpe, Capt. WILLIAM E. WRAY, Campbell.

*To Camp Fremont,* Palo Alto, Calif., headquarters and military police and ammunition trains, from Fort Riley, Lieut. CHARLES C. ALLEN, Austin.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. AUVIGNE M. RANDALL, Ashby.

*To Camp Zachary Taylor,* Louisville, Ky., base hospital, from St. Louis, Lieut. JAMES K. ANDERSON, Minneapolis.

*To Pittsburgh, Pa.,* Carnegie Institute of Technology, for one month's intensive instruction in automobile maintenance and gas engine operation, and on completion *to his proper station,* from Fort Riley, Lieut. JOHN W. MINTERER, Minneapolis.

*To Rockefeller Institute, N. Y.,* for instruction in laboratory work, from Fort Oglethorpe, Lieut. PERCY A. WARD, Minneapolis.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to Camp Bowie,* Fort Worth, Texas, base hospital, Major WALTER H. DARLING, Minneapolis.

*To San Antonio, Texas,* for duty, from Mineola, L. I., N. Y., Capt. JOHN W. LEE, Minneapolis.

*To San Francisco, Calif.,* 62d Artillery, from Fort Riley, Lieut. LUTHER L. GIBBON, Lowry.

*To St. Louis, Mo.,* for instruction in urology and dermatology, Capt. WILLIAM V. LINDSAY, Winona.

*To Washington, D. C.,* for duty in Surgeon-General's office, Capt. LOUIS B. BALDWIN, Minneapolis.

*To his home* and to the inactive list, Lieut. ARTHUR L. ARNESON, Emmons.

## Mississippi

*To Camp Shelby,* Hattiesburg, Miss., base hospital, from Camp Shelby, Capt. JOHN R. TACKETT, Meridian; Lieut. BENJAMIN T. ROBINSON, New Augusta.

*To Fort Oglethorpe,* for instruction, Lieut. MAURY H. McRAE, Corinth.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. JUDGE JAMES, Ackerman.

## Missouri

*To Camp Greene,* Charlotte, N. C., 58th Infantry, from Fort Oglethorpe, Lieut. DOUGLAS WYATT, Mineola.

*To Camp Pike,* Little Rock, Ark., for duty, from Fort Riley, Lieut. WALLACE S. PETTY, Rutledge.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. EDWARD A. HOEFER, Marceline.

*To Fort Oglethorpe,* for instruction, Capt. ROBERT E. SCHLUETER, St. Louis.

*To Fort Riley,* for instruction, from Kansas City, Lieuts. SAMUEL H. SNIDER, Kansas City; ALGIE R. SHREFFLER, St. Louis.

*To Fort Totten, N. Y.,* 58th Artillery Regiment, from Fort Oglethorpe, Lieuts. HALBERT R. HILL, Bachelor; ARTHUR L. FUERTH, St. Louis.

*To Kansas City, Mo.,* to mobilize Base Hospital No. 28, Christian Church Hospital, and on completion to proceed together with his enlisted personnel and commissioned officers *to Fort McPherson, Ga.,* to be trained and equipped, Capt. LINDSAY S. MILNE, Kansas City Base Hospital No. 28, Lieut. SHERMAN B. HIBBARD, Kansas City; from Camp Funston, Lieut. HERBERT S. VALENTINE, Kansas City; from Camp Pike, Lieut. JAMES R. ELLIOTT, Kansas City; from St. Louis, Lieut. CLAUDE J. HUNT, Kansas City.

*To Philadelphia, Pa.,* for instruction, and on completion *to Fort McHenry,* for temporary duty, from Camp Pike, Major HAROLD C. HERRICK, St. Louis.

*To San Francisco, Calif.,* 65th Artillery, from Fort Riley, Lieut. THOMAS S. FLEMING, Moberly.

*To St. Louis,* Washington University, for instruction, and on completion *to his proper station,* from St. Louis, Capt. CHARLES A. VOSBURGH, St. Louis; for instruction in urology and dermatology, Lieuts. EDWIN D. EDWARDS, GEORGE H. MYERS, St. Louis.

*To Washington, D. C.,* for duty in the Surgeon-General's office, Major FREDERICK W. BAILEY, St. Louis.

*To his home* and honorably discharged, Lieut. OTIS M. S. McCALL, Rocky Comfort.

## Montana

*To Camp Pike,* Little Rock, Ark., for duty, from Fort Riley, Lieut. JULIEN L. TREMBLAY, Butte.

*To South San Antonio, Texas,* for duty, Lieut. GEORGE J. JUCKEM, Big Sandy.

*Honorably discharged,* on account of being physically disqualified for active service, Lieut. FRANCIS J. GAYLEY, Kremlin.

## Nebraska

*To Army Medical School,* Washington, D. C., for duty, from New York City, Capts. WILLIAM W. DEWOLFE, Bennet; HARRY M. BONNIWELL, Burchard.

*To Fort Riley,* for instruction, Major ELMER S. TORMEY, Lincoln.

*To South San Antonio, Texas,* for duty, Capt. JAMES H. METTLEN, Bloomfield; Lieuts. CHARLES D. HUSTEAD, Aurora; JAMES F. WOOD, Burwell.

## Nevada

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. ONLY J. CHANEY, McDermitt.

## New Hampshire

*To Camp Devens,* Ayer, Mass., base hospital, from Camp Devens, Capt. JOHN E. TOYE, Charleston.

*To Hoboken, N. J.,* for duty, from Camp Mills, Capts. PERCY BARTLETT, Hanover; CHARLES A. LAMSON, New London.

## New Jersey

*To Camp Dix,* Wrightstown, N. J., base hospital, from Camp Dix, Lieut. CHARLES M. GRAY, Vineland.

*To Camp Jackson,* Columbia, S. C., base hospital, from Philadelphia, Lieut. MARTIN W. REDDAN, Trenton.

*To Camp Sevier,* Greenville, S. C., base hospital, Lieut. MORRIS J. WEISE, Bayonne.

*To Camp Wheeler,* Macon, Ga., base hospital, from Philadelphia, Lieut. JOSEPH G. DENELSBECK, Trenton.

*To Fort Oglethorpe,* for instruction, Lieuts. THOMAS CRAVEN, Atlantic City; THOMAS W. HARVEY, Jr., Orange.

*To Hoboken, N. J.,* for duty, from Camp Mills, Lieut. CHARLES F. BECKER, Camden.

*To New York City,* Post Graduate Medical School and Hospital, for instruction in urology and dermatology, Lieut. SAMUEL ROTHENBERG, Newark; from Fort Oglethorpe, Lieut. EDWARD GUION, Atlantic City.

*To Pittsburgh, Pa.,* Carnegie Institute of Technology, for one month's intensive instruction in automobile maintenance and gas engine operation, and on completion *to his proper station,* from Fort Oglethorpe, Lieut. JAMES S. KNOWLES, Tuckahoe.

*Honorably discharged* on account of being physically disqualified for active service, Lieut. JAMES R. STROUD, Jersey City.

## New York

*To Army Medical School,* Washington, D. C., for instruction in tuberculosis examinations, and on completion *to their proper stations,* from Camp Meade, Capt. THOMAS F. ELLIS, New York City; for duty, from New York City, Lieut. HARRY PLOTZ, Brooklyn; for instruction in tuberculosis examinations, Lieut. FELIX GRABOFF, New York City.

*To Boston, Mass.,* Harvard Medical School, for instruction in orthopedics, from Edgewood, Md., Lieut. ABRAHAM L. LOWENTHAL, New York City.

*To Camp Beauregard,* Alexandria, La., for duty, from Fort Oglethorpe, Lieut. THOMAS J. KIRWIN, New York City.

*To Camp Cody,* Deming, N. Mex., base hospital, from Philadelphia, Capt. JOSEPH E. J. KING, New York City.

*To Camp Dix,* Wrightstown, N. J., for duty, from New York City, Capt. ARTHUR M. KANE, New York City.

*To Camp Dodge,* Des Moines, Iowa, for duty, from Camp Dodge, Lieut. SAMUEL TOPKINS, Brooklyn.

*To Camp Grant,* Rockford, Ill., base hospital, from Camp Sherman, Capt. HENRY L. SCHELLING, Brooklyn.

*To Camp Lewis,* American Lake, Wash., as sanitary inspector, from Fort Riley, Lieut. VERNON L. BISHOP, Livonia.

*To Camp Meade,* Annapolis Jct., base hospital, from Philadelphia, Capt. WILLIAM H. SMITH, Plattsburg Barracks; for the special examination of the comand for tuberculosis, from Camp Lee, Capt. STEPHEN A. MAHADY, Utica; for duty, from Fort Oglethorpe, Lieuts. FREDERICK DAMRAU, Brooklyn; MATTHEW F. OLSTEIN, New York City.

*To Camp Sevier,* Greenville, S. C., for duty, Capt. GREGORY J. COSTIGAN, New York City.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. LOUIS H. STERN, Brooklyn.

*To Camp Taylor,* Louisville, Ky., base hospital, Capt. RAYMOND C. CONKLIN, Buffalo.

*To Edgewood, Md.,* U. S. Milling Plant, for duty, from Fort Myer, Lieut. ABRAHAM I. LOWENTHAL, New York City.

*To Fort Logan H. Roots, Ark.,* for temporary duty, from St. Louis, Lieut. GEORGE B. UBEL, Salamanca.

*To Fort Oglethorpe,* to organize and command Hospital Train No. 33, from Fort Oglethorpe, Capt. EDWARD M. COLIE, New York City. For instruction, Capts. FREDERICK N. WILSON, New York City; THOMAS A. ROGERS, Plattsburg; BURTON S. BOOTH, Troy; Lieuts. FRANCIS W. CURRIN, BENJAMIN FABBINER, ONSLOW A. GORDON, ERNEST L. SCHAEFER, Brooklyn; LAWRENCE M. BELZER, Buffalo; GARRETT N. BANKER, LEO EDELMAN, IRVING EPSTEIN, HERMAN F. LAMPE, DANIEL B. LYNCH, ROBERT F. McDONALD, GEORGE B. PACE, WALTER G. H. POTT, HENRY W. SCHLESINGER, ADOLPH A. WEISE, WILLIAM ZUCKERMAN, New York City; ALVA G. DUNBAR, Richland; JAMES F. DOUGHERTY, Richmond Hill; GUY GRANGER, Sherman; from New York City, Lieut. ANDREW W. MAHONEY, New York City; from Walter Reed General Hospital, Lieut. CHESTER F. DURYES, Brooklyn.

*To Fort Sam Houston, Texas,* for assignment to duty, from Fort Oglethorpe, Capt. ALEXANDER C. CALISCH, Oswego.

*To Fort Screven, Ga.,* for duty, from Fort Oglethorpe, Lieut. WILLIAM G. LEWIS, Alton.

*To Fort Totten, N. Y.,* as Intelligence Officer, from Camp Alfred Vail, Capt. HARRIS A. HOUGHTON, Bayside.

*To Garden City, L. I., N. Y.,* for duty, from Belleville, Ill., Major JOSEPH B. COOKE, Cooperstown.

*To Hoboken, N. J.,* for duty, from Camp Mills, Capts. CARTER S. COLE, FRED M. MEADER, FRANK H. KNIGHT, ERNEST K. KRUG, New York City; Lieuts. WILLIAM G. BERLUCCI, Brooklyn; PETER J. BARONE, Buffalo; AUGUSTUS P. DELLETT, WILLIAM H. ORDWAY, New York City; GEORGE K. SMITH, Syracuse.

*To New York City,* Aviation Section, Signal Corps, for duty, Capt. SIDNEY YANKAUER; from New York City, Capt. FRANCIS W. WHITE, Lieut. DAVID D. STOWELL, New York City; for duty, Lieut. EDGAR D. OPPENHEIMER, New York City. For instruction in orthopedic work, Lieut. JESSE R. PRICHARD, New York City; from New York, Lieut. HARMON McL. DINGMAN, New York City. Post-Graduate Medical School and Hospital, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. WILLIAM H. GOLDSTEIN, New York City.

*To Philadelphia, Pa.,* University of Pennsylvania, for instruction, from Fort Oglethorpe, Lieut. OTTO E. UTZINGER, Ithaca.

*To Rochester, Minn.,* for instruction, and on completion *to Des Moines, Iowa,* base hospital, from Fort Oglethorpe, Lieut. THERON B. BOND, Cuba. Mayo Clinic for instruction, and on completion *to Camp Grant,* base hospital, from Fort Oglethorpe, Lieut. JEROME A. MURPHY, Buffalo.

. *To Rockefeller Institute, New York,* for instruction in serum therapy pneumonia, from Camp Wheeler, Capt. JAMES F. NAGLE, New York City; for instruction in laboratory work, from Camp Devens, Lieut. WILLIAM GOLDSTEIN, New York City; from Camp Taylor, Lieut. RALPH E. ROBINSON, Belmont.

*To San Antonio, Texas,* Kelly Field, for duty, Capt. EMMET R. BUSKLEW, New York City; from Mineola, L. I., N. Y., Lieuts. PAUL E. BETOWSKI, Bath; LOARENT G. FEINIER, New York City.

*To San Francisco, Calif.,* 65th Artillery, from Fort Riley, Lieut. ROBERT ENGL, New York City.

*To Seattle, Wash.,* 63d Artillery, from Fort Riley, Capt. ALBERT K. DETWILLER, New York City.

*To South San Antonio, Texas,* for duty, from Rantoul, Ill., Lieut. WILLIAM J. SCOTT, New York City.

*To Williamsburg, N. Y.,* for temporary duty, Capt. DE WILL STETTEN, New York City.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Capt. SAMUEL W. S. TOMS, Nyack; Lieuts. OSCAR SPIER, New York City; WALTER J. SMITH, Waterville.

*To his home* and honorably discharged, Lieuts. EDWARD DANFORTH, Bainbridge; EDMONT C. LINTON, New York City.

*Honorably discharged* on account of being physically disqualified for active service, Lieuts. PERCIVAL D. BAILEY, Endicott; HENRY S. FRUITNIGHT, New York City.

### North Carolina

*To Army Medical School,* Washington, D. C., for instruction in tuberculosis, Capt. THOMSON FRAZER, Asheville; and on completion *to his proper station,* from Camp Meade, Lieut. FREDERICK B. SPENCER, Salisbury.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Major WILLIAM E. WILMERDING, Selma.

*To Camp Sevier,* Greenville, S. C., for duty, Lieut. JULIUS J. BAREFOOT, Graham.

*To Philadelphia, Pa.,* University of Pennsylvania, for instruction, Capt. JACOB H. SHUFORD, Hickory; Lieut. SAMUEL B. STURGIS, Lenoir.

*To Rochester, Minn.,* for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. CARL W. BELL, Raleigh.

### North Dakota

*To Camp Fremont,* Palo Alto, Calif., headquarters and military police and ammunition trains, from Fort Riley, Lieut. ARLEY J. OSTRANDER, Emderlin.

*To Camp Grant,* Rockford, Ill., base hospital, from Philadelphia, Capt. ROBERT D. CAMPBELL, Grand Fork.

*To Camp Pike,* Little Rock, Ark., for duty, from Fort Riley, Capt. PAUL F. RICE, Solen.

*To Fort Riley,* for instruction, Lieut. BENJAMIN FRANKSON, Rugby.

*To South San Antonio, Texas,* for duty, Lieut. JESSE J. NORRIS, Westby.

### Ohio

*To Army Medical School,* for duty, from New York City, Lieuts. CLAUDE D. HAMILTON, Canton; NOLAN E. LEAKE, Van Wert.

*To Camp Beauregard,* Alexandria, La., base hospital, from Rockefeller Institute, Lieut. JOSEPH E. McCLELLAND, Cleveland.

*To Camp Cody,* Deming, N. M., base hospital, Lieut. ALVIN A. STONE, Cleveland.

*To Camp MacArthur,* Waco, Texas, for duty, Lieut. EDWARD S. JONES, Painesville.

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. JOHN A. MEEK, Cleveland.

*To Camp Taylor,* Louisville, Ky., Lieut. GEORGE S. MYTINGER, Portsmouth; from St. Louis, Lieut. MURRAY B. McCONIGLE, Toledo.

*To Fort Logan H. Roots, Ark.,* base hospital, Lieuts. FRANZ E. SOLIER, Bryan; RALPH W. REYNOLDS, Fayette.

*To Fort Oglethorpe,* for instruction, Capt. JAMES K. DAY, Waynesfield; Lieuts. JOHN R. NICHOLS, Columbus; FREDERICK T. MILES, Salem; LORA L. MARRIOTT, St. Louisville.

*To Fort Riley,* for duty, Major WILLARD J. STONE, Lieut. CARL S. MUNDY, Toledo.

*To Metuchen, N. J.,* for duty, from Fort Oglethorpe, Lieut. WILLIAM A. RICARD, Toledo.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to Camp Bowie,* Fort Worth, Texas, base hospital, from Camp Grant, Capt. HENRY M. OSBORNE, Youngstown.

*To Rockefeller Institute, N. Y.,* for instruction, from Fort Sheridan, Lieut. RICHARD E. STIFEL, Cleveland.

*To San Antonio, Texas,* for duty, from Mineola, L. I., N. Y., Lieuts. RUDOLPH S. REICH, JOHN W. TIPPIE, Cleveland; CLARENCE J. SCHRACK, Coldwater.

*To South San Antonio, Texas,* Kelly Field, for duty, Lieut. ROY G. Strong, Medina.

*To St. Louis, Mo.,* for instruction in urology and dermatology, from Camp Jackson, Lieut. EDWARD J. BRAUN, Youngstown; from Columbus Barracks, Lieut. CLAREN E. PFEIFER, Columbus.

*To Washington, D. C.,* for duty in the office of the attending surgeon, from Fort Oglethorpe, Lieut. GEORGE C. SMITH, Mansfield.

*To Wilbur Wright Field,* Fairfield, Ohio, for duty, from Houston, Texas, Lieut. JOHN C. LARKIN, Hillsboro.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Lieuts. GEORGE L. HAEFLE, Cleveland; JOHN C. LARKIN, Hillsboro.

### Oklahoma

*To Army Medical School,* for duty, from New York City, Lieut. THOMAS A. HARTGRAVES, Soper.

*To Camp MacArthur,* Waco, Texas., for duty, Lieut. WALTER N. SYKES, Ramona.

*To Camp Zachary Taylor,* Louisville, Ky., base hospital, from St. Louis, Lieut. CHANNER P. CHUMLEY, Washington.

*To Fort Logan H. Roots, Ark.,* for temporary duty, from St. Louis, Lieut. Joel S. Hooper, Tulsa.

*To Fort Myer, Va.,* for duty, Lieut. JOSEPH H. STOLPER, Muskogee.

*To Fort Riley,* for instruction, Capt. VIRGIL BERRY, Okmulgee.

*To Oklahoma City, Okla.,* for instruction in orthopedic surgery and for duty as assistant instructor, from Philadelphia, Lieut. WILLIS K. WEST, Oklahoma City.

*To San Antonio, Texas,* Kelly Field, for duty, Lieut. SAMUEL E. MITCHELL, Stigler.

*To South San Antonio, Texas,* for duty, Lieut. TASWELL D. ROWLAND, Shawnee.

*To St. Louis, Mo.,* for instruction in urology and dermatology, Lieut. JAMES C. HAWKINS, Blackwell.

*Honorably discharged,* Lieut. FRANK L. CARSON, Shawnee.

### Oregon

*To Camp Lewis,* American Lake, Wash., for duty, Lieuts. MERLE G. HOWARD, Junction City; HARRY B. MOORE, Portland. Base hospital, Lieut. EUGENE W. ROCKEY, Oswego.

*To Camp Zachary Taylor,* Louisville, Ky., base hospital, from St. Louis, Lieut. BENJAMIN WADE, Portland.

*To Fort Riley,* for duty, from Camp Kearny, Capt. DAVID N. ROBERG, Portland.

### Pennsylvania

*To Army Medical School,* Washington, D. C., for instruction in tuberculosis examinations, and on completion *to his proper station,* from Camp Meade, Capt. JAMES M. McNALL, Wilkinsburg. For duty, Lieut. ARTHUR ST. C. BRUMBAUGH, Altoona; from New York City, Lieuts. OTTO C. HIRSCH, JULIAN E. MEYER, Philadelphia.

*To Boston, Mass.,* Harvard Medical School, for instruction in orthopedic surgery, Lieut. EDWARD PARDOS, South Fork.

*To Camp Greene,* Charlotte, N. C., 58th Infantry, from Fort Oglethorpe, Lieut. GUSTAVE G. KALMUTZ, Berlin.

*To Camp McClellan,* Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. VICTOR J. P. JOURDAN, Bristol.

*To Camp Meade,* Annapolis Jct., Md., base hospital, from Camp Shelby, Lieut. HENRY G. MUNSON, Philadelphia; from Fort Oglethorpe, Lieut. IVOR D. FENTON, Mahoney City.

*To Camp Pike,* Little Rock, Ark., for duty, from Fort Riley, Lieut. CHARLES H. CHERRY, Mont Alto.

*To Camp Sevier,* Greenville, S. C., base hospital, Lieut. JAMES M. BLACKWOOD, Newcastle.

*To Camp Sheridan,* Montgomery, Ala., base hospital, Lieut. HENRY BIERMAN, Bloomsburg.

*To Camp Travis,* Fort Sam Houston; *Camp Bowie,* Fort Worth, Texas; *Camp Shelby,* Hattiesburg, Miss., and *Camp Jackson,* Columbia, S. C., for inspection, and on completion *to his proper station,* Major ALEXANDER C. ABBOTT, Philadelphia.

*To Fort Jay,* New York, for duty, from Camp Mills, Lieut. JOHN WALTER FREY, Avalon.

*To Fort Oglethorpe,* Evacuation Hospital No. 5, from Chickamauga Park, Ga., Capt. PHILIP NORRIS, Philadelphia Evacuation Hospital

No. 8; from Fort Oglethorpe, Capt. DAVID DALE, Bellefonte. For instruction, Capts. WILLIAM F. BEITZCH, New Brighton; JOHN J. GILBRIDE, Philadelphia; Lieuts. CLAUDE A. ROBB, Butler; PAUL G. DICK, Connellsville; ELTON B. ROGERS, Gap; EUGENE B. SHARP, Johnsonburg; EDWIN C. BOYER, Johnstown; ADAM G. HEILMAN, Lebanon; THOMAS J. McNELIS, Lucerne Mines; WILLIAM W. WATER, Nanticoke; KENNETH E. McCAMEY, Parker's Landing; ARCHIBALD W. DUNN, EUGENE C. MURPHY, Philadelphia; GEORGE R. LACY, JAMES A. MANSTER, Pittsburgh; ALBERT J. STORM, Renovo; CHARLES K. SHANER, Sewickley; WILLIAM P. NOLAN, Shingle House; JESSE L. McCRACKEN, Smithfield; ARTHUR E. SIMONIS, Tremont; LOUIS F. FALLON, Wayne; EDWARD A. STEINHILBER, West Philadelphia. Evacuation Hospital No. 8, from Fort Oglethorpe, Lieut. GEORGE E. ALLEMAN, Altoona.

*To Fort Riley*, for instruction, from Kansas City, Mo., Lieut. JAMES F. KELLY, Monessen.

*To Fort Totten, N. Y.*, 57th Artillery Regiment, from Fort Oglethorpe, Lieut. JAMES E. THRONE, York.

*To Hoboken, N. J.*, for duty, from Camp Mills, Major JACK C. GITTINGS, Philadelphia; Capt. WILLIAM J. MONAGHAN, Girardville; Lieut. ISAAC S. TASSMAN, Philadelphia.

*To New York City*, Post-Graduate Medical School and Hospital, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. JOSEPH M. KENWORTHY, Philadelphia.

*To Philadelphia, Pa.*, University of Pennsylvania, for instruction, Lieuts. FRANK R. BAILEY, LYNDON H. LANDON, Pittsburgh; from Fort Oglethorpe, Lieut. JOHN ALEXANDER, Pittsburgh.

*To Rochester, Minn.*, for instruction, and on completion *to his proper station*, from Camp Sherman, Lieuts. LAWRENCE H. FITZGERALD, CHARLES C. MOORE, Pittsburgh.

*To South San Antonio, Texas*, for duty, from Rantoul, Ill., Lieut. SAMUEL E. LYON, Pittsburgh.

*To his home* and honorably discharged on account of being physically disqualified for active service, Capt. WILLIAM H. CROWELL, Philadelphia; Lieut. FRANK B. STEVENSON, Indiana.

### South Carolina

*To Camp Lee*, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. CARL L. ABLE, Leesville.

*To Camp Meade*, Annapolis Jct., Md., for duty, from Fort Oglethorpe, Lieut. DANIEL D. STRAUSS, Bennettsville.

*To Camp Wadsworth*, Spartanburg, S. C., base hospital, Lieut. JOHN W. PARKER, Greenville.

*To Fort Logan H. Roots, Ark.*, for temporary duty, from St. Louis, Lieut. JAMES M. WALLACE, Greenville.

### South Dakota

*To Army Medical School*, Washington, D. C., for duty, from New York City, Lieut. GUSTAV A. LANDMAN, Scotland.

*To Fort Riley*, for instruction, from duty as a private at Fort Riley, Lieut. ROSCOE R. FISK, Brooklings.

*To Seattle, Wash.*, 63rd Artillery, from Fort Riley, Lieut. JOHN J. MERTENS, Gettysburg.

### Tennessee

*To Camp McClellan*, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. LESLIE T. BOLTON, Lucy.

*To Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. THOMAS W. MENEES, Nashville.

*To Camp Upton, L. I., N. Y.*, Motor Truck Co., No. 497, from Fort Oglethorpe, Capt. JOHN H. MARBLE, Cowan.

*To Fort Oglethorpe*, for instruction, Lieut. ROBERT M. YOUNG, Knoxville; for special instruction in tuberculosis examinations, Lieut. ROBERT PILLOW, Jr., Columbia.

*To Fort Riley*, for instruction, Lieut. ORVILLE B. MOON, Bell Buckle.

*To Fort Sam Houston, Texas*, for assignment to duty, from Fort Oglethorpe, Lieut. WILLIAM K. VANCE, Jr., Bristol.

*To Portland, Oregon*, Aviation Section, Signal Corps, from Salt Lake City, Lieut. LOUIS LEVY, Memphis.

*To South San Antonio, Texas*, for duty, Capt. FREDERICK C. McISAAC, Chattanooga.

### Texas

*To Army Medical School*, Washington, D. C., for duty, from New York City, Capt. EDWARD F. COOKE, Houston.

*To Camp Bowie*, Fort Worth, Texas, base hospital, Capt. WILLIAM W. FITZPATRICK, Paris; Lieuts. WILLARD C. HEARIN, Canton; JOHN R. LEWIS, Gainesville.

*To Camp Cody*, Deming, N. M., base hospital, Capt. MILES J. DUNCAN, Dallas; Lieut. WILLIAM T. DUNNING, Gonzales.

*To Camp Lee*, Petersburg, Va., for duty, from Camp Lee, Lieut. CHARLES O. HURLEY, Fort Worth; from Fort Oglethorpe, Lieut. ORVILLE T. BUNDY, Hutto.

*To Camp Logan*, Houston, Texas, base hospital, Lieuts. HENRY E. BAYLIS, Huntsville; FRANK N. HAGGARD, San Antonio.

*To Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. TALBERT M. HALL, Osage.

*To Fort Riley*, for instruction, Capt. ROBERT D. GIST, Amarillo; Lieut. FRANCIS C. GREEN, Oglesby.

*To Fort Sam Houston, Texas*, for assignment to duty, from Fort Oglethorpe, Lieuts. LEWIS E. TURRENTINE, Tahoka; C. ZENO HOLT, Texline; for duty in the Department Laboratory, Lieut. S. BUIE, Hillsboro.

*To South San Antonio, Texas*, for duty, Capt. WILLIAM E. BROWN, Abiline; Lieut. BENJAMIN O. WHITE, Rosebud.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Capt. JOHN H. WALKER, Alvord.

### Vermont

*To Army Medical School*, Washington, D. C., for duty, from New York City, Capt. FREDERICK E. CLARK, Burlington.

*To Camp Joseph E. Johnston*, Jacksonville, Fla., to examine the troops in his specialty, Capt. ALAN D. FINLAYSON, Burlington.

*To Fort Oglethorpe*, for instruction, Lieut. LEONARD B. ROWE, Orwell.

*To San Antonio, Texas*, for duty, from Mineola, L. I., N. Y., Lieut. VICTOR P. GENGE, Newport.

### Virginia

*To Camp Lee*, Petersburg, Va., base hospital, from Philadelphia, Lieuts. JOSEPH F. GEISINGER, ALVAH L. HERRING, Richmond.

*To Camp Pike*, Little Rock, Ark., to examine the troops for mental and nervous diseases, from New York City, Lieut. FRANK H. REDWOOD, Richmond.

*To Camp Wadsworth*, Spartanburg, S. C., for temporary duty in base hospital, from Fort Screven, Lieut. THOMAS H. ODENEAL, Richmond.

*To Camp Zachary Taylor*, Louisville, Ky., base hospital, from St. Louis, Lieut. ROBERT J. EVANS, Jr., Hopewell.

*To Fort Oglethorpe*, for instruction, Lieut. THOMAS J. KAGEY, Newport News; from Camp Lee, Lieut. RALPH M. THOMPSON, Purcellville.

*To Fort Totten, N. Y.*, Fifty-Seventh Artillery Regiment, from Fort Totten, Lieut. ERIK T. SANDBERG, Cardinal; from Fort Oglethorpe, Lieut. WILLIAM B. TROWER, Eastville; Fifty-Eighth Artillery Regiment, from Fort Oglethorpe, Lieut. GEORGE V. LITCHFIELD, Abingdon.

*To New York City*, Cornell Medical College, for instruction in military roentgenology, from Richmond, Capt. FREDERICK M. HODGES, Richmond.

*To San Antonio, Texas*, for duty, from Mineola, L. I., N. Y., Capt. JOSEPH N. BARNEY, Fredericksburg; Kelly Field, for duty, Lieut. SAMUEL R. BROWN, Norfolk.

*To South San Antonio, Texas*, Kelly Field, for duty, Lieut. WILLIAM S. KEISTER, Norton.

*To his home* and honorably discharged, Lieut. JOHN B. HALLIGAN, Petersburg.

### Washington

*To Camp Jackson*, Columbia, S. C., and *Camp Hancock*, Augusta, Ga., to assist in the nutritional survey, and on completion *to his proper station*, Lieut. ROLLA B. HILL, Colfax.

*To Camp Lewis*, American Lake, Wash., base hospital, Capt. WILLIAM H. AXTELL, Bellingham; for duty, Lieut. GRANGE EDWARDS, Seattle.

*To Fort McPherson, Ga.*, Hospital Unit "C," Lieut. RICHARD E. ELVINE, Spokane.

*To Fort Riley*, for instruction, Lieut. WHITING S. MITCHELL, Sumner.

*To his home* and honorably discharged on account of being physically disqualified for active service, Capt. IRA C. BROWN, Seattle.

### West Virginia

*To Camp Greene*, Charlotte, N. C., Fifty-Eighth Infantry, from Fort Oglethorpe, Lieut. HERBERT C. KINCAID, Summersville.

*To Camp McClellan*, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. WILLIAM O. HEARN, Bluefield.

*To Camp Meade*, Annapolis Jct., Md., for duty, from Fort Oglethorpe, Lieut. RUFUS E. WOODALL, Bentree.

*To Fort Oglethorpe*, for instruction, Lieut. WILLIAM G. SLUSHER, Bluefield.

### Wisconsin

*To Army Medical School*, Washington, D. C., for duty, from New York City, Lieut. RALPH T. GILCHRIST, Milwaukee.

*To Boston, Mass.*, Fifty-Fifth Artillery Regiment to be organized in the coast defense of Boston, Lieut. DANIEL B. RILEY, Milwaukee.

*To Camp Fremont*, Palo Alto, Calif., headquarters and military police and ammunition trains, from Fort Riley, Lieut. JOHN H. PRILL, West Salem.

*To Fort Logan H. Roots, Arkansas*, for temporary duty, from St. Louis, Lieut. CHARLES B. RYDELL, Superior.

*To Fort Riley*, for instruction, from Camp Robinson, Lieut. THOMAS C. CLARKE, Oconto.

*To Hoboken, N. J.*, for duty, from Camp Mills, Lieut. THOMAS MILLER, Oconomowoc.

*To Rockefeller Institute, New York*, for instruction in laboratory work, from Fort Oglethorpe, Lieut. HERMAN A. HEISE, Madison.

*To South San Antonio, Texas*, for duty, Capts. FRANK F. BOWMAN, Madison; CARL J. ROLLEFSON, Superior.

*To his home* and honorably discharged on account of being physically disqualified for active service, Capt. CLEMENT F. DOUGHERTY, Richland Center; Lieut. DONALD C. MILLER, Spencer.

### Wyoming

*To South San Antonio, Texas*, Kelly Field, for duty, Lieut. EARLE R. VAN COTT, Diamondville.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. CHARLES M. FREEMAN, Rock Spring.

## CORRECTIONS

Under "Orders to Officers of the Medical Reserve Corps" in the issue of December 15:

*To Camp Greene*, Charlotte, N. C., for duty, from Army Medical School, Lieut. JOHN J. MOORE, of Soldiers Home, Calif., instead of Pottsville, Pa.

Issue of November 24: *To New York City*, as member of examining board and recruiting officer, from Physical Examining Unit, Aviation Section, Capt. DAVID H. WEBSTER, of New York City, instead of Rudyard, Mich.

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# Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## ILLINOIS

**New Officers.**—At the annual meeting of the Peoria Medical Society, December 18, the following officers were elected: president, Dr. Edward E. Barbour; vice presidents, Drs. Rolland L. Green and Edgar E. Gelder, and secretary-treasurer, Dr. Leir A. Burhans.

**Personal.**—December 27, Dr. John A. Koch was elected president of the staff of physicians of St. Mary's Hospital, Quincy, succeeding Dr. Otis Johnston, and on the following day he resigned as president of the staff and from the staff of the hospital.——Dr. John W. Seids, Moline, has been appointed physician to the Deere Works, succeeding Dr. Henry Arp, resigned, to enter military service.

**Reciprocal Relations.**—The Department of Regulation and Education of Illinois has established reciprocal relations on the basis of an examination only with Arkansas, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Minnesota, Missouri, Nebraska, Nevada, New Jersey, North Dakota, Utah, Vermont, West Virginia, Wisconsin and Wyoming; and on the basis of a diploma from a recognized medical college without an examination, in case the diploma and license were issued prior to July 1, 1899, with Michigan and Ohio.

### Chicago

**Antitoxin Needed.**—As the city supply of diphtheria antitoxin is exhausted, Health Commissioner Robertson has asked the finance committee for an appropriation of $2,500 for the purchase of an additional supply.

**Military Banquet.**—The Physicians' Club of Chicago announces that on Tuesday evening, February 5, at the Auditorium Hotel, a military banquet will be given in honor of the members of the club who are in active military service.

**Visiting Nurses Meet.**—The twenty-eighth annual meeting of the Visiting Nurses' Association of Chicago was held in the Blackstone Hotel, January 9, under the presidency of Mrs. Arthur Aldis. Dr. Frank Billings delivered an address on "Russia."

**Polish Physicians Elect.**—At the annual meeting of the Polish Medical Society, held December 28, the following officers were elected: president, Dr. Waldyslaw A. Kuflewski; vice president, Dr. Anthony Balcerzak; secretary, Dr. Felicia H. Cienciara, and treasurer, Dr. Alexander Pietrzykowski.

**Drug Seller Sentenced.**—Dr. Arthur L. Blunt, found guilty, January 2, on twelve counts, of violation of the Harrison Narcotic Law, was sentenced to imprisonment for five years in the Federal Prison at Fort Leavenworth, and to the payment of $12,000 fine. An appeal was taken and he was released on bail.

**Personal.**—The home of Dr. Camillo Volini was partially wrecked by a bomb, December 31.——Dr. Charles P. Caldwell has resigned as president of the Municipal Tuberculosis Sanatorium on account of pressure of personal business and duties connected with his services as a member of the exemption board of his district.

**The Making of Surgical Dressings for France.**—The French Red Cross Committee of the Alliance Francaise opened a workshop, December 12, at Room 406, Fine Arts Building, for the making of surgical dressings to be sent to the French Red Cross. This shop is open on Wednesday and Friday afternoons from 2 to 5 o'clock.

## KENTUCKY

**Personal.**—Dr. Frederick D. Reardon, Bowling Green, has been elected city health officer, and has also been appointed local surgeon of the Louisville and Nashville system.——Dr. Ezra O. Witherspoon, city health officer, and Dr. Thomas M. Dorsey, city chemist, Louisville, have resigned.——Dr. Thomas H. Baker has succeeded Dr. W. Edward Grant as health officer of Louisville.

**New Officers.**—At the annual meeting of the Jefferson County Medical Society, held in Louisville, December 12, the following officers were elected: president, Dr. Elmer L. Henderson; vice presidents, Drs. Siegel C. Frankel and Leo Bloch; secretary, Dr. Claude G. Hoffman, and treasurer, Dr. W. Hamilton Long. It was announced that more than one-half of the members of the society had volunteered for military service.

**Social Service Department.**—One of the first actions taken by Dr. Henry E. Tuley on assuming office at the Louisville City Hospital was the reopening of the Social Service Department under the charge of Miss Mary Alexander. The most important portion of this work will be the following up of patients after leaving the hospital.——An informal house warming was given to the members of the Jefferson County Medical Society by Dr. and Mrs. Henry Enos Tuley, at the Louisville City Hospital, January 7. The reception followed the regular meeting of the society.

## MARYLAND

**Opening of New Wards.**—The new private floor and wards of the Maryland General Hospital, which have just been completed, were opened for general inspection, January 8.

**Japanese Physicians in Baltimore.**—Prof. Noborn Ishida, who has the chair of psychology in the Nagasaki Medical College, Japan, and Prof. T. Matsamoto, who holds a similar position at Chiba, Japan, both of whom are in this country studying the care of the insane, are now at the Henry Phipps Psychiatric Clinic of the Johns Hopkins Hospital, where they will remain for several months and pursue their work.

**To Fight Pneumonia.**—Announcement has been made in a *Bulletin* of the health department that means to control the spread of lobar pneumonia, now known to be communicable, will be adopted by the enforcement of the regulations and precautions which have been successful in restricting the spread of diphtheria and scarlet fever, with suitable modifications. Dr. William T. Howard, Jr., assistant commissioner of health, draws attention to the fact that a recent study in New York has emphasized the importance of race in relation to the death rate from pneumonia. The rate is relatively low among Germans, Russians and Hungarians in that city, while the rate for Italian children is particularly high, ranging from three and a half times that of children of German mothers to a little more than double that of children of American mothers. The Irish and the negro races are said to be peculiarly susceptible.

## MASSACHUSETTS

**War Meeting of Society.**—The semiannual meeting of the Essex North District Medical Society was held, January 2, in Haverhill. Dr. Eugene A. Crockett, Boston, spoke on "Medical Work in Serbia," Dr. D. Frederick E. Jones, Boston, on "A Base Hospital in War," and Capt. J. Forrest Burnham, M. R. C., U. S. Army, Lawrence, on "The Making of a Medical Officer."

**Personal.**—An abdominal operation was performed on Dr. James Marsh Jackson, Boston, at the Massachusetts General Hospital, December 24.——Dr. Edward S. O'Keefe, Lynn, has been appointed assistant in the Children's Medical Out-Patient Department of the Massachusetts General Hospital, Boston.——Dr. Joseph E. Mercer, Valley River, was elected president of the Calumet Club, December 13.

**Halifax Thanks Massachusetts.**—Lieut.-Col. MacKelvy Bell, Halifax, N. S., has sent a telegram to Col. William A. Brooks, surgeon-general, M. V. M., thanking Massachusetts for the royal service rendered by the Medical Unit of the National Guard, which was sent to Nova Scotia immediately on receipt of the news of the explosion, and was the first relief unit from the United States to reach the stricken city.

**Free Public Medical Lectures.**—A free course of public lectures on medical subjects is offered by the medical faculty of Harvard University at the medical school, Longwood Avenue, Boston, beginning January 6 and ending April 21, 1918.

The lectures are being given Sunday afternoons at 4 o'clock by foreign and local distinguished medical men, including a number of Army officers. The schedule follows:

January 6—Major William F. Snow, M. R. C., U. S. Army, "Social Hygiene and the War."

January 13—Dr. W. T. Porter, "Surgical Shock."

January 20—Dr. G. H. Wright, "Teeth and Their Relation to Human Ailments"; a plea for conservation.

January 27—Miss Elizabeth Sullivan, "Home Nursing," with demonstrations.

February 3—Dr. Richard M. Smith, "Child Welfare During the War."

February 10—Miss Mary Beard, "Child Welfare."

February 17—Dr. E. H. Bradford, "Shoes and Structure of the Foot."

February 24—Bishop Lawrence, "Social Infection and the Community."

March 3—Dr. L. W. Baker, "The Deformed Mouth of a Child; Its Effect on the Child's Future."

March 10—Dr. L. J. Henderson, "Food: How to Save It."

March 17—Dr. F. W. White, "What to Eat During War."

March 24—Dr. Percy G. Stiles, "Some Aspects of Fatigue."

March 31—Major Glenn I. Jones, M. C., U. S. Army, "Camp Sanitation and Control, and Hospital Administration at Camp Devens."

April 7—Dr. J. Bapst Blake, "Accident and Injury, First Aid," with simple demonstrations.

April 14—Dr. E. H. Place, "Immunity to Contagious Disease."

April 21—Dr. I. Chandler Walker, "Hay Fever and Asthma."

April 28—Dr. Julius Levy (under the National Food Committee), "Food Administration During the War."

### MINNESOTA

**New Society Organized.**—The Stillwater Medical Society was organized, December 22, and Dr. Burton J. Merrill was elected president; Dr. W. H. Pratt, vice president, and Dr. George E. Clark, secretary.

**Tri-County Sanatorium Opened.**—The Tri-County Sanatorium, for Marshall, Pennington and Roeau counties, Thief River Falls, is now completed. The formal opening ceremonies were held, December 28, and the first patients were received in the institution, January 1.

**The Mayo Trail.**—More than $300,000 will be expended in the improvement of the Burlington Trail, which is to be known as the Mayo Trail in honor of the Mayos of Rochester. The trail leads from the Iowa line, through Fillmore, Goodhue, Olmsted and Dakota counties, to Minneapolis and St. Paul.

**District Association Meeting.**—The annual meeting of the Red River Valley Medical Association was held in Crookston, December 28. St. Paul was selected as the next place of meeting. Dr. Herman A. Froehlich, Thief River Falls, was elected president; Dr. Franklin M. Dryden, Crookston, vice president, and Dr. Ralph L. Kirsch, Crookston, secretary-treasurer.

**Personal.**—Dr. Ellsworth Hayden Trowbridge, formerly assistant superintendent at the Minnesota School for Feeble-Minded, Faribault, has established a private school for the training of unusual children near Kansas City, Mo.——Dr. Julius P. Sedgwick, Minneapolis, has returned after a stay in France.——Dr. Frank L. Durgin, Winnebago, has given up his practice on account of atrophy of the optic nerve.

**State Board News.**—Drs. Thomas Lowe, Pipestone, and George E. Putney, Paynesville, were reappointed members of the State Board of Medical Examiners, December 26.——Dr. George Douglas Head, Minneapolis; Charles W. More, Eveleth; Neill M. Watson, Red Lake Falls, and Roscoe C. Hunt, Fairmont, have been appointed members of the state board of health, succeeding Drs. William A. Jones, Minneapolis, Henry Longstreet Taylor, St. Paul, and Ferdinand N. Hunt, Fairmont.

### MISSISSIPPI

**Appropriation for Hospital.**—At the next session of the legislature a request will be made for an appropriation of $25,000 to build a new hospital at the Beauvior Soldiers' Home, to take the place of the old building now in use.

**State Board Officers.**—At the annual meeting of the State Board of Health, held in Jackson, the following officers were elected: president, Dr. Charles D. Mitchells, Pontotoc; and vice presidents, Drs. Felix J. Underwood, Nettleton; William H. S. Frizell, Brookhaven, and Dr. George Baskerville, Winona. Dr. Waller S. Leathers, University, executive officer of the board, continues as secretary ex officio.

**Reciprocal Relations.**—The Mississippi State Board of Health now reports that reciprocal relations have been established with Alabama, Arkansas, California, Colorado, Delaware, District of Columbia, Georgia, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, Virginia, West Virginia and Wisconsin.

### NEW YORK

**Eugenic Records Given to Carnegie Institution.**—Mrs. E. H. Harriman has donated the Eugenic Record establishment at Cold Springs Harbor, L. I., to the Carnegie Institution at Washington, D. C. She has also donated a fund that yields $12,000 a year for the maintenance of the work. This conveyance is made to insure a continuance of the work.

**Personal.**—Dr. Edward F. Brush has been elected mayor of Mount Vernon.——Dr. Eugene H. Porter, Upper Lisle, formerly state commissioner of public health, has been appointed commissioner of foods and markets, succeeding John J. Dillon.——Dr. John R. Ross, Dannemora, has been appointed acting superintendent of the Dannemora State Hospital for the Criminal Insane, succeeding Dr. Charles H. North, deceased.

**Visiting Nurses for County Hospitals.**—An amendment to the New York county hospitals laws passed in 1917 requires the board of managers of each county tuberculosis hospital to employ a visiting nurse. Their duties are to discover persons with tuberculosis, get them into the hospitals, visit discharged patients at their homes, help them get back on a self-sustaining basis, and instruct and assist patients who do not go to the hospitals. The State Civil Service Commission, in carrying out the provisions of this amendment, announced an examination, open to graduate nurses of the state, for the position of visiting nurse to the county tuberculosis hospitals. The examination was held December 8. Positions were open in the following counties: Cattaraugus, Fulton, Jefferson, Onondaga, Ontario and Rensselaer. The salaries range from $800 to $1,200 a year and traveling expenses. Positions in other counties will likely be opened in the near future.

**Motor Deaths in 1917.**—The annual report of the National Highways Protective Society shows that in New York State, including New York City, there were 837 persons killed by automobiles, as compared with 729 for the preceding year. Col. Edward S. Cornell, secretary of the society, states that there has been an increase of about 100 per cent. in fatalities in five years. The same is said not to be the case in New Jersey, Massachusetts and Connecticut. Ninety-eight persons were killed at railroad crossings in the state of New York in 1917 as compared with eighty-two during the preceding year, and 122 in 1915. It is noticeable that the grade crossing accidents do not increase at the same ratio as other accidents. In this connection it is interesting to note that Dr. Wynne (*New York Medical Journal,* Dec. 22, 1917) points out that while there has been an increase in the number of deaths due to automobile accidents in New York City, and also in the rate per hundred thousand population, the proportion of such deaths to the number of automobiles operated has steadily decreased since 1908.

#### New York City

**Noguchi Under Operation.**—Dr. Hideyo Noguchi, pathologist of the Rockefeller Institute for Medical Research, was operated on, December 19, for appendicitis.

**Harvey Society Lecture.**—The fifth lecture of the Harvey Society series, given at the New York Academy of Medicine, January 12, by Prof. Henry C. Sherman of Columbia University was on "Food Chemistry in the Service of Human Nutrition."

**New Dean for Fordham.**—Dr. Joseph Byrne, professor of neurology in Fordham University, School of Medicine, has been appointed dean of the school, succeeding Dr. William P. Healy, resigned. Dr. Healy continues with the school as professor of gynecology.

**Death Rate from Pneumonia Continues to Rise.**—According to figures given out by the department of health, there were, for the week ended December 29, 1,501 deaths in this city, 314 of which were due to pneumonia. This is an increase of fifty-six deaths from this cause over the preceding week.

**Government Declines Offer of Sanatorium.**—The municipal authorities recently offered the Otisville Sanitarium to the government for a medical depot, but the offer included a clause permitting its revocation on thirty days' notice in writing to the Secretary of War. The government has declined this offer.

**Work of Poets' Committee.**—This committee, which was organized with the purpose of furnishing 100 ambulances for the Italian front, has reached its goal. In addition to having provided 100 ambulances, it has established five barracks hospitals and thirty-two tent hospitals, the latter having been furnished at the request of Italian authorities.

**Campaign for Jewish Charities.**—Several hundred directors and trustees of local Jewish institutions met, January 3, at the home of Adolph Lewisohn to formulate plans to raise $4,500,000 during the coming year. The Federation for the Support of Jewish Philanthropic Societies will begin this campaign, January 14. Hitherto the funds have been contributed largely by a comparatively few men of means. The present campaign will endeavor to distribute this burden more widely by securing a larger membership. Mr. Richard Lewisohn has offered to increase his subscription from $40,000 to $50,000 if 50,000 new members can be obtained. The federation now has eighty-four institutions affiliated with it.

**Board of Health Regulates Laundries.**—The department of health some time ago published the results of an investigation of the laundries of the city from a sanitary and bacteriologic standpoint which showed that there was need of the adoption and enforcement of regulations in order to safeguard the health of those engaged in this industry, as well as the public at large. The board of health, Dec. 19, 1917, adopted definite regulations relating to the character of the floors, light and ventilation of laundries, requiring the provision of suitable water closet accommodations and the instalment of safety devices on all machinery. Further regulations were adopted dealing more directly with the clothing to be washed, and providing for the safeguarding of the health of employees.

**The Passing of the Coroner.**—With the arrival of Jan. 1, 1918, the office of coroner ceased to exist in New York. The duties formerly performed by the coroners will under the new order of things be performed by a chief medical examiner, the police court and the district attorney. Under the old law the coroner held his own court and called his own jury. Under the new law, investigation will be had before the police magistrate in whose district the case occurs, and without jury. The chief medical inspector will receive reports from his deputies—successors of the coroner's physicians—and will take such cases as warrant it before the police magistrate. Dr. Patrick D. Riordan has been appointed chief medical inspector pending a civil service examination of candidates for the position.

**Annual Meeting of New York Academy of Medicine.**—The annual meeting of the New York Academy of Medicine, held January 3, was devoted to the presentation of the annual reports. The academy has at present 200 fellows in the service. The opposition to the probate of the will of the late Dr. Rudolph Witthaus has been withdrawn, and the rights of the academy as a present beneficiary and a residuary legatee are established; the academy is now receiving about $4 000 a year from this source. The report of the library committee, which was submitted by Dr. Haven Emerson, shows that the library now possesses 108,652 volumes, not including duplicates, an increase of 3,136 books for the year. The number of readers registering in the library during the year was 24,750, including holiday and Sunday readers; the number of readers in 1908 was 16,422.

## PENNSYLVANIA

**County Society Collects for Officers.**—The Clearfield County Medical Society during two months collected $116.93 to be turned over to members absent on military service.

**Personal.**—Dr. Wallace R. Hunter, Erie, has been reappointed a trustee of the State Hospital for the Insane at Warren.——Dr. Edward M. Green, clinical director of the Georgia State Sanatorium, has been elected superintendent of the State Lunatic Hospital at Harrisburg, to succeed Dr. Henry L. Orth.——Dr. Rollen L. Shinaberry, Scranton, who was shot and seriously wounded, December 17, is reported to be making good progress toward recovery.

### Philadelphia

**Christmas Reception and Luncheon.**—The College of Physicians of Philadelphia gave a reception and luncheon at the Hotel Rittenhouse, Christmas Day, in honor of the officers of the Medical Reserve Corps of the United States Army, stationed in Philadelphia for a course of instruction.

**Polyclinic to Merge with Med.-Chi.**—The Polyclinic has agreed to merge with the Medico-Chirurgical Post-Graduate School of the University of Pennsylvania, which was formed about a year ago by the merger of the University of Pennsylvania and Medico-Chirurgical Medical College. The petition for approval of the new merger was filed in Common Pleas Court No. 5, December 27, by John C. Bell, chairman of the merger committee. The present faculty of the Polyclinic Hospital will be retained for the present. When the reorganization is effected there will be changes.

**Personal.**—Dr. Edward A. Schumann has been made lecturer on obstetrics in Jefferson Medical College.——Drs. Samuel Wolf and Rae S. Dorsett have been appointed members of the staff of the Philadelphia General Hospital.——Lieut. Hugh C. Boyle is reported by General Pershing to have been seriously wounded, December 7, in action, somewhere in France. Lieutenant Boyle was attached to the Second Durham Light Infantry.——Dr. H. Bernard Cohen has been appointed director of school medical inspectors, to succeed Dr. Walter S. Cornell, resigned to enter military service.

## WISCONSIN

**Fire in Maternity Hospital.**—Fire in the Maternity Hospital, Racine, December 30, caused $500 damage, and necessitated the transfer of the patients and infants to St. Luke's Hospital and the Children's Hospital, but no casualties occurred.

**New Officers.**—Ashland-Bayfield-Iron County Medical Society, at Ashland December 24: president, Dr. Mathew S. Hosmer, Ashland; secretary, Dr. Clyde J. Smiles.——Dane County Medical Society, at Madison, December 22: president, Dr. Lawrence H. Prince; vice president, Dr. Thomas W. Tormey; secretary-treasurer, Dr. Walter H. Sheldon, all of Madison.

**Anesthetists Need Not Be Physicians.**—An opinion given by the attorney general of Wisconsin to Dr. Oscar Lotz, Milwaukee, member of the medical board, December 17, states that "The giving of an anesthetic under the direction of a physician does not require the anesthetist to hold a medical license, and this practice is, therefore, not to be considered as a violation of the statute."

**Tri-County Sanatorium.**—A sanatorium for the care and treatment of tuberculous patients will be established by Ashland, Bayfield and Iron counties, and all three of the counties have endorsed a plan and voted to bond the three counties for the sum necessary for the establishment of the institution. By this bonding plan, $90,000 is provided, $40,000 of which was voted by Ashland County, $30,000 by Bayfield County and $20,000 by Iron County.

**Personal.**—Dr. George C. Ruhland, Milwaukee, took the oath of office as health commissioner, January 2, succeeding Dr. Lewis J. Daniels, who had been acting as locum tenens during Dr. Ruhland's absence on military duty.——Dr. John M. Dodd, Ashland, has been made chairman of the antisaloon campaign to be conducted in Ashland County.——Dr. Edward H. Dudley, Janesville, slipped on the steps of his house, December 17, fracturing his skull.

**Provision for Families of Medical Officers.**—At the annual meeting of the Milwaukee County Medical Society, held December 13, it is announced that twelve citizens of Milwaukee, who desire to remain unknown, have subscribed a total of $775 each month for the aid of families of Milwaukee physicians who have entered the military service. Dr. George H. Fellman was elected president of the society; Dr. Gustav J. Kaumheimer, vice president; Dr. Daniel Hopkinson, secretary, and Dr. Arthur R. F. Grob, treasurer.

## CANADA

**Hospital News.**—The London, Ont., Health Association, at a meeting held on the afternoon of January 4, completed arrangements to open the new $200,000 hospital for tuberculous soldiers at the Byron Sanatorium, January 21. The Duke of Devonshire will officiate. Sir Adam Beck personally raised $28,000 of the funds necessary for the work.

**Personal.**—Col. Frederick G. Finley, Montreal, has been created a Companion of the Bath.——Col. Wallace A. Scott, Toronto, has been created a Companion of the Order of St. Michael and St. George.——Major Andrew Macphail, Montreal, editor of the *Canadian Medical Association Journal* and of the university magazine, has been knighted.——Brig.-Gen. Ernest C. Ashton, Brantford, Ont., has been created a Companion of the Order of St. Michael and St. George.——Lieut.-Col. John A. Amyot, Toronto, professor of hygiene and preventive medicine in the University of Toronto, has been created a Companion of the Order of St. Michael and St. George.——The following medical officers have received the Distinguished Service Order: Major Arthur C. Jones, Kilbride, Ont.; Capts. Herbert C. Allison, London, Ont.; Robert J. Gardiner, Saskatoon, Sask., and Richard Herald, Vancouver, B. C.——Dr. Edith H. Gordon, Toronto, University of Toronto, 1915, has been appointed assistant medical adviser of women at Cornell University.

**Public Health News.**—Col. John W. S. McCullough, chief medical officer of the Ontario Board of Health, Toronto, is cooperating with the Committee for the Prevention of Venereal Diseases in the distribution of pamphlets among the physicians and surgeons of Ontario. The educational campaign being carried on by the associated committees throughout the province is making headway. The Academy of Medicine, Toronto, is also lending material aid in the campaign.——Dr. Maurice M. Seymour, public health commissioner for the province of Saskatchewan, acting under the provisions of the public health act of that province, announces that in future all venereal diseases will have to be reported in that province. Those suffering therefrom must at once seek treatment and remain under the care of a physician continuously until a cure has been effected. The physician must report the case to the commissioner of public health within three days of the patient's first visit, together with other information relating to the patient and the family, but the name of the patient may be omitted unless the patient fails to report to his physician for thirty days, when the name and address must be sent to the commissioner, who may then take such steps as may be necessary for the treatment of the patient.——The work of the medical relief committee at Halifax, N. S., owing to the recent catastrophe overtaking that city, has been well organized under Colonel Bell. About 600 persons injured in the explosion are still under treatment in the various hospitals; and the discharge of patients has been so rapid that there are now very few outside doctors and nurses doing work in Halifax. Capt. William H. Hattie, Halifax, N. S., provincial officer of health, states that a great deal of work will have to be done later in connection with putting in false eyes and the remodeling of torn and scarred faces. Fears regarding the epidemics of contagious diseases have not been realized, attributable to the large number of doctors and nurses who patrolled Halifax immediately after the explosion, and at once reported any insanitary condition.

## GENERAL

**Southern Surgeons Meet.**—The annual meeting of the Southern Surgical Association was held in St. Augustine, Fla., December 20 and 21. Dr. Isaac S. Stone, Washington, was elected president, and Dr. Guy L. Hunner, Baltimore, treasurer. Baltimore was selected as the next place of meeting.

**Correction.**—The item which appeared in The Journal, Nov. 17, 1917, p. 1723, announcing the marriage of "John C. Reed, M.D., Duquesne, Pa., to Miss Lillian Bennethum of Harrisburg, Pa., October 24," was incorrect. The John C. Reed whose marriage was thus announced is a dentist of Harrisburg, Pa.

**Tuberculosis Workers to Meet.**—The next annual meeting of the National Association for the Study and Prevention of Tuberculosis will be held in Boston, June 6-8.——The American Climatological and Clinical Association will meet in the same city, June 5 and 6. The following are section chairmen: Clinical section, Dr. Walter R. Steiner, Hartford, Conn.; sociology section, Mrs. James Minic, Chicago; advisory council, Dr. George Thomas Palmer, Springfield, Ill.

**Annual Meeting of the Federation of State Medical Boards.**—The Federation of State Medical Boards will hold its regular annual meeting, Feb. 4 and 5, 1918, at the Congress Hotel, Chicago. The Monday meeting will be held in the afternoon, and will be a joint session with the Council on Medical Education, the program of which was published last week. The paper to be given by Mr. Harry Eugene Kelly, however, will be given at the Tuesday meeting, and not on Monday, as announced. Instead there probably will be a paper on the National Service School. The Tuesday program is as follows:

"State Medical Boards," Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, San Francisco.

"Uniformity of Reciprocity Applications," F. C. Dodds, superintendent of registration, Department of Registration and Education, Springfield.

"Sectarianism in the Science of Healing as Treated in Legislative Acts and Judicial Decisions," Harry Eugene Kelly, Chicago.

There will also be the regular annual business meeting, including the reports of standing committees.

**Annual Meeting of the Association of American Medical Colleges.**—The annual meeting of the Association of American Medical Colleges will be held at the Congress Hotel, Chicago, Feb. 5, 1918, the day following the fourteenth annual conference of the Council on Medical Education. At this meeting addresses will be given as follows:

"Courses for Military Training for Medical Officers," Dr. Edward H. Bradford, dean of Harvard University Medical School, Boston.

"Arrangement of Work in Internal Medicine," Dr. Charles P. Emerson, dean of Indiana University School of Medicine, Indianapolis.

"Entrance Conditions After January 1, 1918," Dr. Harley E. French, dean of University of North Dakota School of Medicine, University.

"The Teaching of Medicine: A Retrospect and a Forecast," Dr. John Van de Erve, associate dean of Marquette University School of Medicine, Milwaukee.

"Administration of the Two Years' Requirement," Dr. Walter H. MacCracken, secretary of Detroit College of Medicine and Surgery, Detroit.

These addresses will be followed by the regular annual business session, which will include the reports of several standing committees.

## FOREIGN

**Deaths Abroad.**—Dr. **Tanemichi Aoyama,** one of the imperial court physicians of Japan, aged 58, a member of the faculty of the Imperial University of Tokyo since 1888, dean of the faculty and editor-in-chief of the official organ of the college; died in Tokyo, December 22, from nephritis.——Sir **C. P. Lukis,** director general of the Indian Medical Service for the last eight years, aged 60.——**A. Tamassio,** professor of legal medicine at the University of Padua for over twenty years, aged 68. His name is connected with the identification of criminals, and the pathologic anatomy in certain forms of dementia.——**O. Frederici,** professor of obstetrics and gynecology at the University of Rome, and member of the editorial staff of the *Clinica Ostetrica.*

**Professional Interests in Colombia.**—Dr. J. M. Montoya of Bogota, S. A., comments editorially in the *Repertorio de Medicina y Cirugia* on the failure of the legislature to pass the bill providing for the regulation of the practice of medicine. Year after year, he laments, some bill on the subject comes up for discussion, and it is lobbied on to the table. This year a physician member of the house was responsible for the failure of the bill to receive consideration. It was already at the second debate when he proposed to add a rider to the effect that sanatoriums founded in Colombia by alien physicians should be heavily taxed. This gave the foes of scientific medicine a chance to attack the proposed law as exclusively favoring diplomaed physicians, and that the welfare of the public was not considered in the bill. The years are passing, Montoya remarks, and nothing has yet been done in Colombia to establish the fundamental bases on which the structure of public health should be built up.

**The National Medical Congress in Cuba.**—The medical profession in Cuba announces the great success of the fourth triennial national medical congress, which closed its six day session at Havana, Dec. 22, 1917. The attendance was unprecedented, and many works of practical and general interest, showing the scientific advancement of the medical profession in Cuba, are said to have been presented at this gathering. The sessions were held at the Academy of Sciences, and roused great enthusiasm. Dr. F. D. Roldan, secretary of public instruction, presided. The chairman of the executive committee, which deserves great credit for its success, was Dr. Aristides Agramonte, the survivor of the North American yellow fever commission. The secretary general was Dr. F. M. Fernandez, the ophthalmologist. Among the more important resolutions adopted by this representative gathering of the Cuerpo Medico Antillano were some expressing "fervent wishes for the triumph of the cause of the Allies, with whose ideals we are so closely identified"; "offering our help to the government in defense of our country"; "sending fraternal expressions of sympathy to the physicians, dentists, pharmacists and veterinarians of the allied armies." Another resolution warned the physicians of Cuba not to accept as sanctioned by the medical profession of Cuba the Garcia plan for treatment of leprosy until the method has been tried and tested by the committee which has been appointed for the purpose, and which is now studying it. Another resolution was an appeal to the government to make vaccination against typhoid compulsory, and also hospitalization of typhoid fever cases. Another resolution recommended to the government of Cuba the creation of an institution for scientific research, and that it should be named the Santos Fernandez Institute. Three months before the meeting over 800 names had been registered. Dr. José A. Presno, founder and editor of the *Revista de Medicina y Cirugia*, was elected to preside at the next meeting. It is to be held in 1920, at Havana.

## PARIS LETTER

Paris, Dec. 13, 1917.

### The War

#### RESULTS OBTAINED AT AN ADVANCED SURGICAL UNIT

At a recent meeting of the Surgical Society of Paris, Dr. H. Barnsby reported the results he had obtained during a period of forty-five days at an advanced surgical station attached to an evacuation center where only the severely wounded who could not be transported were operated on and hospitalized. The cases of this kind (open chest wounds, grave hemorrhages, multiple wounds with shock, penetrating wounds of abdomen) numbered 240. Among 28 cases of chest wounds there were 21 cures and 7 deaths. In the bleeding cases, with or without projectiles in the tissues, an immediate thoracotomy was done after the method of Pierre Duval (suture of lung, after removal of the projectile and hemostasis, cleansing of the pleural cavity and primary closure); of 14 cases, 10 were successful, 4 were failures. In the cases not complicated by hemorrhage or very little hemorrhage, especially the seton or plugged cases, in which orthopnea rather than hemorrhage was a prominent symptom, Barnsby excised the wound with bone and cartilage resection as needed, closing the wound immediately, as in the case of a wound of the soft parts. Among 14 cases, 11 were successful and 3 failures. Of 9 cases *in extremis*, which he believed to be inoperable, 8 terminated fatally; one patient lived. Among the severe cases of hemorrhage (patients arriving with tourniquet applied but bleeding nevertheless) there were 85 per cent. of cures in 26 cases (22 cures and 4 deaths). Among those having multiple wounds, and shocked, that is to say, patients covered with wounds (excluding abdomen, skull and thorax) with typical facies, no pulse, cold extremities (119 cases) there were 42 deaths, 65 per cent. recovering.

#### PENETRATING WOUNDS OF ABDOMEN

Barnsby called attention to those cases spoken of but little heretofore but which are as grave as they are deceptive. There were 60 cases of penetrating wound of the abdomen, with 21 deaths; (1) 17 had not been operated on (wounds of the upper abdomen): 13 cures, 4 deaths; (2) 7 cases of thoracico-abdominal wounds: the only patient operated on was saved; of the 6 patients not operated on, 2 died; (3) 36 cases operated on (not including 2 cases in which no viscera were wounded, 18 cures, 16 deaths). Among these cases were 16 in which only one viscus was wounded, 14 by shell fragments, and 18 in which many viscera were wounded, all by shell fragments.

#### WHEN TO OPERATE

Barnsby says that when these abdominal cases must be operated on at the front, laparotomy is the operation of choice. In these cases operation should be performed: (1) Patients arriving within ten hours after being wounded, in periods of calm or during action, should always be operated on, except when the wound is in the upper abdomen and the patient is pulseless; (2) patients arriving within ten to twenty hours should be operated on if the sector is quiet; during an action (except in cases of wounds of the upper abdomen, patient pulseless, seton wounds with good general condition) an exploratory laparotomy should be done. If the lesion is comparatively slight, or if operation can be performed rapidly, it should be done. If the lesions are multiple and grave, or if peritonitis is present, it is better not to insist on operation; (3) after twenty-four hours, do not operate; (4) thoracico-abdominal wounds: (a) the wound being thoracic rather than abdominal, with small fragment localized in the upper zone: do not operate; (b) ditto, with large fragment high up: make a thoracico-abdominal incision, giving the transpleural route preference; (c) if the wound is abdominal rather than thoracic; two separate operations (thoracic and abdominal) should be done if the condition of the patient permits.

#### ADVANCED SURGICAL STATION IS WORTH WHILE

Barnsby is convinced of the value of an advanced surgical station, with at least two experienced surgeons in charge. The surgeon should operate at once all abdominal cases, severe hemorrhagic cases, and open chest cases, bleeding or asphyxiated. He should, on the other hand, prepare certain patients (multiple wounds with shock, hemorrhage with shock in which the tourniquet has been used) so that a successful operation can be performed later. Patients on whom an immediate operation would prove fatal, can often be operated on successfully after carefully supervised and well controlled preparatory treatment.

### Preparatory School of Medicine at Bordeaux

A preparatory school for the school of naval medicine is to be established temporarily by the Faculty of Medicine of Bordeaux. The purpose is to enable young men who intend to become physicians and pharmacists in the navy, or for colonial troops, to take up the first year of their course of study. They will be matriculated on written examination, and, on admission, pledge themselves to meet their military obligation. They will be lodged and boarded at the expense of the navy, and will also receive from the navy the tuition for the first year. After obtaining 4 credits these students will be enrolled in the active list of the fleet as sailor nurses for the duration of the war.

### Decoration of the American Ambulance Section No. 5

This section has been awarded the red and green war cross. The order of General Petain, commander-in-chief of the armies of the north and northeast, awarding this distinction, says: "This unit has been cited twice for its splendid conduct before the enemy."

### The American Exposition

The Franco-American committee will organize in Paris an exposition of American donations. The president is M. Louis Renault, president of the central committee of the French Red Cross. The affair will be held in honor of Americans. M. Louis Renault thanked and complimented the Franco-American Committee whose activities have not only been multiplied since the war began, but have borne many good results. Passing in review the various activities attesting the generosity of Americans, M. Renault spoke especially of certain efforts inspired by love, notably those directed toward the protection of children on the frontier, and the reconstruction of cities and villages. The speaker, after calling attention to the fact that four countries of South America, the Argentine Republic, Brazil, Chile and Uruguay, had each established a hospital, spoke of the assistance given France by the United States, praising its great generosity. He cited two instances in illustration: In one year, the American Red Cross founded or aided 1,700 hospitals, and 75,000 women of the United States have contributed to the relief of war victims. M. Germain Bapst set forth in detail the many and various means of assistance rendered by America to the French Red Cross.

### Death of Medical Inspector Schneider

Medical Inspector Schneider, former director of the Service de Santé of the Twentieth Army Corps, died in the Val-de-Grâce hospital of a painful malady contracted in the service.

### Death of Delanglade

Dr. Edouard Delanglade, professor of clinical surgery in the Marseilles School of Medicine and Pharmacy, and surgeon at the Hotel Dieu of that city, surgeon major of the first class, died of a fatal wound received while organizing a first aid station at the front in Alsace. Dr. Delanglade had been cited three times in army orders and had been nominated an officer of the Legion of Honor.

### Immediate Intervention in Wounds of the Heart

At one of the recent sessions of the Surgical Society of Paris, Constantini and Vigot reported two cases of heart wounds by shell fragments in which they operated at once, thus saving the patients' lives. In one case the wound was very deep, but not penetrating the left ventricle. The projectile was lying free in the pericardial cavity. It was extracted and the wound sutured. Recovery was uneventful. The patient was discharged on the fifteenth day. In the second case, the left auricle was perforated, the opening admitting a pencil. The wound was sutured. Unfortunately a left-sided infective hemothorax developed. The pleural cavity was sterilized by means of neutral solution of chlorinated soda, and the patient was discharged in about seven weeks. A roentgenogram showed the shell fragment in the left lung.

Constantini and Vigot emphasized the diagnostic importance of a sign which, in the cases cited above, enabled them to make a diagnosis of heart wound very quickly. The sign is the absolute immobility of the cardiopericardial shadow on roentgenographic examination. This fixed shadow is due to a hemopericardium. As to surgical intervention in these cases; the authors direct attention to the absolute necessity of operating in daylight to get a clear view. When an organ like the heart bleeds, one must explore gently and without unnecessary groping about. Therefore, a resection of the sternum is inevitable, and to avoid loss of time, the operation must be performed systematically. One may choose one of two methods: 1. A pedunculated flap, including the cartilages of the third, fourth and fifth ribs, obtained by making a transverse section of the sternum with partial resection of the left side of the sternum. This is almost what was done in the first case, except for the cartilage resection. 2. A chondrosternal pedunculated flap, including the third, fourth and fifth cartilages on the left side and the corresponding portion of the sternum. Such a window was cut out in the second case. It gave good access to the heart.

### Increasing Prevalence of Scabies

Dr. Georges Thibierge, physician to the hospitals of Paris, presented a communication on this subject at a recent meeting of the Academy of Medicine. He stated that as in previous wars, the itch has made its appearance now, as much in military as in civil life. In the army, it has appeared in all the corps; it is often contracted during sexual intercourse; it is transmitted by unwashed and undisinfected clothing in which an infected person has slept, by bedding, etc. Among civilians, it is the same. Soldiers on furlough carry the parasite home from the front and transmit it to their wives and children; they leave it in the linen at the hotel where they have slept, the next occupant of the bed is infected, and thus the disease is spread. The number of patients treated in the hospitals of Paris in 1917 was more than three and one half times greater than in 1913. Among the well-to-do the proportion is still greater, having gone from 1 to 10 or 12 per cent. of all cases of skin disease. The insufficient washing of the linen in hotels and rooming houses, and the improper treatment applied in a large number of institutions, explain the propagation of the disease. On the other hand, failure to recognize this disease as being the cause of the pruritus which is attributed to eczema, urticaria, digestive disturbance and eating bread also is responsible for the persistence of the disease and its spread. The itch may be cured rapidly when it is recognized and treated properly.

### Use of Hot Dressings Combined with Gutta Percha

At the same meeting, Dr. Bouët-Henry commended the use of liquid petrolatum and of paraffin as a very hot dressing, associated with an insulating body, which will enable the tissues to withstand temperatures higher than those of the usual hot bath or aqueous injection without burning or causing pain, and will retard the cooling of the mixture. She finds that the best agent for this purpose is gutta percha. To obtain the best results, one must use a paraffin with a melting point between 42 and 45 C. (107.6 and 113 F.). This paraffin, or the liquid petrolatum, is added to the gutta percha in the proportion of 1,000: 50. This mixture will cool ten times more slowly than water of the same temperature. It can be applied without burning at temperatures varying between 70 and 90 C. (158 and 194 F.) and the dressing remains soft and compresses by reason of its elasticity.

### Intrabronchial Foreign Body Evacuated Spontaneously After Two Years

At a recent meeting of the Medical Society of the Hospitals of Paris, Dr. D. Denéchau reported an interesting case. March 27, 1913, a woman accidentally swallowed a piece of the whalebone support of her collar. No immediate inconvenience resulted. In the course of the evening, retrosternal pain developed, increasing rapidly in severity, and reaching its maximum the next day. On the third day, the woman suffered from a constant dyspnea, without orthopnea but accompanied by a bronchitis of sudden onset. Soon cough, with bloody expectoration, was noted. A diagnosis of bronchopneumonia was made. The entire lung was in a state of congestion, imparting a woody tone on percussion, with almost complete absence of the vesicular murmur. April 10, Denéchau urged a roentgenoscopic examination, but it was not practicable, and bronchoscopy was negative. This state of affairs persisted for months, suggesting tuberculosis. Repeated bacteriologic examinations were always negative, and the inoculation of a guinea-pig was likewise negative. In March, 1915, the patient's condition was suggestive of emphysema with bronchial râles, and finally there appeared suddenly violent pains of a tearing nature in the back of the throat and in the chest. Some days later, at the height of a coughing spasm, the patient expectorated the piece of whalebone swallowed two years (less three days) previously.

Denéchau stated that the presence of foreign bodies in the bronchi is too often not recognized even by competent physicians. He also called attention to the syndrome of symptoms simulating tuberculosis, which may be caused by these foreign bodies, and to the speedy cure that resulted in his case on the spontaneous expulsion of the foreign body.

### Gift to the Academy of Medicine

By presidential decree, the Academy of Medicine is authorized to accept an endowment representing an annual income of 1,000 francs, the gift of Mme. Lermoyez and MM. Hippolyte and Camille Labbé for the purpose of establishing a triennial prize of 3,000 francs to be known as the "Léon Labbé Prize." This prize will be awarded on the recommendation of the section on surgical pathology to any Frenchman who during the preceding three years has contributed most to surgical progress, so that he may continue his research. If no progress-making work has been done, the prize will not be awarded, and the academy may at the expiration of the next triennium award several prizes or one grand prize of 6,000 francs.

### Personal

M. Painlevé is now president of the Academy of Sciences, succeeding M. d'Arsonval, whose term of office has expired. M. Léon Guignard, professor of botany at the School of Pharmacy of Paris, was unanimously elected vice president.

## LONDON LETTER

London, Dec. 11, 1917.

### The War

#### THE WAR AND THE PROFESSION

In his presidential address to the General Council of Medical Education and Registration, Sir Donald MacAlister said that the conditions created by the war are pressing on all departments of medical organization, straining to its limit the old machinery, and compelling the construction of new and extemporary devices. The medical duties of the army recruiting department have been transferred to the civilian ministry of national service. The new organization is designed to meet the national need for the better distribution of medical services as between the army and navy and the civilian population for the medical examination and classification of recruits for the various forms of national service, and for the conservation of our resources in the matter of candidates for medical qualifications. The withdrawal of students from the medical schools for combatant service has deprived the country of the necessary quota of new practitioners in the years 1918 and 1919. In January, 1917, a census of students engaged in professional study showed that in the third year of the curriculum we could count only on 752 men and 261 women to provide in 1919 for the necessary accession of new practitioners to the register. In normal times this accession should number about 1,100. Only by returning third year students, then on active service, could the deficiency be made good. In September the army council directed that students registered prior to Aug. 1, 1914, who had before enlistment completed two years of the curriculum, should be passed out of combatant service to resume medical study and proceed to qualification. The minister of national service has declared his intention to provide, if possible, that the supply of students in training shall be maintained at a level sufficient to insure the annual accession of at least 1,000 new physicians to the register. To effect this purpose it will almost certainly be necessary to extend the scope of the army council's instruction either by relaxing its restriction to students registered prior to Aug. 1, 1914, or by including second year students who on enlistment were sufficiently advanced to compass the second professional examination within a few months.

On the other hand, the Admiralty makes an urgent demand for capable third year students who have passed the professional examination in anatomy and physiology, and are able to render aid as surgeon probationers in the minor units of the navy. To withold these from their studies for an indefinite period of service would unduly postpone the date of their full qualification as physicians, and would proportionately diminish the number annually added to the register.

The medical director-general of the navy has accordingly arranged that the period of service of surgeon probationers shall not be longer than six months at home or twelve months abroad. The functions of a surgeon probationer being comparable with those of a surgical dresser or student assistant in surgical wards, licensing bodies generally have agreed to accept his surgical service afloat as equivalent to six months of the hospital attendance prescribed for the minimum curriculum. The Admiralty arrangement should therefore insure that most of the surgeon probationers will return and qualify within the normal period, and in the meanwhile they will have gained experience that may hereafter stand to their advantage as physicians.

The claims of the army for fresh drafts from the civilian members of the medical profession continue, though it has become a serious problem how the claims are to be met. A War Office committee, which included members of the Medical Council, visited the western front during the summer for the purpose of discovering what economies in personnel, if any, might be made in the medical corps. Its report is not yet issued, but it is questionable whether any practicable economy can be commensurate with the continuous wastage due to the incidents of warfare. The devotion and success of the medical corps in preserving and restoring the health of our troops have been recognized in the warmest terms by the highest authorities; but the service is rendered at a heavy sacrifice. On almost every page of the Medical Register some military distinction has been inserted. But too often the bearer's name has had to be marked "died on service." In the three years 1911-1913, the average number of names annually removed from the register "on evidence of death" was 620. In the year 1916 the number rose to 983.

OFFICERS OF THE AMERICAN MEDICAL SERVICE

The welcome cooperation of the United States of America in sending over medical units in advance of its troops has afforded the Allies some relief. Officers of the American Medical Service have accepted honorary or other temporary positions in hospitals at home and abroad, and have thus released British officers and physicians for other work. But we shall not be able to count on this help after the arrival in Europe of the American forces in full strength. And again we cannot count on American civilian physicians to furnish many accessions to our register. In the absence of American federal legislation authorizing professional reciprocity between the United States and Britain, the council has no power to admit American physicians to the register, unless they pass a recognized examination in medicine, surgery and midwifery in this country. Where such legislation, within or without the empire, has been accomplished, the council has not failed to give it effect. Already the foreign and colonial lists of the register include over 1,000 physicians, and their legal status in record to practice is the same as our own.

## Marriages

Lieut. Henning O. Lindholm, M. R. C., U. S. Army, Escanaba, Mich., to Miss Mabelle S. Bayard of Chicago, at Camp MacArthur, Waco, Texas, December 21.

Actg. Asst. Surg. James Graham Marston, U. S. P. H. S., Baltimore, to Miss Valerette Berndt of Forest Park, Baltimore, December 15.

Harold Flavell Westcott, M.D., Bridgeton, N. Y., to Miss Grace Rushton of Clementon, N. J., at Laurel Springs, N. J., December 20.

Lieut. Henry Exum Austin, M. R. C., U. S. Army, New York City, to Miss Annie C. Bonner of Baltimore, December 24.

Lieut. Harry Dellmarr Conley, U. S. N. R., Jamestown, Va., to Miss Elsie V. Wilson of Philadelphia, December 17.

Louis Siebenmorgen, M.D., Terre Haute, Ind., to Miss Ruby Elizabeth Curtis of Paxton, Ind., December 25.

Lee Sinclair Preston, M.D., to Miss Ola Capron-Gypson, both of Oneida, N. Y., December 22.

Edward Rochford Cox, M.D., to Miss Ruth George Savage, both of Los Angeles, November 1.

Louis Gilbert Wehrle, M.D., to Miss Irene Frances O'Brien, both of Chicago, recently.

Samuel B. Geise, M.D., to Mrs. Cordelia Clark, both of Sunbury, Pa., December 23.

## Deaths

**Capt. William Elvis Harwood, M. R. C., U. S. Army,** Joliet, Ill.; on duty with Base Hospital Unit No. 12, in France; died from pneumonia, January 7. Dr. Harwood was born in Joliet, Ill., Nov. 16, 1858; was graduated from Rush Medical College in 1880; and for several years practiced in Eveleth, Minn., where he was surgeon-in-charge of the Fabiola Hospital, and surgeon to several mining companies. He later returned to practice in Joliet, and when the Base Hospital Unit No. 12 was organized he volunteered for service, but was rejected on account of his age. He was later accepted on account of his successful work with the roentgen ray. On his arrival in France Dr. Harwood was promoted to a captaincy. He was a Fellow of the American Medical Association.

**Charles Frederick Bevan, M.D.,** Baltimore; University of Maryland, Baltimore, 1871; aged 67; formerly a Fellow of the American Medical Association; dean and professor of principles and practice of surgery, clinical and general surgery, in the College of Physicians and Surgeons, Baltimore, from 1888 to 1912; dean of Mercy Hospital from 1901 to 1917; died at the Union Protestant Infirmary, Baltimore, December 27, from heart disease, following an operation on the intestines.

**Charles Smith Allaben, M.D.,** Margaretville, N. Y.; College of Physicians and Surgeons in the City of New York, 1882; aged 62; a Fellow of the American Medical Association; county physician of Delaware County; while making a professional call, December 10, near Margaretville, was thrown from his automobile and sustained a fracture of the skull, dying from his injuries two days later.

**William S. Alexander, M.D.,** Oxford, Ohio; College of Physicians and Surgeons, 1893; aged 51; a Fellow of the American Medical Association; local surgeon of the Cincinnati, Hamilton and Dayton and Pere Marquette systems; for many years a member of the village council and Butler County Board of Education; died at his home, December 22, from cerebral hemorrhage.

**Alfred Coles Haven, M.D.,** Lake Forest, Ill.; University of Syracuse, N. Y., 1880; aged 60; a Fellow of the American Medical Association, and once president of the Lake County Medical Society; for two years surgeon for the Pacific Mail Steamship Company; one of the most prominent and beloved practitioners of northern Illinois; died at his home, January 3, from angina pectoris.

**George Augustus Ostrander, M.D.,** Brooklyn; College of Physicians and Surgeons of the City of New York, 1858; aged 83; a charter member of the Medical Society of the County of Kings; who was the guest of honor at a testimonial dinner given by his colleagues in 1908 to commemorate the fiftieth anniversary of his entrance into practice; died at his home, December 26.

**Samuel L. Kilmer, M.D.,** South Bend, Ind.; Rush Medical College, 1879; aged 68; a Fellow of the American Medical Association; for several years local surgeon of the Lake Shore, and Michigan Southern and Indiana, Illinois and Iowa railways; a member of the staff of Epworth Hospital, South Bend; died at his home, December 28, from heart disease.

**Thomas Bakewell Hegeman, M.D.,** Brooklyn, N. Y.; College of Physicians and Surgeons in the City of New York, 1880; aged 49; a Fellow of the American Medical Association; died at his home, December 20, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

**Albert Dexter Kingsbury, M.D.,** Needham, Mass.; Georgetown University, Washington, D. C., 1869; aged 75; a Fellow of the American Medical Association; a veteran of the Civil War, and a member of the board of directors of the Wellesley National Bank; died suddenly, December 11, from heart disease while making a professional call in Needham.

**Ensign Bennett Pardee, M.D.,** New York City; New York University, New York City, 1875; aged 64; visiting physician to the Homeopathic Hospital, Ward's Island, and the department of charities and correction from 1890 to 1893, and to the Metropolitan Hospital, Blackwell's Island, from 1893 to 1897; died at his home, December 28, from pneumonia.

**Samuel R. Cates, M.D.,** Abilene, Texas; Kansas City (Mo.) Medical College, 1883; aged 64; formerly a Fellow of the

American Medical Association; a member of the State Medical Association of Texas; in 1908 secretary of the Taylor County Medical Society; died in Plainview, Texas, September 25, from carcinoma of the rectum.

**John R. Stevenson, M.D.,** Haddonfield, N. J.; University of Pennsylvania, Philadelphia, 1863; aged 83; a Fellow of the American Medical Association; surgeon of U. S. Volunteers during the Civil War; a member of the borough council since its organization in 1897; died at his home, December 20, from pneumonia, following an accident.

**Frank E. Burdick, M.D.,** Providence, R. I.; Syracuse (N. Y.) University, 1895; aged 46; a Fellow of the American Medical Association; president of the Providence Medical Society; a member of the visiting medical staff of the Rhode Island Hospital and of St. Elizabeth's Home; died at his home, December 26, from heart disease.

**Glen Mitchell Litzinger, M.D.,** Baltimore; College of Physicians and Surgeons, Baltimore, 1898; aged 45; formerly a Fellow of the American Medical Association; associate professor of obstetrics in the University of Maryland, Baltimore; a member of the staff of Mercy Hospital; died at his home, December 26, from septicemia.

**H. M. Nicholas Sasseville, M.D.,** Berlin, N. H.; Laval University, Montreal, 1890; aged 48; formerly a member of the New Hampshire Medical Society; a member of the legislature from Hillsboro County in 1893; formerly a member of the staff of Notre Dame Hospital, Manchester, N. H.; died at his home, December 14.

**Edward A. Y. Schellenger, M.D.,** Camden, N. J.; University of Pennsylvania, Philadelphia, 1892; aged 47; a Fellow of the American Medical Association; formerly president of the Camden County Tuberculosis Hospital; a member of the surgical staff of the Cooper Hospital, Camden; died at his home, December 24.

**Albert Lynch Lawrence, M.D.,** Washington, D. C.; Columbia University, Washington, D. C., 1896; aged 53; formerly a Fellow of the American Medical Association; a member of the Medical Society of the District of Columbia; died at his home, September 9, from uremia, consequent on prostatic hypertrophy.

**Margaret Carsley Balabanoff, M.D.,** Tacoma, Wash.; Women's Medical College of the New York Infirmary for Women and Children, 1881; aged 65; formerly a Fellow of the American Medical Association; a member of the Washington State Medical Association; died at her home, December 24.

**Granville E. Whittlesey, M.D.,** St. Louis; American Medical College, Eclectic, St. Louis, 1901; aged 55; died in his rooms in St. Louis, December 24, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

**W. O. Walker, M.D.,** Minneapolis; Medical College of Ohio, Cincinnati, 1862; aged 80; surgeon of U. S. Volunteers during the Civil War; died at his home, December 19, from the result of injuries received nine weeks before when he was struck by an automobile.

**Julius Royal Fisher, M.D.,** Akron, Ohio; College of Physicians and Surgeons, Baltimore, 1910; aged 33; a Fellow of the American Medical Association, and a member of the staff of the People's Hospital; died at his home, December 23, from septicemia.

**Omer LaRue, M.D.,** Putnam, Conn.; Ecole de Médecine et de Chirurgie, Montreal, 1872; aged 68; a member of the Connecticut State Medical Society, and a member of the staff of the Day-Kimball Hospital, Putnam; died at his home, December 28.

**Lieut. Ulysses Grant Goodwin, M. R. C., U. S. Army,** Monticello, Ind.; Medical College of Indiana, Indianapolis, 1902; aged 41; formerly a member of the Indiana State Medical Association; died at his home, December 20, from heart disease.

**Bruce Watson, M.D.,** Perry, Okla.; Barnes Medical College, St. Louis, 1897; aged 52; a member of the Oklahoma State Medical Association, and health officer of Noble County; died at the Hercules Sanitarium, Guthrie, September 12, from uremia.

**George Allen McKinnon, M.D.,** Sidney, N. Y.; New York University, New York City, 1885; aged 56; formerly coroner of Delaware County, N. Y., and for twelve years postmaster of Sidney; died at his home, December 20, from cerebral hemorrhage.

**David J. Washabaugh, M.D.,** Grove City, Pa.; Miami Medical College, Cincinnati, 1876; aged 72; a member of the Medical Society of the State of Pensylvania, and one of the oldest practitioners of Mercer County; died at his home, December 23.

**Andrew Badger Sherburne, M.D.,** Portsmouth, N. H.; Harvard Medical School, 1871; aged 70; a member of the New Hampshire Medical Society and Massachusetts Medical Society; died at his home, November 24, from heart disease.

**Charles E. Annabel, M.D.,** Waverly, N. Y.; New York University, New York City, 1871; aged 66; resident physician and surgeon to the Elmira Medical and Surgical Institute; died at his home, December 14, from pneumonia.

**Jacob Crawford McCormick, M.D.,** Mount Gilead, Ohio; Western Reserve University, Cleveland, 1890; aged 56; a Fellow of the American Medical Association; died at his home, December 20, from heart disease.

**Walter V. Woods, M.D.,** Odessa, Del.; Jefferson Medical College, 1877; aged 63; formerly professor of gynecology in the Medico-Chirurgical College of Philadelphia; died at his home, December 20, from typhoid fever.

**Elmore Y. Chase, M.D.,** Salem, Ore.; Miami Medical College, Cincinnati, 1864; aged 86; lieutenant-colonel of U. S. Volunteers during the Civil War; a pioneer practitioner of Salem; died at his home, December 23.

**William Ernest Irvin, M.D.,** Owensboro, Ky.; Vanderbilt University, Nashville, Tenn., 1878; aged 62; a Fellow of the American Medical Association; health officer of Owensboro; died at his home, December 28.

**F. W. Benjamin, M.D.,** Alameda, Calif.; Berkshire Medical College, Pittsfield, Mass., 1860; aged 83; surgeon of the Third New York Volunteer Light Artillery during the Civil War; died at his home, December 22.

**Clifford Morrogh Stelle, M.D.,** Cordova, Md.; New York University, New York City, 1875; aged 64; a member of the Medical and Chirurgical Faculty of Maryland; died suddenly at his home, December 26.

**Wyndham Clyde Sparling, M.D.,** Akron, Ohio; Ohio State University, Columbus, 1915; aged 32; a member of the Ohio State Medical Association; died at his home, December 30, from septicemia.

**Carl Anthon Hansen, M.D.,** Long Beach, Calif.; Bennett Medical College, Chicago, 1875; aged 73; formerly a Fellow of the American Medical Association; died at his home, December 16.

**James R. Goodwin, M.D.,** Bowood, Pa.; Medico-Chirurgical College of Philadelphia, 1894; aged 55; was shot and almost instantly killed by his brother-in-law, at Cheat Neck, W. Va., December 25.

**Dwight Timothy Manson,** Marion, Iowa (license, Iowa, years of practice, 1886); aged 75; died at the home of his daughter in Rodney, Iowa, December 13, from senile debility.

**Capt. Arthur M. Fisher, R. A. M. C.,** Montreal; McGill University, Montreal, 1914; formerly a practitioner of Woodstock, N. B.; died recently from wounds received in battle.

**Evan Jeffries H. Hackney, M.D.,** Philadelphia; Hahnemann Medical College, Philadelphia, 1893; aged 56; died at his home, December 22, as a result of a nervous breakdown.

**Jefferson Davis Duncan, M.D.,** Temple, Texas; Kentucky School of Medicine, Louisville, 1881; aged 56; died in San Angelo, Texas, December 4, from disease of the lungs.

**Capt. Kenneth Angus MacCuish, R. A. M. C.,** Glace Bay, N. S.; Dalhousie University, Halifax, N. S., 1903; is reported to have been killed in battle in France.

**John Durkee, M.D.,** North Tunbridge, Vt.; Worcester (Mass.) Medical College, 1857; aged 83; died at his home, September 17, from arteriosclerosis.

**Allen K. Lane,** Odon, Ind. (license, Indiana, 1897); a practitioner since 1864; aged 74; died at his home, October 11, from carcinoma of the stomach.

**James Newell Bemis, M.D.,** West Middletown, Pa.; Bellevue Hospital Medical College, 1870; aged 72; died at his home, December 23.

**Emma L. Scholz Aldrich, M.D.,** Belview, Minn.; Chicago Homeopathic Medical College, 1902; aged 43; died at her home, December 30.

**Isidor Jufe, M.D.,** New York City; University of Würzburg, Germany, 1886; died suddenly at his home, December 28.

**John B. Meigs**, Manito, Ill. (license, years of practice, Illinois, 1889); aged 82; a practitioner since 1856; surgeon of U. S. Volunteers, during the Civil War; also a clergyman; died at his home, November 26, from cerebral hemorrhage.

**Mason Locke Weems, M.D.**, Columbia, Texas; Tulane University, New Orleans, 1852; aged 86; a pioneer settler of Brazoria County, Texas; surgeon in the Confederate service throughout the Civil War; died at his home, December 11.

**Emmons Franklin Stockwell, M.D.**; Lancaster, N. H.; Bowdoin Medical College, Brunswick and Portland, Me., 1870; aged 72; formerly a member of the Maine Medical Association; died at his home, September 26, from paresis.

**Marcus Lafayette Nance, M.D.**, Isola, Miss.; Tulane University, New Orleans, 1905; aged 37; formerly a member of the Mississippi State Medical Association; died in Yazoo City, Miss., September 12, from septic thrombophlebitis.

**Alphonso C. Dorval, M.D.**, Whitehall, N. Y.; Albany, N. Y., Medical College, 1889; aged 68; for forty-three years a practitioner of Whitehall, and once county health officer; died at his home, December 3, from chronic nephritis.

**Squire George Backus, M.D.**, South Charleston, W. Va.; Eclectic Medical Institute, Cincinnati, 1904; aged 43; a member of the West Virginia State Medical Association; died at his home, August 26, from cerebral hemorrhage.

**W. Van R. Blighton**, North Tonawanda, N. Y.; aged 80; a practitioner for fifty-eight years; at one time health officer of North Tonawanda, and for nine years local surgeon of the Erie Railroad; died at his home, December 17.

**J. Davis Coleman, M.D.**, Henderson, Ga.; Atlanta, Ga., Medical College, 1888; aged 62; formerly a member of the Medical Association of Georgia; a well known practitioner and planter; died at his home, December 13.

**Lewis C. Burd, M.D.**, Ogdensburg, N. J.; Jefferson Medical College, 1885; aged 58; a member of the Medical Society of New Jersey; a specialist on diseases of the nose and throat; died at his home, December 13, from uremia.

**James Joseph Mullen, M.D.**, Perryopolis, Pa.; University of Wooster, Cleveland, 1884; aged 67; for ten years superintendent of the Emergency Hospital, Pittsburgh; died in Mercy Hospital, Pittsburgh, December 17.

**Thomas Lubbock Kennedy, M.D.**, Galveston, Texas; University of Texas, Galveston, 1895; aged 47; a member of the State Medical Association of Texas; died at his home, November 9, from cerebral thrombosis.

**Maurice Smith, M.D.**, Massillon, Ohio; Western Reserve University, Cleveland, 1895; aged 54; a member of the Ohio State Medical Association; died at his home, December 21, from cerebral hemorrhage.

**James Beall Morrison**, Kansas City, Mo.; aged 88; reputed to have invented the dental chair, dental engine and other general dental appliances now in use among dentists; died at his home, December 22.

**James R. Brock, M.D.**, Trenton, Ga.; Atlanta, Ga., Medical College, 1882; aged 56; deputy warden at the Atlanta Federal Penitentiary; was struck with an iron bar by a convict and killed, December 27.

**John Edward Beck, M.D.**, Clarion, Pa.; Baltimore Medical College, 1890; University of Pennsylvania, Philadelphia, 1893; aged 54; died in the Warren, Pa., State Hospital, December 6.

**Orrin Godfrey Youngquist, M.D.**, Marquette, Mich.; Rush Medical College, 1886; aged 59; a Fellow of the American Medical Association; died at his home, September 7, from nephritis.

**Bradley Hull, M.D.**, Cleveland; Western Reserve University, Cleveland, 1873; who retired from practice nearly twenty years ago; died at the home of his son, in Cleveland, December 6.

**Phineas Kimble Dow, M.D.**, San Jose, Calif.; Washington University, St. Louis, 1880; aged 82; once state normal school trustee; died at his home, December 11.

**Frederick Eugene Anderson, M.D.**, Davenport, Iowa; State University of Iowa, Iowa City, 1898; aged 43; died at his home, December 22, from pneumonia.

**Harry Clifton Neff, M.D.**, Dunkirk, Ohio; Cleveland-Pulte Medical College, 1898; aged 43; died at his home, about December 12, from heart disease.

**Joshua Moffit Kidney, M.D.**, Clarinda, Iowa; Rush Medical College, 1880; died at his home, December 10.

**Edmund DeWitt, M.D.**, Apopka, Fla.; New York University, New York, 1862; died, December 6.

# *The Propaganda for Reform*

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## SECRETIN-BEVERIDGE AND THE U. S. PATENT LAW

### Report of the Council on Pharmacy and Chemistry

Two years ago the Council published reports on two proprietary preparations said to contain secretin, namely, "Secretogen," sold by the G. W. Carnrick Company (The Journal A. M. A., May 1, 1915, p. 1518), and "Duodenin," sold by Armour and Company (The Journal A. M. A., Aug. 14, 1915, p. 639). These reports explained that there was no evidence to indicate that an insufficient amount of secretin was the cause of gastro-intestinal diseases, and further that there was no evidence that secretin in any form was physiologically active when administered by the mouth.

Subsequently, A. J. Carlson and his co-workers, at the request of the Council, studied the question of the stability of secretin and demonstrated (The Journal A. M. A., Jan. 15, 1916, pp. 178 and 208) that commercial secretin preparations contained no secretin and, further, that secretin given both by the mouth and even in enormous doses directly into the intestine is entirely inactive.

Shortly after the publication of Professor Carlson's work the attention of the Council was called to a U. S. patent issued, May 2, 1916, to James Wallace Beveridge, "Means for and Method of Stabilizing Secretin." In this patent Beveridge claimed to have invented "The process of producing secretin in stable form as a commercial article for therapeutic use . . . ," that is, a process for preparing preparations which would contain secretin when they reach the consumer and in a form resisting destruction in its passage through the stomach.

In view of the demonstrated instability of secretin, the Council asked Professor Carlson to investigate the validity of the claims of the Beveridge patent. The study on "The Question of the Stability of Secretin," by A. J. Carlson, A. E. Kanter and I. Tumpowski, which appears below, shows that the Beveridge patent furnishes no process for the manufacture of commercially stable secretin preparations, nor any means for preventing the destruction of secretin by the gastric juice when administered orally. It further demonstrates that the preparation made by Beveridge was devoid of secretin.

The Council adopted the report of Carlson and his co-workers, and declared Secretin-Beveridge inadmissible to New and Nonofficial Remedies.

The Council directed that the report of Carlson and his collaborators be sent to the Commissioner of Patents with a protest against the granting of patents without competent and thorough investigation of the claims advanced therein.

W. A. Puckner, Secretary.

## THE QUESTION OF THE STABILITY OF SECRETIN

### A. J. Carlson, A. E. Kanter and I. Tumpowski

[From the Hull Physiological Laboratory of the University of Chicago]

In a letters patent, filed May 6, 1914, the patent granted May 2, 1916, James W. Beveridge, M.D., makes certain claims concerning the stability and physiologic acivity of secretin prepared according to the method patented by him.

In brief, Dr. Beveridge claims that secretin prepared by digesting intestinal mucosa with a weak acid at a temperature slightly below boiling, and mixed with 0.2 per cent. to 2 per cent. blood serum, albumin or peptone (1) remains active for at least six months, (2) stimulates the pancreas when given by mouth, and (3) "may be injected intravenously in man, if desired." The only thing in the letters patent in support of these claims is the statement: "I have found out by actual tests that the preparation maintains its stability for five or six months."

Here are the claims in detail:

"For the source of secretin I preferably use that part of the alimentary tract of any lower animal—such as a hog or sheep—including the gastric pylorus, the duodenum and the jejunum. This part is split open and washed with a normal saline solution to clean the mucosa or mucous membrane of any detritus which may be present. The mucosa with the epithelial cells is then removed or separated from the muscular wall by scraping with a blunt knife or in any other suitable way. The scrapings or cuttings, which contain the secretin, are then macerated or broken up."

"The macerated mass is placed in a suitable vessel and subjected to the action of an acid solution until digested. The time for the digestion of the mass will, of course, depend upon the strength and temperature of the acid solution employed. The stronger the solution and the higher the temperature, the shorter the time necessary for complete digestion. This period may vary from several minutes to several hours. In my experiments I found that the best results were obtained with hydrochloric acid solution of one-tenth to five-tenths of one per cent. in strength, although as high as eight-tenths per cent. might be used. The mixture is brought to a temperature of approximately 210 F., and it may even for a few moments exceed that temperature, but it should be kept below the boiling point, for excessive heat injures or breaks down the secretin molecule and impairs or destroys its activity. Although I prefer to use hydrochloric acid, I would have it understood that other acids—both organic or inorganic—may be employed, provided that the percentage of acidity is regulated to prevent a chemical change in the secretin, and further provided, of course, that the acid has no injurious effect on the human system."

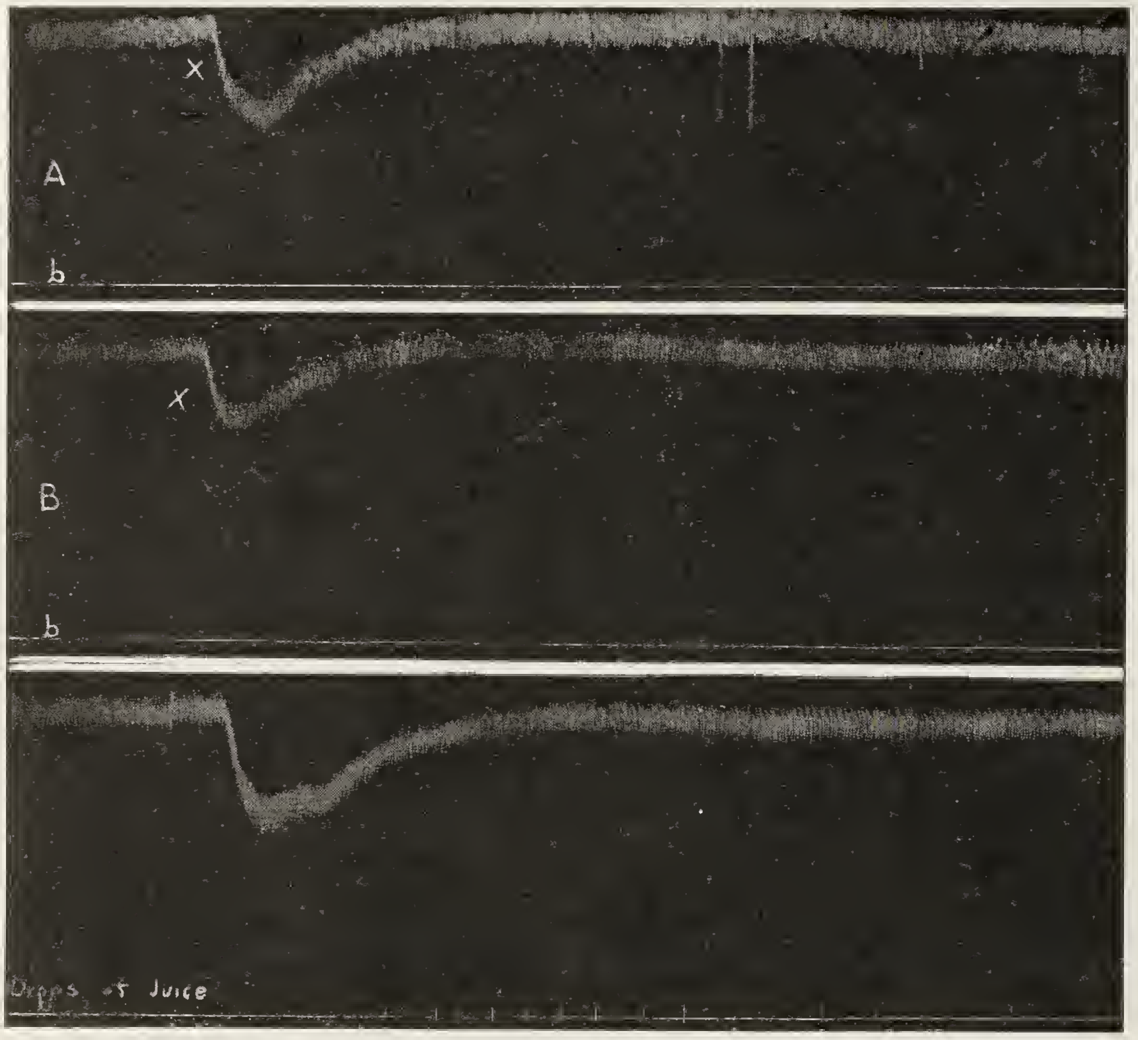

Fig. 1.—Records of carotid blood pressure and secretion of pancreatic juice on intravenous injection of Beveridge's secretin in dogs. *X*, injection of 10 c.c. secretin; *b*, record of flow of pancreatic juice in drops. Tracing *A*, injection of 10 c.c. of one sample secretin (ten days old) furnished by Dr. Beveridge. Tracing *B*, injection of 10 c.c. of second sample of secretin (ten days old) furnished by Dr. Beveridge. Tracing *C*, injection of 10 c.c. of secretin (twenty hours old) made by us according to the Beveridge method. Showing that the secretin preparations sent us by Dr. Beveridge contained no secretin.

After the mass has been digested in the heated solution, the decoction is decanted, and after being allowed to cool is passed through a suitable filter until the filtrate is clear. I found that by filtering the decoction from four to six times through a carbon filter, I obtained a clear colorless filtrate. This is a solution of secretin and the acid which was used, and the clearness of the solution shows that it is practically free from albumoses, gelatin and other impurities (such as cell tissues, etc.) present in the raw material under treatment."

"To the solution of pure and active secretin prepared as above explained, there is added a suitable quantity of blood serum—say from one-fifth to two per cent. or any equivalent medium—such as albumin solution or a peptone solution—which will aid and sustain the activating power of secretin as provided by the blood. That is to say, any medium having the same power, similar quality or chemical composition that the blood-stream possesses in combining with secretin to stimulate the pancreas. The addition of such a medium to the active secretin solution increases the potency of the secretin and its degree of stability by preventing oxidation or deterioration thereof. If this strengthening or fortifying medium, as it may be properly termed, is alkaline, it performs the additional function of lowering the acidity of the secretin filtrate. It is preferable that the final product be just faintly acid. If desired, the final product may be made into an elixir by the addition of aromatics."

"Any desired strength of secretin solution may be obtained according to the quantity of acid solution. In my experiments I used from ten to fourteen duodena to a pint of acid solution."

"The solution of secretin prepared as above described is characterized by its ability to resist oxidation or deterioration for a sufficient period of time to render the solution available as a commercial article, and is furthermore characterized by freedom from poisonous and irritable chemical substances, whereby the secretin is chemically adapted to the human system to stimulate the pancreas to increased secretion."

"As previously stated, the secretin prepared according to my method may be administered orally to produce the desired physiological action. Of course, if desired, the secretin might be injected intravenously, but this more or less dangerous procedure is not at all necessary, and I merely mention it here to point out that when I refer to the oral administration of my new secretin preparation, I do not mean to exclude its administration by injection."

"As to the commercial stability of the secretin prepared according to my method, I may say that I have found by actual tests that the preparation maintains its stability for as long a period as five or six months. When I refer to my product as being "commercially stable," I mean that it resists oxidation or deterioration for a sufficient period to render the same available as a commercial article. This period may vary from several weeks to several months, depending upon certain commercial factors well understood by the manufacturer. So, roughly speaking, I should say that secretin is commercially stable when it retains its activity from one to six months. I do not wish to be understood, however, as limiting myself to these exact figures."

That active secretin may be extracted from macerated intestinal mucosa by weak acids below the temperature of boiling is well known. In fact, weak acids at body temperature in contact with the duodenal mucosa lead to the formation of secretin. The claim that secretin given by mouth reaches the blood and acts on the pancreas has been made for other preparations of secretin. It has also been shown that these claims are erroneous.[1] Thus it would appear that the only novel element in Dr. Beveridge's patented secretin is the addition of serum, soluble proteins or peptones. What reason is there for believing that this will render the secretin stable for months, and physiologically active when taken by mouth? We do not believe Dr. Beveridge ever injected his secretin—protein mixture —intravenously in man or animals not under anesthesia, otherwise he would not have stated: "Of course, if desired, the secretin may be injected intravenously."

### BEVERIDGE'S PATENTED SECRETIN IS NOT STABLE

I. *The Samples of Secretin Sent Us by Dr. Beveridge.*—Physiological tests were made on four quart bottles of the secretin kindly sent us by Dr. Beveridge, June 26, 1916. According to a letter from Dr. Beveridge of July 20, 1916, those samples of secretin were prepared June 20, that is, only six days before received by us. The material came in dark colored bottles. It was kept in the original bottles and placed in the ice box immediately on receipt. Dr. Beveridge stated the the secretin "should remain active until the month of November, 1916, at least."

Tests were made on three out of the four bottles. The fourth bottle was not opened, as we desired to learn what change it might undergo in the way of protein precipitation and bacterial decomposition. There is nothing in the

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[1] Carlson, Lebensohn and Pearlman, The Journal, Jan. 15, 1916, p. 178.

Beveridge method of preparation that insures a sterile secretin unless it is passed through a Berkefeld filter. In all our crucial experiments the animals (dogs) were kept under light ether anesthesia, a cannula inserted into the pancreatic duct, the blood pressure recorded from the carotid artery and the various secretin preparations injected intravenously. When inactive secretin preparations were encountered, control tests were always made with active solutions of secretin to eliminate possible individual peculiarities of the animal. Thus when the pancreas of a dog reacts to the injection of preparation *A*, but not to preparation *B*, it is evident that absence of response to *B* is due to this preparation and not to the animal or to the experimental conditions.

Each of the three samples of secretin sent us by Dr. Beveridge was tested in the above manner on five dogs. The first tests were made June 27, 28 and 29, respectively, that is, within nine days of the preparation of these samples of secretin. *None of the samples was active (Fig. 1), even when injected intravenously in quantities up to 50 c.c.:* 40-50 c.c. of Beveridge's secretin mixture may kill a dog by too great lowering of the blood pressure. A good secretin preparation yields a copious secretion of pancreatic juice on intravenous injection of a few cubic centimeters.

It is not difficult to prepare a secretin, by the original Bayliss and Starling method or by the Beveridge method, that retains some activity for a longer period than nine days. Hence we cannot account for the absolute inactivity of these preparations except on the assumption that they did not contain any secretin to start with; that is, faulty preparation and absence of physiologic standardization.

The sample kept intact in its original container for six months became gradually cloudy, a large mass of amorphous precipitate settled to the bottom, and the odor showed bacterial decomposition. It is reprehensible, to say the least, to state concerning such a mixture: "Of course, if desired, it may be injected intravenously." The fact that Beveridge's secretin may be rendered clear by filtering through carbon is not sufficient evidence that it is "pure secretin," free from bacteria and other injurious substances.

II. *Beveridge Secretin Mixture Is Rapidly Rendered Inactive by Human Gastric Juice.*—We prepared active secretin solutions by the Beveridge method, using 0.2 per cent. serum as the protein "stabilizer" (?). The addition of the serum does not appear to affect the activity of the fresh secretin preparation. If Beveridge's secretin is able to act on the pancreas when given by mouth, it is obvious that it must run the gamut of gastric digestion, except in cases of complete achlorhydria. It has been repeatedly demonstrated that all other secretin preparations are rapidly destroyed by pepsin-hydrochloric acid digestion. Is Beveridge's secretin an exception? What is there in a little serum, native albumin, or peptones to protect secretin against gastric digestion?

The pure human gastric juice used in these tests was secured from the fistula case (Mr. F. V.) that has been under observation in our laboratory for years.[2]

*Two cubic centimeters of fresh gastric juice added to 8-10 c.c. Beveridge secretin, the mixture being kept at body temperature (38 C.), renders the secretin completely inactive in from 5 to 8 minutes* (Fig. 2). There is no exception to this rule, as we have repeated the test on many different secretin preparations and using different samples of human gastric juice. The secretin of Beveridge is just as vulnerable as the secretin of Bayliss and Starling to pepsin-hydrochloric acid digestion. On what kind of tests does Beveridge base his claim that his secretin mixture acts on the pancreas when given by mouth?

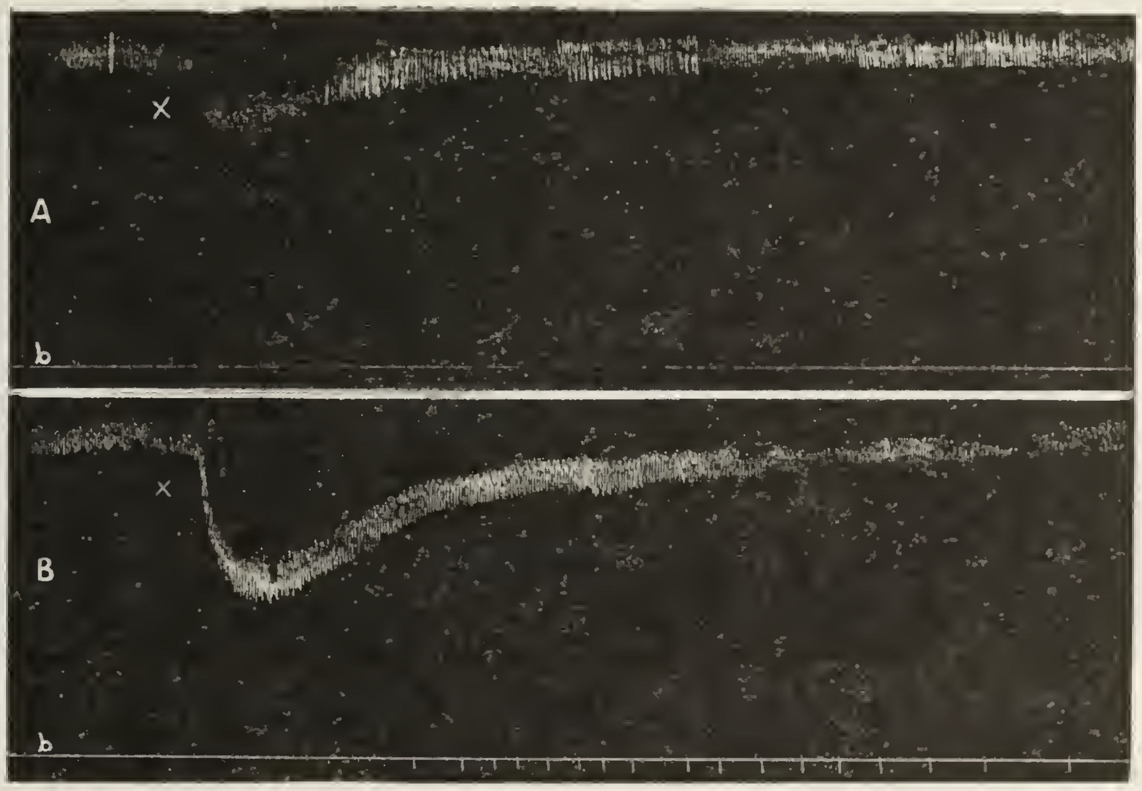

Fig. 2.—Records of carotid blood pressure and flow of pancreatic juice on intravenous injection of secretin prepared by us according to the Beveridge method. *X*, injection of 10 c.c. of the secretin; *b*, record of flow of pancreatic juice in drops. Tracing *A*, the 10 c.c. of Beveridge's secretin injected had been digested for five minutes with 3 c.c. of human gastric juice. Tracing *B*, injection of 10 c.c. of the same secretin preparation not subjected to gastric digestion. Showing rapid and complete destruction of Beveridge's secretin by human gastric juice.

III. *The Relative Rate of Deterioration of the Secretin Solutions Prepared According to Bayliss and Starling and According to Beveridge.*—Six different preparations of the two kinds of secretin were made, kept in dark stoppered bottles in the ice box, and tested by intravenous injection in dogs under ether anesthesia from time to time until all influence on the pancreas had been lost. One typical series of these tests may be given by the way of illustration:

BEVERIDGE'S SECRETIN AND BAYLISS-STARLING SECRETIN PREPARED SEPT. 29, 1916

| Date of the Test | Quantity of Secretin Injected, C.c. | Response of Pancreas (No. of Drops of Secretin) | |
|---|---|---|---|
| | | Bayliss-Starling Secretin | Beveridge Secretin |
| Sept. 29 ........ | 10 | 75 | 78 |
| Oct. 2 ........ | 10 | 61 | 61 |
| Oct. 6 ........ | 10 | 28 | 17 |
| Oct. 13 ........ | 10 | 25 | 31 |
| Oct. 27 ........ | 10 | 5 | 6 |
| Nov. 3 ........ | 10 | 7 | 6 |
| Nov. 17 ........ | 10 | 4 | 5 |
| Nov. 30 ........ | 10 | 3 | 4 |
| Dec. 4 ........ | 10 | 2 | 2 |
| Dec. 20 ....... | 10 | 0 | 0 |

It will be seen that the rate of deterioration (oxidation or decomposition) of the secretin is practically the same whether prepared according to Bayliss and Starling or according to Beveridge (Figure 3). In both preparations the rate of deterioration is most rapid the first few days after preparation. It is scarcely necessary to point out that secretin preparations not kept constantly at low temperature and in the dark, as in the above experiments, will deteriorate more rapidly.

Why can we hope that the addition of serum or any solution of protein will render secretin more stable? In the intact man or animal under normal conditions of digestion, secretin reaches the pancreas by way of the blood, that is, it is in solution in blood. Does that fact render the secretin stable? By no means. The reader is familiar with the fact that the response of the pancreas to a single intravenous administration of secretin is very transitory (5-15 min.). The cessation of activity is due, not to fatigue of the pancreas, as a second injection of secretin gives a prompt response of pancreatic secretion, but to the disappearance of active secretin from the blood. In fact, secretin left in the test tube or in the bottle remains active over a much longer period of time than when introduced into the blood stream.

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[2] Carlson: The Control of Hunger in Health and Disease, Chicago, 1916.

IV. *Beveridge's Secretin Given by Mouth to the Intact Animal Has No Specific Action on the Pancreas.*—Active secretin prepared according to the method of Beveridge was fed on an empty stomach to a small dog (5 kilo) with permanent fistula of one of the pancreatic ducts. On control days we gave the dog (*a*) equal quantities of n/10 Hcl, and (*b*) bread and milk. The Beveridge secretin was prepared with 0.3 per cent. HCl and the addition of 0.2 per cent. serum. The results may be stated by the following summary:

GIVING BEVERIDGE'S SECRETIN BY MOUTH

| Material Fed | No. of Tests | Secretin of the Pancreas for Three Hours Following the Feeding |
|---|---|---|
| 150 c.c. Beveridge Secretin | 6 | 10.2 c.c. |
| 150 c.c. n/10 HCl ....... | 5 | 22.7 c.c. |
| Bread soaked in Milk ... | 4 | 6.6 c.c. |

The control experiments with pure hydrochloric acid show that the secretion of pancreatic juice following the introduction of Beveridge's secretin into the stomach is due to the acid factor and the protein content.

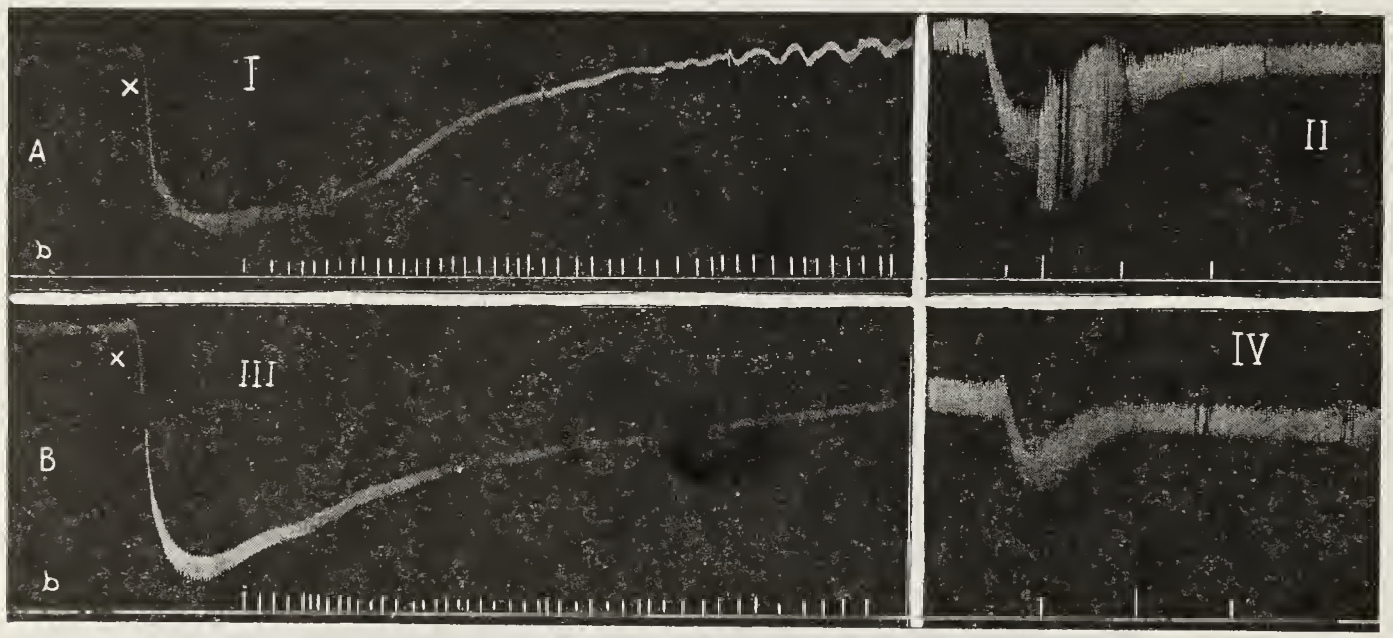

Fig. 3.—Records of carotid blood pressure and flow of pancreatic juice on intravenous injection of secretin preparations. *X*, injection of 10 c.c. secretin; *b*, record of flow of pancreatic juice in drops. Tracing *A*, secretin prepared according to the Beveridge method September 30. *I*, injection of 10 c.c. October 2, *II*, injection of 10 c.c. November 30. Tracing *B*, secretin prepared by the Bayliss-Starling method September 30. *III*, injection of 10 c.c. October 2; *IV*, injection of 10 c.c. November 30. Showing no greater stability of Beveridge's secretin over that of Bayliss and Starling.

### CONCLUSIONS

The patented secretin of Beveridge is rendered inactive by gastric juice, is without effect when given by mouth, and exhibits no greater stability or keeping qualities than the secretin prepared according to Bayliss and Starling. It has no merit as a therapeutic agent. It should under no conditions be administered intravenously in man, as it contains deleterious protein split products and living bacteria.

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## NEED FOR PATENT LAW REVISION

### Report of the Committee on Patent-Law Revision of the Council on Pharmacy and Chemistry of the American Medical Association

At the present critical time when the efficiency of this nation must be raised to the highest point, it is essential that the United States government should lead in the efforts tending to such increased efficiency. To bring this about the government must protect and stimulate science, art and industry and at the same time curb or prevent waste of the country's resources. In this field the United States Patent Office has unlimited power for good and evil—good, in the issuance of patent grants for novel devices and substances which go to increase national efficiency; evil, in the granting of patent protection where such protection is not in the interest of national efficiency, conservation of energy and material resources.

For years the American Medical Association, in common with the national pharmaceutical bodies, has been urging amendment of the law which governs the issuance of patents on medicinal preparations and more particularly revision of the procedure under which such patents are issued. At the Chicago (1908) meeting of the American Medical Association a special committee of five was appointed by the House of Delegates to study the questions involved, and to cooperate with the Association's committee on medical legislation in preparing and securing the enactment of a bill which would correct the abuses connected with the enforcement of our patent laws (The Journal A. M. A., June 13, 1908, p. 2003). This committee presented a comprehensive report at the Atlantic City (1909) meeting of the American Medical Association (The Journal A. M. A., June 19, 1909, p. 2063). A further report was presented at the St. Louis (1910) meeting of the American Medical Association (The Journal A. M. A., June 18, 1910, p. 2079). In 1911 (The Journal A. M. A., Nov. 25, 1911, p. 1780) the Council on Pharmacy and Chemistry of the American Medical Association issued a report which set forth the inadequacy of our patent laws as they are administered in relation to medical products particularly.

### AGAINST PUBLIC INTEREST

Since that time the Council has continued its study of the U. S. patent law as it applies to medicine and has become convinced that in many instances the patent law or its enforcement is contrary to the best interest of the public, both as concerns health and prosperity. The Council feels it a duty at this time to protest against the provisions of our patent law, or the methods of its enforcement, which permit the granting of patents without thorough and scientific investigation of the claims advanced in such letters patent. As one means of improving conditions the Council urges that the U. S. Public Health Service, the Bureau of Chemistry, U. S. Department of Agriculture and other scientific departments of the United States government conversant with medicines and related subjects be consulted before the issuance of patents on medicinal preparations.

In support of the Council's contention that the patent law procedure requires revision, the following is offered: In 1912 a U. S. Patent (No. 1,031,971) was granted on a cresol derivative, metacresyl acetate, a product described in chemical literature in 1903. When the Council inquired as to the grounds for the issuance of a patent for a substance known to science, the Patent Office replied that it was not familiar with the publication in which metacresyl acetate had been described. It seems evident that this patent would not have been issued had the application first been submitted to a government department familiar with chemical literature.

An illustration of the granting of a patent on the use of well-known chemical bodies which present no discovery or originality, is the patent issued for the use of peroxids, perborates and percarbonates as ingredients of tooth powders (U. S. Patents Nos. 760,397 and 802,099). Regarding these patents The Journal of the American Medical Association (Sept. 20, 1913, p. 978) commented:

> "The patents held by McKesson and Robbins give this firm the exclusive right of manufacturing tooth powders containing peroxids, perborates and percarbonates. It is another illustration of the unfair monopolies that may be secured under our present patent laws."

### GRANTING A PATENT TO A NOSTRUM

Again in 1913 U. S. Patent No. 1,081,069 was granted to a citizen of Switzerland (a country which does not grant patents on medicinal preparations) for a "composition which is intended to be used internally and which confers to the organisms immunity against the following microbial infectious illnesses: *diphtheria, pneumonia, typhus, scarlet fever, influenza, septic infections, cerebral-spinal meningitis, syphilis, pest, cholera and tuberculosis; it is also effective in another kind of disease, viz., goiter.*" (Italics not in original). The patent specification states that "The principal of these substances is creatinin . . . ," but offers no evidence whatever that this well-known chemical body has the extensive and miraculous powers claimed for it. In publishing a notice of this patent The Journal of the American Medical Association (Jan. 3, 1914, p. 54) explained:

> "It appears that the inventor is dead, and that his estate took out the patent. Since this great benefactor should have been, by the use of his preparation, immune to practically all diseases, he must have died of senility, although this seems hardly to have been the case."

and held:

> "Assuredly granting patents on such claims ought to be sufficient to show the need of a change in the methods of granting patents—at least of the methods governing the issuance of patents for medicinal products."

We submit, that had the department of the government entrusted with the enforcement of the federal Food and Drugs Act been consulted as to the claims of this patent, it would probably have advised that, if the absurd and palpably fraudulent claims set forth in this application for a patent were made on the label of a preparation of creatinin offered for sale in interstate commerce or in the District of Columbia, the vendor would be prosecuted.

In 1914 there was issued U. S. Patent No. 1,086,339. Here the "inventor" declared:

> "It is the object of my invention to destroy parasitic micro-organisms, particularly on living tissue without injuring the latter, by progressively evolving sodium hydroxid contiguous to said tissue, from and in a moist mixture of calcium hydroxid, sodium carbonate, aluminum sulfate and boric acid . . ."

In a word, this patent apparently was granted for the production of sodium hydroxid by a chemical reaction which had been in use for several centuries. Because the patentee had twisted the granting of this patent into a quasi-endorsment of his nostrum, the Council's consideration of this preparation was sent the Patent Office as a protest against the present law which authorizes the granting of patents on unproved and improbable medical claims. At that time the Council was informed by the Patent Office that reforms in the issuance of patents for medicinal substances had been instituted, and that "the trouble will not be so pronounced in the future as it has been in the past."

### FLAVORING EPSOM SALT A "DISCOVERY"

There was issued early in 1917 U. S. Patent No. 1,212,888 for a method of flavoring Epsom salt—yet this "discovery" is a procedure which has been practiced ever since the cathartic action of this bitter salt has been known. Not only does the patent describe a process long known to physicians and pharmacists, but it sets forth claims that the flavored cathartic salt produced by the process cures flatulency, indigestion, sick and sour stomach, colic and destroys worms. In commenting on this patent The Journal of the American Medical Association (June 23, 1917, p. 1914) was constrained to remark:

> "The splendid conception of the framers of our constitution in providing a plan for promoting progress in science and useful arts by granting to inventors for a limited time the exclusive use of their inventions, in exchange for the publication of full knowledge thereof, is being debased. No branch of our government is of greater importance to the progress of the country than the patent office, provided that office is intelligently administered. When the patent office is used, however, for an extension of the nostrum business, founded on the abuse of patent and trade-mark laws, it becomes a menace to the public health. The objects of the patent law are being defeated by the practices of the patent office."

Still further, attention is called to U. S. Patent No. 1,226,394 for a process of making hexamethylenamin tetraiodid and on the product so produced. This patent was issued after the Council had notified the Patent Office that hexamethylenamin tetraiodid had been discovered in 1888 and that a process identical in principle with that for which patent application appeared to have been made was published in 1916. On the basis of claims for which no evidence is produced this patent is issued for a well-known substance on the ground that as previously produced it contained a little free iodin or that the known processes were less economical. This patent appears to be an illustration of our patent procedure which obliged American users of acetylsalicylic acid to pay an exorbitant price because this country granted a patent which gave to the patentee, a foreigner, the exclusive right to the manufacture of the substance, whereas no such patent was issued in the patentee's own country nor, so far as we can learn, in any other country. It forcibly illustrates the need for a revision either of our patent laws or of their methods of enforcement or both.

### THE BEVERIDGE PATENT

In further justification of the Council's protest against the provisions of our present law, or the methods of its enforcement, which permit the granting of patents without thorough and scientific investigation of the claims advanced in such letters patent, the Council calls attention to the report, appearing above, of an investigation made by A. J. Carlson, A. E. Kanter and I. Tumpowski, "The Question of the Stability of Secretin," which relates to U. S. Patent No. 1,181,424, issued to James Wallace Beveridge.

Whereas the regulations governing the issuance of patents demand that the processes shall be described in such detail that one versed in the sciences can confirm the claims made by the patentee, no pretense whatever of fulfilling this requirement is made in the patent specifications of this patent. The substance of the first three paragraphs of this patent has long been general knowledge. Nearly every sophomore medical student has himself performed, or seen performed such "experiments" as are therein described. The claims of novelty evidently are confined to the assertion that the preparation is able to "resist oxidation or deterioration"; that it is free from "poisonous and irritable chemical substances"; that it "may be administered orally to produce the desired physiological action," etc., etc. Not the slightest hint is given as to how any person can substantiate these claims. As a matter of fact, the investigation of Professor Carlson and his co-workers has shown that a preparation having the properties claimed cannot be made by the process described in this patent. Any one familiar with the subject could have demonstrated readily that the applicant was withholding information concerning essential features of his process, assuming that he had any information on the subject (which he probably did not have) and would have advised against the issuance of the Beveridge patent.

## Correspondence

### THE BLOOD IN CARBON MONOXID POISONING

*To the Editor:*—In an excellent summary of the present knowledge of carbon monoxid poisoning (The Journal, Aug. 19, 1916, p. 580), Prof. Yandell Henderson of Yale University suggests that "asphyxial coma . . . indicates an intense acidosis." No data were offered to support this conclusion, nor have I, in a cursory examination of the literature, been able to find evidence on this point. Through the courtesy of Dr. Joseph Roby, I have recently had an opportunity of studying the blood of a person suffering from intense carbon monoxid poisoning.

The patient was a country girl, aged 17 years, residing in a boarding house. She had just come to the city to attend school, and was not familiar with the operation of gas fixtures. One night, through some inadvertence, she left the gas cock partly open. When found, she was unconscious and pulseless. She was taken to the hospital, where stimulants were administered. Ten hours after admission to the hospital, her temperature was 102 F., the pulse 160, and respiration 40. Respirations were labored and there was profuse sweating. The patient continued in this condition with the temperature ranging between 101 and 104 for three days, when I first saw her. At that time, the rectal temperature was 104, the pulse 126, and respiration 42. The patient was then urinating and defecating involuntarily. She was profoundly stuporous, but was conscious of pain. A specimen of blood was taken for chemical examination from the median basilic vein fifty-three hours after admission to the hospital. The blood sugar was 0.19 per cent.; the blood urea 47.2 mg. per hundred c.c., and plasma carbon dioxid, 49 c.c. per hundred c.c. A sample of the urine of this date showed a trace of albumin; otherwise it was negative. A white cell count made at the same time was 25,200 per cubic millimeter.

The patient continued in this stuporous condition with involuntary urinating and defecating. She was again examined two days later, or 100 hours after admission to the hospital. She was still in a state of stupor, with labored breathing and loss of control of the sphincters. The rectal temperatrue was 100 F., the pulse 100, and respiration 20. The sample of blood taken at this time revealed: blood sugar, 0.16 per cent.; blood urea, 60 mg. per hundred c.c.; creatinin, 1.2 mg. per hundred c.c.; uric acid, 3.2 mg. per hundred c.c., and plasma dioxid, 50.4 c.c. per hundred c.c. (The methods used were: blood sugar, Lewis-Benedict; blood urea, Van Slyke; plasma carbon dioxid, Van Slyke; uric acid and creatinin, Folin.)

The patient continued in a state of complete stupor for 125 hours; then for at least forty-eight hours more, she was in a state of semistupor, after which she made a gradual and fairly satisfactory recovery.

In addition to the foregoing signs, she exhibited the typical clinical picture of carbon monoxid poisoning of a very intense character. If acidosis were the accountable cause of the stupor, it should be found to a marked degree in the carbon dioxid combining power of her blood plasma. It will be observed, however, that both examinations were practically the minimum normals for healthy persons. The absence of urea retention, together with the low creatinin and uric acid, excludes uremic poisoning. The rather high blood sugar is an interesting metabolic incident. The character of the breathing is important. In true acidosis, such as is exhibited in diabetic coma and in some cases of uremia, the patient, breathing deeply all the while, gives even the uninitiated the impression that not enough air is being obtained. In this case of carbon monoxid poisoning, the patient did not appear to be suffering so much from lack of air as from a profound increase in the irritability of the respiratory center. This was associated with profuse secretion of mucus in the large bronchi and throat, a condition practically never seen in acidosis.

From the foregoing data, it may be concluded that in this case the patient was profoundly poisoned by illuminating gas (water gas), of which carbon monoxid is the principal toxic agent. It is evident, also, that acidosis was not the cause of the stupor, if the carbon dioxid combining power of the blood plasma may be taken as an index. If this is true generally, alkali therapy for this purpose is valueless. In the care of this case, Dr. Roby followed Dr. Henderson's excellent suggestions as to treatment, with the exception of the alkali therapy, and the patient made a good recovery.

John R. Williams, M.D., Rochester, N. Y.

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### INFLAMMABLE SPECTACLE AND EYE-GLASS FRAMES

*To the Editor:*—Perhaps it is pertinent at this time to warn all those in military service against the wearing of spectacle frames and eye-glass frames made of any inflammable material. It might be disastrous in the presence of fire, explosions, etc., to which active service may expose the wearer.

V. A. Chapman, M.D., Milwaukee, Wis.

## *Medical Education and State Boards of Registration*

### COMING EXAMINATIONS

California: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

Illinois: Springfield, Feb. 6-7. Supt. F. C. Dodds, Springfield.

Iowa: Des Moines, Feb. 5-7. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Kansas: Topeka, Feb. 12. Sec., Dr. H. A. Dykes, Lebanon.

National Board of Medical Examiners: New York City, Jan. 9-17. Sec., Dr. J. S. Rodman, 310 Real Estate Bldg., Broad and Chestnut Sts., Philadelphia.

New Mexico: Sante Fe, Jan. 14. Sec., Dr. R. K. McClanahan, East Las Vegas.

New York: Albany, Buffalo, New York City and Syracuse, Jan. 29-Feb. 1. Sec., Dr. W. J. Denno, Education Bldg., Albany.

Vermont: Burlington, Feb. 12. Sec., Dr. W. Scott Nay, Underhill.

Wisconsin: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Wyoming: Laramie, Feb. 6-8. Sec., Dr. H. E. McCallum, Laramie.

### Rhode Island Report

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports that two candidates, one a graduate of the McGill University in 1914 and the other of the Chicago Homeopathic Medical College in 1890, were licensed, July 3 and July 12, respectively, each having received a grade of 80 per cent.

### Rhode Island July Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, July 5-6, 1917. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Seven candidates were examined, all of whom passed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Yale University | | (1913) | 85.2 |
| University of Maryland | | (1916) | 83.2 |
| Harvard University | | (1915) | 88 |
| Tufts College Medical School | | (1914) | 83.6 |
| University of Buffalo | | (1916) | 87.5 |
| Medico-Chirurgical College of Philadelphia | | (1915) | 83.3 |
| University of Naples | | (1912) | 81.5 |

### Wisconsin September Meeting

Dr. J. M. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports that at the meeting held at Ashland, Sept. 14-15, 1917, seven candidates were licensed through reciprocity. The following colleges were represented:

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Rush Medical College | | (1915) | Illinois |
| University of Illinois | | (1915) | Illinois |
| Baltimore Medical College | | (1898) | Michigan |
| St. Louis University | | (1911) | Missouri |
| John A. Creighton Medical College | | (1915) | Nebraska |
| Vanderbilt University | | (1916) | Tennessee |
| University of Texas | | (1911) | Oklahoma |

### Colorado October Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, Oct. 2, 1917. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 7 candidates examined, 6 passed, and 1, an osteopath, failed. Eighteen candidates were licensed through reciprocity. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| University of Colorado | | (1917) | 79.2, 80.8 |
| Chicago College of Medicine and Surgery | | (1911) | 77.3 |
| Indiana University | | (1916) | 82.9 |
| John A. Creighton Medical College | | (1907) | 79.6 |
| North Carolina Medical College | | (1911) | 79.1 |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| College of Physicians and Surgeons, Chicago | | (1900) | Iowa |
| Northwestern University | | (1916) | Michigan |

| | | |
|---|---|---|
| State University of Iowa College of Medicine | (1917) | Iowa |
| University of Louisville | (1893) | Missouri |
| Tulane University of Louisiana | (1916) | Louisiana |
| Johns Hopkins University | (1908) | New York |
| Harvard University | (1904) | Mass. |
| Ensworth Medical College | (1892) | Kansas |
| St. Louis Medical College | (1873) | Iowa |
| University Medical College of Kansas City | (1904)<br>(1910) | Missouri;<br>Neb. |
| Albany Medical College | (1905) | New York |
| New York Homeo. Medical Coll. and Flower Hosp. | (1913) | New Jersey |
| Syracuse University | (1913) | New York |
| Medical College of Ohio | (1902) | Ohio |
| Vanderbilt University | (1913) | Tennessee |
| Marquette University | (1913) | Illinois |
| Montreal School of Medicine and Surgery | (1900) | New York |

### District of Columbia October Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, Oct. 9-11, 1917. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 7 passed and 1 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| College of Medical Evangelists | (1916) | 89.6 |
| George Washington University | (1915) | 84.6 |
| Harvard University | (1914) | 78.7 |
| Johns Hopkins University | (1914) | 80.6 |
| Minneapolis College of Physicians and Surgeons | (1909) | 78.2 |
| University of Pennsylvania | (1917) | 86.9 |
| Meharry Medical College | (1916) | 75 |
| FAILED | | |
| Southern College of Medicine and Surgery* | (1914) | 63.7 |

| College | Year Grad. | Reciprocity with |
|---|---|---|
| LICENSED THROUGH RECIPROCITY | | |
| Maryland Medical College | (1913) | Penna. |
| Leonard Medical School | (1904) | Virginia |
| Jefferson Medical College of Philadelphia | (1911) | Penna. |

*Graduation not verified.

### Georgia October Examination

Dr. C. T. Nolan, secretary of the Georgia State Board of Medical Examiners, reports the written examination held at Atlanta, Oct. 9, 1917. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Ten candidates were examined, all of whom passed. Ten candidates were licensed through reciprocity. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Bennett Medical College | (1915) | 80.2 |
| Chicago College of Medicine and Surgery | (1917) | 81.6 |
| Hahnemann Medical College and Hospital of Chicago | (1916) | 90.5 |
| Indiana University | (1917) | 86.7 |
| Tulane University of Louisiana | (1914) 83.2; (1917) | 90.7 |
| North Carolina Medical College | (1917) | 81.8 |
| Jefferson Medical College of Philadelphia | (1915) | 92.2 |
| Vanderbilt University | (1917) | 87.6 |
| Medical College of Virginia | (1917) | 88.1 |

| College | Year Grad. | Reciprocity with |
|---|---|---|
| LICENSED THROUGH RECIPROCITY | | |
| Detroit College of Medicine and Surgery | (1914) | Michigan |
| University of Michigan Medical School | (1912) (1914) | Michigan |
| Woman's Medical College of Philadelphia | (1899) | N. Carolina |
| Meharry Medical College | (1917) | Tennessee |
| Sewanee Medical College | (1901) | Tennessee |
| Vanderbilt University | (1916) (1917) | Tennessee |
| University College of Medicine | (1912) | Virginia |
| Manitoba Medical College | (1906) | New Jersey |

### Michigan October Examination

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 9-11, 1917. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Fifteen candidates were examined, all of whom passed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Chicago College of Medicine and Surgery | (1917) | 79.7, 84.5 |
| Hahnemann Med. Coll. and Hosp. of Chicago | (1917) | 82.6 |
| University of Illinois | (1916) | 86.5 |
| Johns Hopkins University | (1917) | 83.8, 85.5 |
| Detroit College of Medicine and Surgery | (1917) | 78.6, 81.8 |
| Michigan College of Medicine and Surgery | (1904) | 76.8, 77.4 |
| University of Michigan Medical School | (1917) | 85.7, 86.2 |
| University of Michigan, Homeopathic Medical School | (1917) | 81.5 |
| New York Medical College and Hospital for Women | (1916) | 87.9 |
| University of Buffalo | (1912) | 82.2 |

# Social Medicine, Medical Economics and Miscellany

## FRANKLIN PAINE MALL

### An Appreciation*

A. W. MEYER, M.D.
Govans, Md.

As an undergraduate, Mall lived through the old order of things. Although graded courses in medicine had made their advent by the time he became a university student, this change in medical education was only a single step—the first one—in the needed advance. In selecting the University of Michigan he chose well, for it was here that he learned to prepare histologic specimens at a period when laboratory work in histology was yet unthought of in most medical schools. It was this training that enabled him later to become an assistant in histlogy at Heidelberg. Here, he tells us, he was permitted to study pathologic before normal histology. The exercise of this privilege of choice was valued highly by him, and although well aware of some of the defects of medical education in Germany, he returned from three years' graduate work at Heidelberg and Leipzig, fully imbued with the spirit of freedom in university education. This was due not alone to the wise words of Helmholz, which apparently greatly impressed him, but especially to this particular aspect of German student life itself. Hence, writing on liberty in medical education in 1899, Mall declared:

> In my association with German medical students I have witnessed frequently the value of this point emphasized by Quintilian. . . . We cast out the weak and disgrace them. The mediocre continue along the trodden path, but the strong are retarded. We do wrong when we disgrace the weak, and it is our duty to develop the strong. It is poor logic and begging the question to assert that the German student develops better under the banner of liberty than the American would.

And again in 1905, when writing of His, he declared:

> How different is the study of medicine in Europe from that in America! There freedom reigns, and students wander from place to place, being controlled only by a fairly rational system of examination in case they wish to graduate.

Mall remained ever true to this ideal of liberty in education, and cherished it, not for himself alone, but for his students and associates as well. He, indeed, was typically American in his love of liberty, and abominated autocratic methods. Every one was vouchsafed full liberty of action by him; his mind was ever open to new ideas, and always tolerant of dissenting opinion.

During the first three years of the formative period of his career in anatomy, Mall studied at Heidelberg, and worked especially with Ludwig and His at Leipzig. These great teachers he revered throughout his life, and their influence he gladly and frequently acknowledged. Of the two, His became the greater influence, no doubt largely because Mall's interests became more and more anatomic instead of physiologic; for although several of his early papers are on physiologic subjects, he soon devoted his entire energies to anatomy alone.

On returning to America in 1886, he became a fellow, and later an instructor in pathology at the Johns Hopkins University. Here he worked with Welch, to whom, as teacher, he later dedicated one of his monographs. After three years he was called to Clark University as adjunct professor of vertebrate anatomy, and at the end of another three to the professorship of anatomy at the University of Chicago. Here he stayed but a single year, for he was invited to the professorship of anatomy and headship of the department at the newly founded school of medicine of the Johns Hopkins University.

There is abudant evidence that the formative period of Mall's career did not comprise all of the first decade following his graduation in medicine. He not only quickly found himself, but realized well the task before him in the rehabilitation of anatomy. He fully and publicly recognized the great value of the work and the influence on anatomy of

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* The uncredited quotations are from Professor Mall's article on Wilhelm His.

Wistar, Wyman and Leidy, but well knew that the old order of things had but begun to change. The real work was still ahead, and in it he had a very large share indeed. "In our many medical colleges," he wrote in 1896, "the most fundamental branch is treated in a very shameful way." And in referring to the old conditions in an article, in 1899, he said:

> A quarter of a century ago the medical schools of this country gave an annual course of lectures, which was attended by all students and repeated each year. For this privilege students paid a single fee for which they heard much, saw little and did nothing. There were no requirements for admission and few for graduation.

Although Mall began his career at a time full of promise, in this he was not alone. The time was ripe, but ripe not for him only. Auspicious as the circumstances at the Johns Hopkins University were, they alone could not have effected the change which he wrought; for he not merely accepted conditions as he found them but shaped them in accordance with high ideals and the best traditions of anatomy. He firmly resisted having anatomy subordinated to any other subject, or even made its handmaid. He well knew that anatomy was worth while in itself, and that it must be cultivated as an independent science in order to prosper. Mall repeatedly emphasized this thought. He regarded "anatomical departments as conservators of anatomical science in which all members of the department are students enlisted in one or more of its subdivisions and its further growth. This department in a university should be truly a university department, and not one that limits its instruction to meet the bare needs of medicine and surgery." Surely nothing could better convert those holding a contrary view than the record of his own department and the traditions he himself established.

Mall also emphasized the unity of anatomy. He realized that histology, gross anatomy, embryology and physical anthropology are one. This was a rather novel idea at the time when he began his career, for although no one would have stultified himself by suggesting that what can be seen in the heavens with the unaided eye belongs in a different field of endeavor from that which can be seen with the telescope, such an incorrect point of view had the force of tradition in anatomy—not in America alone. Indeed, not even the present period of progress has been able wholly to overcome this point of view, and the idea of unity emphasized by Mall so long ago has only recently found realization in some of our prominent universities, both of the East and of the West. For having espoused this conception of anatomy we, especially of the younger generation, owe Mall a debt of gratitude. He, indeed, was in many respects a unique influence in changing for the better the whole state of things in medical education.

In order to overcome the handicap of working on fresh and unavoidably decomposing cadavers, Mall began experiments for the preservation of anatomic material in October, 1893. While waiting for the arrival of human bodies, he used the cadavers of dogs. One of the first results incidental to these experiments was the deletion from the annual announcement of the medical school of the sentence, "The study of human anatomy will be continued with practical work in the dissecting room as soon as cold weather sets in." This statement, which had appeared in five successive annual announcements, was omitted in 1898. In the announcement for the following year it was stated that "the material is carefully embalmed and kept in cold storage vaults."

When speaking of these earlier experiments in 1905, he said:

> These experiments proved to be valuable, for we have ever since been able to embalm our subjects well, and in turn the method has spread to many of the medical schools of America.

These methods did, indeed, spread, and so did the conditions under which dissections were done in his laboratories. But Mall's influence on anatomy was not restricted to the organization of courses, to the teaching of anatomy, to the conditions under which it is taught, or even the establishment of higher standards. Great as the influence of his example in these matters was, it far transcended them and extended to the whole course of development of anatomy in America. He took a leading part in founding various scientific journals, in reorganizing the Association of Anatomists, and in effecting the reorganization of departments of anatomy all over the country. These things not only carried his influence far and wide, but made it fundamental. Nevertheless, it was his attitude toward investigation and his activity in it that made and left the most profound impression. Hence, although a better day had begun to dawn when Mall began his work, and short though his span of life was, he nevertheless lived to see the sun far up from the horizon. That this fact found recognition abroad also must have been very gratifying to him. When writing in *Nature* in 1916, Keith, for example, declared:

> Five and twenty years ago anatomists in America were British in methods and in spirit; they were easy going, each man following leisurely his own individual bent. Since that time a remarkable change has taken place; the number of laboratories in which the structure and development of the human body are taught and investigated have increased tenfold; the number of investigators has increased in a still greater ratio; in quantity and quality their anatomical proceedings and journals have come to rival those of any country of Europe.
>
> In effecting this transformation the chief credit must be assigned to one man—Franklin Paine Mall, twenty-three years professor of anatomy at the Johns Hopkins University. He planted in Baltimore the methods and aims which he had acquired when working in the laboratory of the late Professor His of Leipzig. By his personal influence, and example, by pupils and disciples, and by reason of the inherent excellence of the Leipzig traditions, he has succeeded in Germanizing the majority of the dissecting rooms and anatomical laboratories throughout the length and breadth of North America.

Mall repeatedly acknowledged his indebtedness to His, which is referred to in the foregoing quotation from Keith. When speaking of his investigations on Embryo 2, for example, he wrote:

> In 1890, this specimen was offered to my teacher, Professor His, who, however, refused to accept the gift but returned it, together with several of his own. "These," he added, "will make a nucleus for your own collection. It will give me pleasure to see publications coming from a new source."

Seldom, indeed, can the hope of a teacher have found fuller realization! The unique collection, now the property of the Department of Embryology of the Carnegie Institution of Washington, long passed the fondest hopes, if not the dreams, of Wilhelm His. The rapid increase of this collection within the last few years through the generous cooperation of numerous physicians, as well as its greater utilization, made possible by the wise support received from the Carnegie Institution, gave Mall the greatest satisfaction. In it he saw the possible fulfilment of many a cherished plan, and to it he gave his best endeavors. Let us hope that continued support of this department will enable others to carry to full fruition the wise plans of its founder and first director, for as he wrote of His, so it also may be said of him: "He left a great legacy, no small part of which consists of wise plans for future work."

Even if it were within the power of my poor words to do so, it is not my purpose to fully portray the life work of my former teacher, colleague and friend. Nor did he love many words. Silence was often golden to Mall, for he was a doer, not a preacher. He lived and taught by example, and his unique personality, quiet demeanor and simple unobtrusive life had a very pervading influence. Neither his time nor attention were for the *many* but for the *few* whom he sought to interest in his chosen field. All he had to give was theirs, and to them his loyalty and devotion were unfailing.

He always was alert for a new recruit, and not only possessed rare intuition in finding him, but soon won him over and spurred him on to his best endeavors; not by making alluring promises, but by interesting himself in his work and providing ideal conditions. A feigned interest never misled him, and he was impatient of the time server. "In America," he wrote, "we frequently find recent graduates who tell us they would follow an academic career if their future were assured as far as salary is concerned. Little do they realize that this attitude of mind should exclude them absolutely from such a career."

He tested all aspirants by "freedom and research," and always stood with his disciples on "the common field of nature." Students, assistants and associates "always were given the greatest freedom, for it was against his nature to enslave them to the least degree." With students or disciples, "swim or sink" was his precept, and he aided the scientific toddler only to start him off. Once started, the beginner was left largely to his own devices, for "he desired that the pupil should have full freedom to work out his own solution." If the initiative of the latter carried him forward to a success, no matter how modest, Mall's pleasure always exceeded that of the toddler himself.

Some happy day, when the history of anatomy in America will be written, a very large place will be assigned to Mall. His influence was wide and deep, not alone because of what he himself did, but also because of what his example inspired others to do. As he said of His, so also it was true of him, that "his greatest joy was to further the cause of his chosen science." Surely, every one rejoices in such a life as this, and finds comfort in the words of Ulysses, "Though much has been taken, much abides."

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## Book Notices

Notes for Army Medical Officers. By Lieut.-Col. T. H. Goodwin, R. A. M. C. With an Introductory Note by Surg.-Gen. William C. Gorgas, U. S. Army. Medical War Manual No. 2. Authorized by the Secretary of War and under the Supervision of the Surgeon-General and the Council of National Defense. Leather. Price, $1. Pp. 112, with 34 illustrations. Philadelphia: Lea & Febiger, 1917.

This is a reprint of the lectures delivered by Colonel Goodwin of the British Army Medical Corps at the Army Medical School in Washington. It is divided into organization and administration; war surgery; sanitation in war, and general notes for service on the western front. In the section on surgery and sanitation there are many illustrations of devices for use at the front and in camp. Of particular interest are the general notes for service on the western front. These describe the outfit which it is advisable to take, billeting, messing, social customs, censorship regulations, and general hints. The latter we reproduce:

1. Avoid criticism of the action or orders of a senior officer. It should be borne in mind that the officer issuing an order is probably in possession of information of which the recipient of the order has no knowledge.

2. An officer should stand *in loco parentis* with regard to the men serving under him. If in difficulty or trouble a soldier should appeal to his officer for advice or assistance, with every confidence that any difficulty will be smoothed for him and any just grievance will obtain prompt redress.

3. *In Regard to Patients.*—The British soldier regards his medical officer with the most unbounded confidence and places absolute reliance in his skill and judgment; therefore, never make a perfunctory examination or give a hasty opinion.

Spare no pains to insure that the soldier's confidence is invariably justified.

4. The keystone of efficiency in the Army is "loyalty": "Loyalty" to the Army and to the medical profession, "loyalty" to one's unit and commanding officer, "loyalty" to one's juniors.

Massage: Its Principles and Practice. By James B. Mennell, M.A., M.D., B.C., Medical Officer, Physico-Therapeutic Department, St. Thomas' Hospital. With an Introduction by Sir Robert Jones, C.B., F.R.C.S., Colonel R. A. M. C., Inspector of Military Orthopedics. Cloth. Price, $3 net. Pp. 359, with 135 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

This book is written by a physician of national reputation in Great Britain, whose education and experience in massage have been coincidental with, and modified by, a thorough medical training and a scientific habit of thought. The limitations and possible harmfulness of massage and exercises, as therapeutic measures, are pointed out and explained with the same care as are its indications and benefits; in fact, the book is written in a spirit of reasonable conservatism, evidently the result of thoughtful investigation. In no book that has come to the reviewer's hand has there been such clear and logical explanations of the results obtained by different forms of massage and of the indications for definite manipulations and maneuvers in different conditions, as in this one of Mennell's

The chapters devoted to the technical methods best adapted to the treatment of the various ailments and conditions in which massage and exercise are indicated are full of ingenious and helpful suggestions, often of a mechanical or physiologic nature, which indicate the attention that the writer has brought to his work. Through it all there runs a note of enthusiasm which accounts for the author's success.

The relation of massage to military orthopedics, and the possibilities of the two when properly coordinated, are given special consideration and are of unusual interest because the author has worked out his conclusions in one of the military and orthopedic hospitals of England, under the direction and cooperation of Col. Sir Robert Jones, inspector of military orthopedics.

The illustrations, all photographic, are abundant and especially helpful in making clear the technical parts of the work. The index is unusually complete and helpful.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By Various Writers. Third edition. Edited by Thomas Lathrop Stedman, A.M., M.D. Complete in eight volumes. Volume 8. Cloth. Price, $7. Pp. 782, with illustrations. New York: William Wood & Co., 1917.

The third revision of this admirable work is completed in the eighth volume, which bears evidence of the same careful handling by editors, authors and printers as former volumes. Among the outstanding topics in this volume are the history of surgery, syphilis, the transplantation of tissues, blood transfusion, trematoda and protozoa, urine and strabismus. The Carrel method of wound treatment is covered, and is an indication of the up-to-date character of the work. A careful study of a book by so many authors, whom one could hardly expect always to express unbiased opinions or to maintain the judicial attitude, would doubtless reveal many things to criticize. Likewise, depending, perhaps, on the view of the reader, omissions of what seem to him to be important things might be pointed out. For instance, it might fairly be said that such a matter as the diet in the treatment of typhoid fever patients is deserving of more than a mere reference in a half dozen lines. On the whole, however, there is little to criticize. The work of revision has been well done. The work makes a splendid foundation for an up-to-date library.

The Physician's Visiting List (Lindsay and Blakiston's) for 1918. Leather. Price, $1.25. Philadelphia: P. Blakiston's Son & Co., 1917.

The Medical Record Visiting List or Physicians' Diary for 1918. Leather. Price, $1.75. New York: William Wood & Co., 1917.

These handy lists have been revised for 1918. The Physician's Visiting List contains a table for calculating gestation, American table of mortality, comparison of thermometers, an article on asphyxia and apnea, a physician's dosage table based on the pharmacopeia, isolation period in contagious diseases, heights and weights, the usual blank pages, notes on the treatment of poisoning, and tables of weights and measures.

The Medical Record Visiting List contains calendars, tables for calculating gestation, weights and measures, the maximum adult dosage, table of diagnostic hints on contagious diseases, a page of interesting medical facts, treatment of poisoning and emergencies, signs of death, hints on the writing of wills, and the usual blank pages. Both are attractively bound in leather, with pockets for carrying memorandums, and a good pencil.

Causation of Sex in Man. A New Theory of Sex Based on Clinical Materials, Together with Chapters on Forecasting or Predicting the Sex of the Unborn Child and on the Determination or Production of Either Sex at Will. By E. Rumley Dawson, L.R.C.P., M.R.C.S. Cloth. Price, $3. Pp. 226, with 21 illustrations. New York: Paul B. Hoeber, 1917.

Dawson believes that the fundamental principle in the causation of sex is the ovary from which the ovum is discharged, the right side yielding the male, and the left side the female offspring. He cites extensive experiences, case histories, observations, etc., to prove this theory. The particular reason for publishing a new edition of the book at this time, the author says, is the desirability of increasing the birth of males to offset the large number of deaths associated with the war. The proposition of making the matter practical consists in determining which ovary is ovulating at a definite time. This, he believes, may somehow be made feasible through the roentgen ray or through working out from the data of a previous child's birth which ovary is working during certain months. This much must be said: The book is entertaining.

## Medicolegal

### No Authority for Payment of Special Fees

*(State ex rel. Plant vs. Board of Commissioners of Ohio County (W. Va.), 92 S. E. R. 747)*

The Supreme Court of Appeals of West Virginia refuses a writ of mandamus to the relator, a physician, to compel the board of commissioners to pay his bill for $150 for expert witness fees in a murder case wherein, in pursuance of an arrangement with the prosecuting attorney, he made physical and mental tests of the prisoner and examined into his family history, and thereafter testified in the case as a witness for the state. The judge of the criminal court entered an order directing the claim to be paid out of the state treasury, and when the auditor of the state refused payment thereof, entered an order that it be paid out of the treasury of Ohio County; but the board of commissioners declined to pay it. The supreme court says that it has no doubt the services rendered by the relator were material and important to the state in the particular case, and that his fees therefor were reasonable and morally just; but the legislature is the only body that has authority to provide for their payment. The courts of this state have no inherent power or authority to create liabilities on the county fund or the state treasury. The authority to do so must be found in some statute. This court knows of none, and was cited to none that authorized the criminal court of Ohio County to direct the payment of the relator's fees for services in obtaining information, to be thereby the better qualified to testify authoritatively as an expert witness on behalf of the state, on an inquiry into the sanity of a person charged with the commission of a crime. Moreover, Sections 3 and 4 of Chapter 16, Acts of 1904, make it unlawful for any county court to expend any money or incur any obligation not expressly authorized by law. Instead of being the duty of the board of commissioners of Ohio County to pay the relator's fees, it is expressly prohibited from doing so.

### Power to Quarantine

*(Crayton vs. Larabee et al. (N. Y.), 116 N. E. R. 355)*

The Court of Appeals of New York, which reverses a judgment rendered for the plaintiff, and grants the defendants a new trial, says that this action was to recover the damages sustained by reason of an alleged unlawful quarantine of the plaintiff within her home at Syracuse. The defendants were the commissioner of public safety of the city, the health inspector in the department of public safety, the health officer, and a policeman assigned to assist the health officer. A woman living in a house adjoining that in which the plaintiff lived was ill with smallpox. The health officer, with the aid of the other defendants, quarantined from the 14th to the 29th of the month the house of the plaintiff, and within it herself and the other occupants of the house. The defendants presented evidence of their official capacities and of an ordinance of the city which provided: "All communication with any house or family infected with scarlet fever, smallpox or diphtheria and such other diseases as may be declared at any time by the commissioner dangerous or a menace to public health, is hereby forbidden except to physicians, nurses or messengers, to carry necessary advice, medicine and provisions and to such other persons as may be necessary to render aid within said house, for the support or assistance of said family. The health officer shall order isolation or absolute quarantine in such cases, or whenever he deems necessary, and take such other quarantine measures as he deems necessary in cases not above provided for." The trial justice charged the jury in effect that when the ordinance says that the health officer may, whenever he deems it necessary, quarantine a person or persons, that language must be taken to mean that he and they may quarantine a person suffering from an infectious disease or a person who has been exposed to such an infectious disease in such a manner that he or she is liable to take it himself or herself, or is liable to convey the disease to others; and he charged finally that, unless there had been an exposure in the manner stated, the quarantine "was not justified, and the board of health and the health officer were doing what they had no power under the law or under the ordinance or in any way to do; they were acting wrongfully, and for that wrong Mrs. Crayton is entitled to such damages as were occasioned to her by it." But neither the language nor the intention of the common council expressed by the language of the ordinance, nor the manifest purpose of its enactment, permits this court to approve the interpretation of it as charged by the trial justice. This court holds that the ordinance was authorized, was legally adopted, and was a reasonable and valid health regulation under the police power of the state, vesting in the health officer a stated discretionary power, which, if lawfully exercised, protected those exercising it against the consequent damages to persons or property. The general authority to the health officer absolutely to quarantine in cases of the designated diseases "wherever he deems necessary" was not intended to and does not confer on him unlimited power and right to control persons and property at his discretion. His action in such regard cannot be arbitrary, unreasonable or oppressive. The language was wisely chosen, and has a far different meaning. As a preliminary to his action, the health officer must deem the action necessary. He must adjudge his conclusion, that is, his conclusion must rest on his knowledge of the facts and of the correct rules for their interpretation and application acquired through a reasonable and fair investigation and consideration at such sources as a person of ordinary intelligence and perception, charged with the responsibilities of the office, would regard as authentic and trustworthy. The conclusion thus reached must be that the action he orders is essential to public health. Conditions must exist which render, within reason and fair apprehension, his action essential for the preservation of the health of the public. For a mere error of judgment the officer cannot be held liable.

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (*) are abstracted below.

#### American Journal of Physiology, Baltimore

December, 1917, 45, No. 1

1 *Gastric Response to Foods. Determination and Significance of Intragastric Conductance. O. Bergeim, Philadelphia.—p. 1.
2 An Air-Tight Pleura Cannula. S. J. Meltzer, New York.—p. 12.
3 New Method of Obtaining Respiratory Gases in Animals, and Some of the Results. A. L. Meyer, New York.—p. 16.
4 *Viscosity of Lymph. R. B. Opitz and R. Nemser, New York.—p. 25.
5 Studies on Animal Diastases. Effect of Administration of Various Substances on Blood Diastase of Rabbits. C. K. Watanabe, New York.—p. 30.
6 Differentiation of Minimal Contraction in Skeletal Muscle. J. P. Eisenberger, Buffalo.—p. 44.
7 *Effect of Alcoholic Intoxication on Catalase. W. E. Burge, Chicago.—p. 57.
8 Hemodynamical Studies. R. B. Opitz, New York.—p. 62.
9 Reaction of Kidney Colloids and Its Bearing on Renal Function. R. Isaacs, Cincinnati.—p. 71.
10 *Physiology of Stomach. Origin of Epigastric Pains in Cases of Gastric and Duodenal Ulcer. A. J. Carlson, Chicago.—p. 81.
11 Obvious Consequences of High Rate of Blood Flow Through Suprarenals. G. N. Stewart, Cincinnati.—p. 92.

1. **Intragastric Conductance.**—By means of a retention stomach tube in the form of an electrolytic cell, intragastric conductance variations were studied by Bergeim in connection with determinations of total acidity, free hydrochloric acid, pepsin and trypsin. Aside from the swallowing of saliva, the conductance of which is low, intragastric conductance is, after the first hour or so of digestion, almost always considerably modified by the regurgitation of pancreatic juice or bile or both and possibly to a lesser extent by pyloric and duodenal secretions. The conductance of pancreatic juice and bile being usually very low as compared with that of the gastric

contents at maximum acidity, regurgitation tends to markedly lower intragastric conductance as well as acidity. Conductance, however, rises relative to free hydrochloric acid on account of the higher salt content of these regurgitated secretions. After the ingestion of mineral acid, neutralization is brought about in the same manner as during digestion. In achylias where intragastric digestion is mainly pancreatic in character the conductance was found to parallel the concentration of pancreatic juice as measured by the tryptic index.

4. **Viscosity of Lymph.**—The results obtained by Opitz and Nemser show that large doses of normal saline solution tend to lessen the viscosity in a slight measure. Smaller doses, on the other hand, may increase it, presumably on account of the fact that the more favorable dynamic conditions subsequent to the injection tend to augment the absorption and the transfer of the lymph to central channels. A very rapid reduction of the viscosity results, however, if the injections of saline solution are preceded by a moderate hemorrhage. Under this condition, very naturally, the blood and lymph pressures must suffer, allowing a more prompt "thinning" of the latter to take place. In the experiments here cited 200 c.c. of blood were displaced by an equal quantity of saline solution. The tests were made fifteen minutes after the injection.

7. **Effect of Alcoholic Intoxication on Catalase.**—According to Burge the introduction of alcohol into the stomach greatly increases the catalase of the blood, while the introduction of alcohol directly into the vascular system decreases the catalase of the blood. The decrease in catalase produced by the introduction of alcohol directly into the blood is due to the destruction of the catalase by the alcohol. Further work is necessary before an explanation can be given for the increase in the catalase of the blood when alcohol is absorbed from the alimentary tract into the blood.

10. **Epigastric Pain in Gastric and Duodenal Ulcer.**—All the evidence obtained by Carlson from the study of a patient, points to the fact that the pains of gastric and duodenal ulcers are contraction pains arising either in the stomach or in the pylorus and upper part of the duodenum. In the case of the stomach the contractions are usually not stronger than those of normal digestion peristalsis of the filled or the hunger tonus rhythm of the empty stomach. This points clearly to a condition of hyperexcitability of the gastric pain nerves in the ulcer patients experiencing the typical ulcer pains. Since the ulcer pains are due to tension of excessive contractions or of normal contractions on hyperexcitable pain nerves, it is evident that pathologic states other than ulcer, inducing such hyperexcitability or hypermotility, will cause symptoms of gastric ulcer pains practically identical with those of ulcer, as appears to be the case in many instances of appendicitis, cholecystitis and achylia. The contraction origin of the ulcer pains also helps to account for the many cases of gastric ulcer not accompanied by pain and serves to emphasize the fact that elimination of the ulcer pains is no criterion of healing of the ulcer.

### American Review of Tuberculosis, Baltimore

December, 1917, **1**, No. 10

12 *Effect of Pulmonary Tuberculosis on Renal Function. C. W. Mills and J. T. Henderson, New York.—p. 573.
13 * Cultivation of Tubercle Bacilli from Circulating Blood in Miliary Tuberculosis. M. C. Clough, Baltimore.—p. 598.

12. **Effect of Tuberculosis on Renal Function.**—In pulmonary tuberculosis unaccompanied by clinical evidence of renal disease, according to Mills and Henderson, tests for renal function, including phenolsulphonephthalein, lactose, blood urea, Ambard's coefficient and Mosenthal's test meal, show a normal or only slightly lowered function in all stages of the disease. Slight lowering of function, sometimes found by Mosenthal's test, is more apt to be found in far advanced and unfavorable types of the disease than in favorable types. Renal tuberculosis, and apparently extrarenal genito-urinary tuberculosis, give a characteristic picture with Mosenthal's test which may be of help in diagnosis. The other tests in this condition show only slight if any indication of lowered function. Cases of terminal edema in pulmonary tuberculosis show a characteristic picture by Mosenthal's test, with a marked decrease in water and sodium chlorid elimination. Whether this is due primarily to renal or cardiac conditions has not been determined. A good working rule in pulmonary tuberculosis practice for employing these tests would appear to be as follows: When there is any suspicion of nephritis or genito-urinary tuberculosis a Mosenthal test and a phenolsulphonephthalein test should be made for the valuable diagnostic and prognostic help they may afford. In the absence of clinical symptoms of renal disease, if the urine shows albumin in amount beyond a trace, or casts other than a few hyaline, a Mosenthal test should be made. If this is positive the case should be kept under careful observation for the development of renal disease.

13. **Cultivation of Tubercle Bacilli from Blood.**—Clough states that the occurrence of tubercle bacilli in the circulating blood, at least in sufficient number to infect a guinea-pig, is relatively infrequent (6.7 per cent.) in all forms of tuberculosis other than miliary tuberculosis, whereas in miliary tuberculosis, tubercle bacilli occur in the blood in a large percentage (66.6 per cent.) of cases. Tubercle bacilli have been grown in culture by Clough for the first time from the circulating blood of five patients with miliary tuberculosis. Blood cultures are suggested as an aid in the differential diagnosis of acute miliary tuberculosis from other nontuberculous infections, and as a means of studying bacillemia in all forms of tuberculous disease. Direct cultures from spinal, pleural, peritoneal, and other fluids are recommended in those cases in which tubercle bacilli cannot be demonstrated by smears.

### Archives of Internal Medicine, Chicago

December, 1917, **20**, No. 6

14 *Studies of Heart's Functional Capacity. T. B. Barringer, Jr., New York.—p. 829.
15 *Five Generations of Angioneurotic Edema. J. R. Crowder, Sullivan, Ind., and T. R. Crowder, Chicago.—p. 840.
16 *Experimental Hydronephrosis. Changes in Kidney Following Partial Ureteral Obstruction. N. M. Keith and D. S. Pulford, Jr., Baltimore.—p. 853.
17 *Nonprotein Constituents of Edema Fluids. W. Denis and A. S. Minot, Boston.—p. 879.
18 *Case of Cantharides Poisoning with Special Reference to Blood Picture. S. T. Lipsitz and A. J. Cross, St. Louis.—p. 889.
19 *Effect of Pancreatectomy on Catalase Content of Tissues. J. Kennedy, Chicago, and W. E. Burge, Urbana.—p. 892.
20 *Iron Metabolism of Hemochromatosis. C. P. Howard and F. A. Stevens, Iowa City, Iowa.—p. 896.
21 Polycythemia Induced by Tincture of Cantharides. S. T. Lipsitz, A. L. Fuerth and A. J. Cross, St. Louis.—p. 913.
22 Acute Mercuric Chlorid Nephrosis; Report of Two Cases. W. R. Campbell, Toronto, Canada.—p. 919.
23 *Studies on Acidosis. Immediate Cause of Death in Acidosis of Nephritis. J. L. Whitney, San Francisco.—p. 931.
24 *Acute Arthritis Cases Treated by Intravenous Injection of Foreign Protein. R. L. Cecil, New York.—p. 951.
25 Blood Sugar in Hyperthyroidism. W. Denis, J. C. Aub and A. S. Minot, Boston.—p. 964.

14. **Heart's Functional Capacity.**—It can be gathered from the studies described by Barringer that the cardiac reserve power may be very low in a man with perfectly normal heart as well as in a man with diseased heart.

15. **Angioneurotic Edema.**—The family whose history forms the basis of the Crowders study from the first to the fifth generation consisted of sixty-four individuals. Among them there have been twenty-eight cases of angioneurotic edema and fifteen deaths from an acute form of the disease. That is, of sixty-three known descendants of J. C. twenty-seven, inherited his disease, and fourteen of these died of it. The cases have been about equally divided between males and females.

16. **Experimental Hydronephrosis.**—Bilateral, partial ureteral obstruction in dogs produced changes in renal function and structure. Rapid restoration of normal renal function took place when the ureteral obstruction was removed within a week. The progress and extent of the pathologic lesion in the kidney depended on the amount and duration of the intra-ureteral pressure, and, in a lesser degree, on the invariable secondary pelvic infection. Histologic examination as early as the second day after the initial obstruction revealed congestion and granular degenerative processes. Beginning with the seventh day, these changes were accompanied by connec-

tive tissue infiltration which gradually increased until eventually the kidney parenchyma was replaced by a connective tissue sac.

17. **Nonprotein Constituents of Edema Fluids.**—Results obtained by the quantitative examination of various types of edema fluid for their nonprotein constituents are presented by Denis and Minot. As a result of these analyses the following conclusions have been made: 1. Many of the nonprotein constituents of the fluids which belong to the class of crystalloids, among which may be mentioned urea, uric acid, and creatinin, occur in the same concentration in exudates and transudates as in the blood. The sugar content of ascitic fluids is somewhat higher than that of the blood, a finding not made in the case of the examples of pleuritic fluid analyzed. In transudates, total creatin occurs only in small amounts. In fluids of the more purely exudate type it is present in considerably higher concentrations, frequently approaching closely the concentration found in whole blood. 2. Fat and cholesterol occur in transudates in relatively small amounts. In fluids obtained from acute cases the content of fat and cholesterol rises and the former may at times approximate the concentrations found in blood. 3. In a patient with ascites from whom fluid was withdrawn every six to eight days, it was shown that the concentration of urea, uric acid and cholesterol in the fluid could be easily influenced by changes in diet.

18. **Cantharides Poisoning.**—This patient presented a most marked erythremia (10 million) shortly after the incidence of the poisoning, and this continued, though to a somewhat less degree, for a number of days. The patient's temperature was subnormal in the beginning but later became normal. There was slight acceleration in the pulse rate. There were no ocular findings and the Wassermann was negative. He was discharged in good condition, twenty days after admission.

19. **Pancreatectomy and Tissue Catalase.**—Extirpation of the pancreas decreases the catalase content of the liver by about 75 per cent., which results in the decreased output of catalase into the blood and hence a lessened supply to the tissues. Kennedy and Burge suggest that the decreased catalase content of the tissues may account for the imperfect or defective oxidation in diabetes, since the amount and intensity of oxidation is so inseparably linked with catalase.

20. **Iron Metabolism of Hemochromatosis.**—In one case studied by Howard and Stevens late in the course of the disease there was evidence of a slight but definite retention of the food iron without any sign of undue destruction of red blood cells, suggesting that hemochromatosis may depend, therefore, on some injury to the liver resulting in a hepatitis, and this in turn to a disturbance of the iron metabolism, and so to a slight and prolonged retention of the iron both exogenous and endogenous.

23. **Studies on Acidosis.**—As a result of the study of a series of cases of nephritis it appears that two factors are necessary to produce acidosis: failure of the power of elimination and an increase in the production of acid in the body. Cases with two-hour phenolsulphonephthalein output over 30 per cent. show acidosis only if there is a severe toxemia, while those below 30 per cent. show acidosis as a rule. As causes of increased acid production in nephritis, the toxemia of the active parenchymatous form is itself operative; infection is an even more powerful factor. Infection seems to have a very marked influence in causing acidosis. All but one case in this series showing acidosis had evidence of severe infection. The cases which did not show acidosis did not have infection. A patient may, however, have marked infection with intoxication and show no acidosis provided his powers of elimination are active.

24. **Arthritis Treated by Injection of Foreign Protein.**—Forty cases of acute arthritis were treated by intravenous injections of typhoid or gonococcus vaccine. Thirteen of these patients made a rapid recovery without recourse to any other treatment. Of the remaining twenty-seven cases, all but two showed improvement while receiving the vaccine. Twenty of the twenty-seven, however, received salicylates before complete recovery took place. In the seven cases of acute gonococcus arthritis all of the patients showed gradual improvement under vaccine, but it was impossible to say how much of a factor the vaccine was in these cases. The reaction produced by the vaccine is usually severe, consisting of a chill, with rapid rise in temperature, headache, and often nausea and vomiting. During this reaction there is a well-marked leukocytosis. Both the temperature and the leukocytes usually return to normal in a few hours. This method is recommended by Cecil only in carefully selected cases, after salicylates and other well established methods of treating arthritis have failed.

### Arkansas Medical Society Journal, Little Rock

December, 1917, **14**, No. 7

26 Red Cross Activities. A. Fairbank, St. Louis.—p. 139.
27 Military Surgery. C. Bernard.—p. 140.
28 Diseased Tonsils; Influence on Health and Technic of Removal. L. H. Lanier, Texarkana.—p. 147.

### Boston Medical and Surgical Journal

December 20, 1917, **177**, No. 25

29 *Value of Diagnosis in Back Lesions. J. W. Sever, Boston.—p. 857.
30 *Availability of Dicalcium Phosphate when Present as Constituent of Infants' Food. H. I. Bowditch and A. W. Bosworth, Boston.—p. 864.
31 Anthrax as Occupational Disease in Massachusetts. T. F. Harrington, Boston.—p. 867.
32 Series of Fractured Skulls from Records of Boston City Hospital, 1902-1917. C. T. Harris and H. A. Nissen, Boston.—p. 870.
33 Treatment of Myelogenous Leukemia with Radium. F. W. Peabody, Boston.—p. 873.
34 Observations at Peter Bent Brigham Hospital on Cases of Pneumonia in Relation to Types of Pneumococci and Serum Treatment of Type I Cases. H. L. Alexander, Boston.—p. 874.

29. **Value of Diagnosis in Back Lesions.**—Sever insists that no individual who complains of pain, soreness or stiffness in the back, following an injury or fall, should go without careful examination of the back.

30. **Dicalcium Phosphate as Constituent of Infants' Food When Present.**—It is pointed out by Bowditch and Bosworth that in calculating the amount of mineral elements present in modified cow's milk for use in infant feeding, the dicalcium phosphate should be considered as unavailable, and a corresponding deduction made from the total mineral elements in milk. The authors show that during the process of digestion of calcium caseinate the calcium and phosphorus contained within the calcium caseinate may unite to form insoluble calcium phosphate and appear in the feces as such, the calcium and phosphorus balances under these conditions becoming negative. By feeding a large amount of soluble calcium it is possible to precipitate practically all the phosphorus in the food as insoluble calcium phosphate, this substance being eliminated in the feces, and as a result of this the metabolism of phosphorus is reduced to such a low level that the urine becomes phosphorus-free.

### Bulletin of Johns Hopkins Hospital, Baltimore

December, 1917, **28**, No. 322

35 *Cultivation of Tubercle Bacilli from Circulating Blood in Miliary Tuberculosis. M. C. Clough, Baltimore.—p. 363.
36 Fibroid Tumors of Vulva; Report of Twelve Cases and Digest of Literature. V. N. Leonard, New York.—p. 373.

35. Also published in the *American Review of Tuberculosis*, December, 1917. See Abstract 13.

### Canadian Medical Association Journal, Toronto

December, 1917, **7**, No. 12

37 Treatment of Nerve, Muscle and Joint Injuries in Soldiers by Physical Means. R. T. McKenzie.—p. 1057.
38 Use of Epsom Salts, Historically Considered. R. D. Rudolf, Toronto.—p. 1069.
39 Treatment of Fractures. F. R. England, Montreal.—p. 1072.
40 Some Common Foot Conditions and Their Treatment. J. A. Nutter, Montreal.—p. 1077.
41 Cyclic Vomiting in Relation to Acid Intoxication. J. Loudon, Toronto.—p. 1084.
42 Foci of Infection in Tonsils. J. E. Hett, Kitchener.—p. 1090.
43 Treatment of Bacillary Dysentery. A. A. Fletcher.—p. 1094.
44 Primary Asthma in Pregnant Multipara. W. G. Hepworth, Steveston, B. C.—p. 1097.

### Journal of Biological Chemistry, Baltimore

December, 1917, **32**, No. 3

45 Preparation of Cyanamid. A. E. Osterberg and E. C. Kendall, Rochester, Minn.—p. 297.
46 Study of Amino Nitrogen and Glucose in Lymph and Blood Before and After Injection of Nutrient Solutions in Intestine. B. M. Hendrix and J. E. Sweet, Philadelphia.—p. 299.
47 Nutritive Factors in Animal Tissues. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 309.
48 Applications of Gas Analysis. Carbon Dioxid Tension of Venous Blood and Circulation Rate. Y. Henderson and A. L. Prince, New Haven, Conn.—p. 325.
49 Id. Apparatus for Study of Respiratory Exchange in Small Animals. A. L. Prince. New Haven, Conn.—p. 333.
50 Relationship between Cholesterol and Cholesterol Esters in Blood During Fat Absorption. A. Knudson, Albany, N. Y.—p. 337.
51 Biologic Analysis of Pellagra Producing Diets. Values of Some Seed Proteins for Maintenance. E. V. McCollum and N. Simmonds, Madison, Wis.—p. 347.
52 *Use of Soy Bean as Food. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 369.
53 Studies of Gastric Residuum. Total Phosphorus. C. C. Fowler, Ames, Iowa.—p. 389.
54 Studies on Enzyme Action. Formation of Ester-Hydrolyzing Substances by Action of Alkali on Proteins. F. H. Frankel, New York.—p. 395.
55 Value of Yeast Vitamin Fraction as Supplement to Rice Diet. A. D. Emmett and L. H. McKim, Detroit.—p. 409.
56 Animal Calorimetry. Interrelation Between Diet and Body Condition and Energy Production During Mechanical Work. R. J. Anderson and G. Lusk, New York.—p. 421.
57 Method for Preparation of Uniform Collodion Membranes for Dialysis. C. J. Farmer, Milwaukee, Wis.—p. 447.
58 Studies of Acidosis. Determination of Betahydroxybutyric Acid, Aceto-Acetic and Acetone in Urine. D. D. Van Slyke, New York.—p. 455.
59 Id. Determination of Betahydroxybutyric Acid, Aceto-Acetic Acid, and Acetone in Blood. D. D. Van Slyke and R. Fitz, New York. —p. 495.
60 Id. Relationship Between Alkali Retention and Alkali Reserve in Normal and Pathologic Individuals. W. W. Palmer and D. D. Van Slyke, New York.—p. 499.
61 Studies on Blood Serum. Influence of Pancreatic Digestion on Proteolytic Activity and Noncolloidal Nitrogen Content. W. H. Welker and F. H. Falls, Chicago.—p. 509.
62 Id. Influence of Pregnancy on Proteolytic Activity. F. H. Falls and W. H. Welker, Chicago.—p. 515.
63 Id. Influence of Puerperium on Proteolytic Activity. F. H. Falls and W. H. Welker, Chicago.—p. 519.
64 Id. Proteolytic Activity as Affected by So-Called Antitryptic Adsorbents. W. H. Welker and F. H. Falls, Chicago.—p. 521.
65 Influence of Conditions of Bacterial Cleavage of Proteins on Cleavage Products. T. Sasaki, Tokyo, Japan.—p. 527.
66 Stereochemistry of Bacterial Decomposition of Albumin. T. Sasaki and I. Otsuka, Tokyo, Japan.—p. 533.
67 Catalase Activity of American Wheat Flours. C. H. Bailey, St. Paul, Minn.—p. 539.

52. **Use of Soy Bean as Food.**—Osborne and Mendel's study shows that the soy bean is relatively poor in calcium and chlorin. The addition of a small amount of calcium carbonate to a food in which the soy bean was the sole source of mineral constituents tended to stimulate growth to some extent, though not so efficiently as the addition of the more complex salt mixture mentioned above. On diets containing either the soy bean meal or the commercial soy cake meal. together with fats and "protein-free milk" or the authors' "artificial" salt mixture, several broods of vigorous young have been produced, and these young have grown normally on diets the same as those on which their parents were raised. This is a further demonstration of the nutritive efficiency of this legume, in striking contrast with the adverse results obtained with kidney beans and garden peas. The soy bean is the only seed hitherto investigated, with the possible exception of flax and millet, which contains both the water-soluble and the fat-soluble unidentified dietary essentials or vitamins. This fact, taken with the high physiologic value of the protein, lends a unique significance to the use of the soy bean as food.

### Journal of Infectious Diseases, Chicago

December, 1917, **21**, No. 6

68 Methods of Preparing Pollen Antigen. R. O. Clock, Pearl River, N. Y.—p. 523.
69 *Chronic Arthritis in Swine. S. Sekiguchi and E. E. Irons, Chicago. —p. 526.
70 *Effect and Nature of Toxin Produced by B. Paratyphosus B. E. E. Ecker, Chicago.—p. 541.
71 Differentiation of Paratyphoid Enteritidis Group. Lead Acetate Agar. E. O. Jordan and R. Victorson, Chicago.—p. 554.
72 Hydrogen-Ion Concentration of Cerebrospinal Fluid. A. Levinson, Chicago.—p. 556.
73 Precipitation of Cerebrospinal Fluid in Diagnosis of Meningitis. S. Tashiro and A. Levinson, Chicago.—p. 571.
74 *Toxin of B. Welchii. P. H. DeKruif, T. W. Adams and P. M. Ireland, Ann Arbor, Mich.—p. 580.
75 *Id. Mechanism of Infection with Bacillus Welchii. P. H. DeKruif and J. L. Bollman, Ann Arbor, Mich.—p. 588.

69. **Bacteriology of Chronic Arthritis.**—In seventeen of twenty-one cases of chronic arthritis in swine, bacteria were found by Sekiguchi and Irons either in culture or in sections. The bacilli isolated from the joints in these cases are culturally alike, and in morphology and most cultural reactions resemble *B. pyogenes*. Lesions of joints were produced experimentally by subcutaneous as well as by intravenous inoculation of bacilli. The authors found no clear evidence of infection by way of the respiratory tract, although a chronic sinusitis was found in one hog.

70. **Toxin Produced by B. Paratyphosus B.**—In Ecker's opinion the assumption seems justified that toxic compounds are present in young filtered broth cultures of *B. paratyphosus* B, and the immunity experiments tend to show that the toxins produced by these bacilli are bodies with antigenic properties.

74. **Toxin of Bacillus Welchii.**—The toxicogenic power of ten strains of *B. welchii* was tested by the authors with the result that all the strains were found to produce toxin in greater or less degree. An antitoxin produced by the injection of toxin from a single strain is capable of neutralizing all of the toxins. Various methods of toxin production have been tested. It is necessary only to boil the medium before use.

75. **Mechanism of Infection with B. Welchii.**—DeKruif and Bollman believe that the acidity of cultures of *B. welchii* is not the prime cause of their ability to produce experimental infections. Bacilli, removed from broth cultures by centrifugation and subsequently washed with large volumes of 0.85 per cent. sodium chlorid, are far less infectious than equal numbers of organisms not separated from the medium in which they have grown. The virulence of washed organisms is increased at least 10,000 fold by the simultaneous injection of nonlethal amounts of neutralized culture filtrate. This aggressive activity of the culture filtrate is destroyed by heating to 70 C. for thirty minutes, and by the addition of the specific Welch antitoxin. It is concluded from this that the aggressin of the filtrate and the toxin are identical. The aggressive substance (toxin) seems to act by reason of its necrotic effect and not by a negative chemotactic influence on leukocytes.

### Journal of Medical Research, Boston

November, 1917, **37**, No. 2

76 *Fate of Staphylococcus Pyogenes Aureus Introduced intravenously into Actively Immunized Dogs; and of Killed Bacteria Introduced Intravenously into Normal Dogs. H. Ito, New Haven, Conn. —p. 189.
77 Wassermann Reaction with Diabetic Serums. A. I. van Saun, Albany, N. Y.—p. 205.
78 Study of Bact. Abortus (Bang) in Milk by Means of Agglutination Test. L. H. Cooledge, Ann Arbor, Mich.—p. 207.
79 *Action of Benzol. Spontaneous Infections with Special Reference to Diphasic Leukopenia (Rabbit). H. G. Weiskotten and H. S. Steensland, Syracuse, N. Y.—p. 215.
80 *Triple Sugar Modification of Russell Doule Sugar Medium. C. Krumwiede, Jr., and L. A. Kohn, New York.—p. 225.
81 Auto and Homoioplastic Transplantation of Kidney Tissue. L. Loeb, St. Louis.—p. 229.
82 Phagocytosis of Bacteria in Excised Spleen After Perfusion with Locke's Solution. Y. Ozaki.—p. 247.
83 *Fate of Bacterial Spores in Animal Body. S. A. Koser and J. R. McClelland, New Haven, Conn.—p. 259.
84 Glycerin Bouillon Reaction Curve of Tubercle Bacilli as Recorded by Bovie Potentiometer. L. Frothingham, New Haven, Conn. —p. 269.
85 Sensitization of Hay Fever and Asthmatic Patients to Proteins Found in Different Parts of Plants and to Individual Proteins of Cereals. I. C. Walker and J. Adkinson, Boston.—p. 277.
86 Comparison Between Cutaneous and Intradermal Tests in Sensitization of Asthmatic and Hay Fever Patients. I. C. Walker and J. Adkinson, Boston.—p. 287.
87 Fatal Disease of Japanese Waltzing Mouse Caused by Spore Bearing Bacillus (Bacillus Piliformis, N. Sp.). E. E. Tyzzer, Boston.—p. 307.

88 *Rapid Method for Determination of Pneumococcus Types. O. W. H. Mitchell and W. E. Muns, Syracuse, N. Y.—p. 339.
89 Ereptic Ferment in Rabbit Leukocytes. J. T. Parker and E. Franke, New York.—p. 345.

76. **Fate of Staphylococcus Pyogenes Aureus.**—Ito claims that bacteria introduced into actively immunized dogs disappear sooner than in normal dogs, and never were found growing in any part of the body. Bacteria that accumulate in the lungs in the earlier stage are transported to the other organs, but they are not found in the spleen in large numbers, while they are more numerous in the liver. In the several organs it appears that both fixed and wandering phagocytes have the ability to engulf, as well as to digest bacteria, throughout all the stages. As to the fate of killed bacteria introduced into normal dogs, they are destroyed somewhat quicker than the living bacteria introduced into immunized dogs, and they provoke no changes evident histologically in the tissues.

79. **Action of Benzol.** — The four rabbits studied by Weiskotten and Steensland exhibited periods of spontaneous infection coinciding with periods of exposure to the action of subcutaneous injections of olive oil-benzol mixture (equal parts of olive oil and benzol). During daily subcutaneous injections of olive oil-benzol mixture there developed evidences of active acute infection, which evidences were not present before injections were begun. In at least two of the rabbits infections present before injections were begun were "lighted up" after injections were begun. In none of the rabbits did there occur diphasic leukopenia and in only one aplasia of the marrow, such as are produced in similarly treated noninfected rabbits.

80. **Triple Sugar Modification.** — Krumwiede and Kohn found that when Andrade's indicator is substituted for litmus in the Russell medium, sharper results are obtained. By the use of a triple sugar medium, many of these types, which give a doubtful or typical paratyphoid reaction on Russell's medium, are promptly excluded. For the preparation of the triple sugar medium the authors use a stock agar, containing 1.5 per cent. agar, 0.3 per cent. meat extract, 1 per cent. peptone and 0.5 per cent. salt. This is adjusted roughly at slightly alkaline to litmus (or 0.6 per cent. acid to phenolphthalein, by hot titration) and finished in the usual way. At the time of use, 1 per cent. of lactose, 1 per cent. of saccharose, and one-tenth per cent. glucose are added to the melted agar. These are conveniently added from a stock solution containing 20 per cent. lactose, 20 per cent. saccharose, and 2 per cent. glucose, sterilized intermittently. Five c.c. of this solution added to each 100 c.c. of agar gives the required concentrations. One per cent. of the Andrade indicator is then added, and the reaction adjusted.

83. **Bacterial Spores in Animal Body.**—The spores of *B. tetani, B. putrificus, B. anthracis-symptomatici* and *B. edematis-maligni* were found by Koser and McClelland to be capable of resisting the destructive influence of the body tissues, and may be transported from the site of inoculation to different organs, where they remain latent for varying periods of time. The persistence of the spores in the liver and spleen, as well as at the point of entry, is of particular interest. These observations may prove to be of some practical interest in connection with the subject of wound infection, gangrene, and so-called blood poisoning.

88. **Determination of Pneumococcus Types.**—In an attempt to improve the tests for pneumococcus differentiation, a method for detecting precipitinogen, derived from pneumococci in the sputum, has been devised by Mitchell and Muns. The test yields valuable and quick results. By its use the injection of a mouse or the use of a culture is unnecessary, and Type I infections may usually be ascertained within an hour or two after the sputum is collected. The sputum is collected in a sterile container. Five c.c. of the sputum are pipetted into a small mortar. Relatively fine sand is added in sufficient quantity to make a rather stiff mixture. The mixture is ground with a pestle for about three minutes to reduce the thick tenacious mass into a gritty fluid paste. Ten c.c. of physiologic sodium chlorid solution are then added, 2 c.c. at a time. The sputum, sand and saline are mixed a minute or two and the sand is allowed to settle to the bottom. After three or four minutes the dissolved sputum collects over the sand and is pipetted off into a clean centrifuge tube.

The fluid is usually thin, milky and uniform, and amounts to about 9 c.c. Ten c.c. of physiologic sodium chlorid solution are now added to the sand in the mortar. After mixing well, as before, the fluid is pipetted off into a second centrifuge tube. In this manner two solutions of the sputum are provided. The first more concentrated solution may be used for the immediate test, and the second less concentrated solution may be held for use in case of accident to the first solution. Both solutions are centrifugalized at high speed long enough to completely clear the fluid. This operation requires from five to ten minutes, at 2,200 revolutions per minute. The sputum in solution is brought in contact with the three types of antipneumococci serums 1 c.c. of the former to 0.2 c.c. of the latter. Often the first evidence of a positive reaction is seen a few minutes after the mixing of the serum and the sputum solution. The mixture is a slightly opalescent fluid with a faint smoky "whirl" on shaking. The disappearance of the "whirl" seems to be the first phenomenon of specific reaction. Then, on warming in the water bath for a few minutes, a very slight feathery precipitate may be seen with the naked eye on close examination. The examination may be so facilitated by the use of a lens that the precipitate may be distinctly seen two or three minutes after the mixture of serum and sputum solution is made. As the tubes are left at rest in the water bath, the feathery white flakes drift to the bottom of the tube and collect in a typical white mass. In a negative test there is no reaction of any kind and very little sedimentation.

### Maine Medical Association Journal, Portland

December, 1917, **8**, No. 5

90 Medical Educational Methods. E. W. Gehring, Portland.—p. 129.
91 War Work of American Medical Women. E. M. Mosher, Brooklyn.—p. 139.

### Mental Hygiene, New York

October, 1917, **1**, No. 4

92 Care and Treatment of Mental Diseases and War Neuroses (Shell Shock) in British Army. T. W. Salmon, New York.—p. 509.
93 Insane, Feebleminded, Epileptics and Inebriates in Institutions in United States, January 1, 1917. H. M. Pollock and E. M. Furbush, New York.—p. 548.
94 Alienists and Psychiatrists. E. E. Southard, Boston.—p. 567.
95 Mental Health of Community and Work of Psychiatric Dispensary. C. M. Campbell, Baltimore.—p. 572.
96 Feeblemindedness and Delinquency. J. E. W. Wallin, St. Louis.—p. 585.
97 Illegitimacy and Feeblemindedness. J. P. Murphy, Boston.—p. 591.
98 Feeblemindedness and Probation. H. C. Parsons, Boston.—p. 598.
99 Segregation of Unfit in Reformatories. G. G. Fernald, Concord.—p. 602.

### Medical Record, New York

December 22, 1917, **92**, No. 25

100 Diagnosis and Treatment of Pathologic Conditions in Anterior Urethra Through Urethroscope. M. Huhner, New York.—p. 1057.
101 Intubation in Laryngeal Diphtheria. H. B. Sheffield, New York.—p. 1068.
102 Reorganization of New York City Children's Hospital and School. W. B. Cornell, New York.—p. 1070.
103 Significance of Negative Sputum Examinations in Pulmonary Tuberculosis. M. H. Kahn, New York.—p. 1072.
104 Amaurotic Family Idiocy or Infantile Degeneration with Symmetrical Bilateral Blindness. E. J. Bernstein, Detroit.—p. 1074.
105 Iodized Hydrid Antisepsis a Half Century Ago. R. F. Ofrias, New York.—p. 1075.

### New York Medical Journal

December 15, 1917, **106**, No. 24

106 Food Conservation. A. Bassler, New York.—p. 1109.
107 Tonsilloscopy and Curettage of Tonsils in Adults. T. R. French, New York.—p. 1115.
108 Internal Hemorrhoids. H. A. Bray, Philadelphia.—p. 1118.
109 Cure at Vichy in Seventeenth Century. G. Hinsdale, Hot Springs, Va.—p. 1121.
110 Physical Training and Hygiene for Busy People. L. F. Fuld, New York.—p. 1123. To be continued.
111 Cases of Laryngeal Stenosis as Complication of Measles. M. F. Morris, Jr., New York.—p. 1125.
112 Condyloma Acuminatum in Anal Region in Male. C. E. Hyde, Bridgeport, Conn.—p. 1125.

December 22, No. 25

113 Fractures. Improved Technic in Closed Methods of Treatment. C. Ogilvy, New York.—p. 1157.
114 Care of Ears. W. C. Phillips, New York.—p. 1159.
115 Quinin and Urea Hydrochlorid. J. F. Saphir, New York.—p. 1161.
116 Production of Antituberculous Serum. M. Staller, Philadelphia. —p. 1166. To be continued.
117 Highway Accidents in City of New York. S. W. Wynne, New York.—p. 1171.
118 Case of Sporadic Pellagra. M. E. Alexander, Waterbury, Conn. —p. 1174.
119 Frozen Feet, or Trench Foot So-Called. H. Authelain, France.—p. 1176.

### Philippine Journal of Science, Manila

September 12, 1917, Sec. B, No. 5

120 *Bactericidal Action of Certain Chemicals on Cholera Vibrios within Body of Experimental Cholera Carriers. O. Schobl, Manila.—p. 215.
121 Incidence of Age, Atheroma and Aneurysms as Seen in Necropsies of Filipinos. C. H. Manlove, Manila.—p. 233.
122 *Substitution of Human Blood Cells by Monkey's Red Corpuscles in Performing Complement Fixation Test for Syphilis. O. Schöbl and C. Monserrat, Manila.—p. 249.

120. **Action of Certain Chemicals on Cholera Vibrio.**—The author tested various chemicals: the benzenes, chloroform group, phenols, oils and resins, alkaloids, metals and anilin dyes. None of the chemicals gave such prompt curative effect as to bring about complete disappearance of cholera vibrios from the animal's body in every case. The drugs of the phenol group and the arsenic compounds are of some promise. Combination treatment by several drugs suggests itself also.

122. **Use of Monkey's Blood in Fixation Test for Syphilis.**—The absence of natural hemolytic amboceptor in human serum makes the use of antihuman amboceptor and human red cells preferable to those methods which employ antisheep hemolytic system. However, there is a practical difficulty connected with this method, namely, the comparatively low titer of the antihuman amboceptor as usually obtained by immunization of rabbits with human red corpuscles. A considerable number of injections is necessary, and strictly fresh blood not always being available to a laboratory worker who happens to be without direct connection with a hospital or a similar institution, a high percentage of rabbits die before they yield serum strong enough to be useful for a test. It occurred to Schöbl and Monserrat that, on account of the biologic relationship, monkey's red cells may probably behave in a similar way as human corpuscles in this respect. The results of the tests of forty serums collected at random over a period of several months showed that none of them, in the quantity used, contained a sufficient amount of natural amboceptor to cause hemolysis when brought in contact with red corpuscles of monkey and guinea-pig's complement. The majority of the same serums, however, contained a considerable amount of antisheep natural hemolytic amboceptor. Two injections of monkey's red cells are sufficient to produce serum of 100 hemolytic units per cubic centimeter, which is useful serum for tests. This can be accomplished within thirteen days, using not more than from 2.5 to 3 c.c. of blood. Hemolytic serums of higher value can be obtained by immunization of rabbits with monkey's cells than it is possible by immunization with human red corpuscles. Comparative tests for diagnosis of syphilis carried out on samples collected at random gave identical results, whether antihuman or antimonkey hemolytic system was used.

### Public Health Journal, Toronto

December, 1917, **8.** No. 12

123 Contribution of Health Insurance to Improvement of Public Health. M. M. Dawson, New York.—p. 313.
124 Health Insurance, Practice of Medicine and Public Health. T. M. Rubinow, New York.—p. 318.
125 Need of Health Insurance. I. Fisher, New Haven, Conn.—p. 328.
126 Detection and Isolation of Intracellular Meningitis Diplococcus. R. D. Defries, Toronto.—p. 337.
127 Influence of Mental Defectives on Public Health. H. McMurchy, Ont.—p. 341.

### Vermont Medicine, Rutland

November, 1917, **2.** No. 11

128 Some Public Health Lessons of War. C. S. Caverly, Rutland.—p. 257.

### West Virginia Medical Journal, Huntington

October, 1917, **12.** No. 4

129 Care of Injuries with Particular Attention to Repair of Tendons. J. A. Guthrie, Huntington.—p. 121.
130 Tubal Pregnancy. J. R. Littlefield, Cumberland, Md.—p. 123.
131 Neoplasm of Insula Illustrating Focal Diagnosis. T. A. Williams. —p. 125.
132 Appendicitis as Complication of Pregnancy. A. P. Heineck, Chicago.—p. 127.

### Wisconsin Medical Journal, Milwaukee

December, 1917, **16.** No. 7

133 Principles and Possibilities in Dietetic Treatment of Diabetes. F. M. Allen, New York.—p. 231.
134 Review of Goiter. H. M. Brown, Milwaukee.—p. 240.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### Edinburgh Medical Journal

December, 1917, **19.** No. 6

1 New Zealand Scheme for Promoting Health of Women and Children. F. T. King.—p. 350.
2 Treatment and Control of Venereal Diseases. W. Robertson.—p. 360.
3 Movements of Sacro-Iliac Joints; Clinical Study. E. F. Cyriax. —p. 370.
4 Physicians in Jane Austen's Novels. J. B. Adams.—p. 373.
5 Two Cases of Unusual Congenital Abnormalities. D. M. Greig. —p. 383.

### Journal of Laryngology, Rhinology and Otology, London

November, 1917, **32.** No. 11

6 *Prevalence of Ear Injuries and Diseases in French Army. W. S. Bryant.—p. 338.
7 Morbid Anatomy of War Injuries of Ear. J. S. Fraser.—p. 340. To be continued.

6. **Ear Injuries and Diseases in French Army.**—Comparing the eye and ear sick, Bryant found more cases of total loss of function among the eye cases than among the ear cases. Further, there is a larger proportion of quickly recovering cases among the eye cases than among the ear cases. Among the ear cases are a larger proportion of cases with a great impairment of function than with the eye. In the zone des Armées at the front, the total sick contains 16 per cent. of ear cases in the evacuation hospitals. These figures are equal, or greater, than figures for eyes. From the evacuation hospitals 4.5 per cent. of ear cases are evacuated to the rear. In the rear of the zone des Armées, in the zone des Etapes, ear cases form 6.25 per cent. of total sick. These figures rise during time of inactivity at the front and fall during military activity. Seven per cent. of these cases are evacuated from the zone des Etapes in the interior. In the interior region ear cases form 9 per cent. of total sick. Bryant estimates that about 80 per cent. of the ear cases will show considerable impairment of function. This impairment will be sufficiently permanent to interfere with the civil occupations of the patients. The nature of the injuries of the ears and their complications fall into three categories: 1. Rupture of the tympanic membranes. 2. Complications of ruptured tympani: (*a*) suppuration of middle ears; (*b*) mastoiditis, mastoid abscess and complications. 3. Commotion of the eighth cranial nerve apparatus. The increase in large guns, shells, mines, bombs, grenades, etc., together with the longer exposure to rapid fire arms, account for the increase of ear injuries among the soldiers of this war.

### Journal of Tropical Medicine and Hygiene, London

December 1, 1917, **20.** No. 23

8 Unrestricted Test Diet in Tropics. W. E. Masters.—p. 265.
9 Frequency and Dangers of Syphilitic Lesions of Mouth in Arthritic Patients. A. Renault.—p. 267.

### Lancet, London

November 24, 1917, **2.** No. 4917

10 Colony Treatment and After-Care. G. S. Woodhead and P. C. V. Jones.—p. 779.
11 Value and Limitations of Sanatorium Treatment as Regards Working Classes. W. O. Meek.—p. 785.
12 Conditions of Growth of Bacillus Welchii in Presence of Oxygen. C. G. L. Wolf and J. E. G. Harris.—p. 787.

13 *Treatment of Wounds by Solution of Soap in Casualty Clearing Station. R. G. Dixon and H. T. Bates.—p. 789.
14 Procidentia Recti and Its Treatment. D. Drew.—p. 790.
15 Examinations of Feces of Chinese Laborers. F. B. Bowman and P. D. Saylor.—p. 791.

December 1, 1917, No. 4918

16 *Surgical Complications of Typhoid and Paratyphoid. A. E. W. Johnson.—p. 813.
17 *Serum Disease After Intrathecal Injections of Serum. H. D. Rolleston.—p. 821.
18 *Serum Sickness in Cerebrospinal Meningitis. C. B. Ker.—p. 822.
19 Examination of Urine in Cases of Relapsing Fever Occurring in Macedonia. L. S. Dudgeon.—p. 823.
20 Collosal Cocain. G. Barger, H. H. Dale and F. M. Durham.—p. 825.

December 8, 1917, No. 4919

21 *Recent Serologic Work on Meningococcus. F. W. Andrewes.—p. 847.
22 Two Cases Illustrating Plastic and Dental Treatment. H. D. Gillies.—p. 850.
23 Treatment of Gunshot Wounds of Mandible and Maxilla. W. K. Fry.—p. 852.
24 *Case of Traumatic Pericarditis Due to Needle. A. J. Hall and J. B. F. Wilson.—p. 856.
25 *Acquired Diaphragmatic Hernia; Report of Case. L. M. Murray and J. D. Morgan.—p. 857.
26 Outbreaks of Plague on S. S. Sardinia and Matiana, 1917. W. M. Willoughby.—p. 867.

13. **Solution of Soap in Treatment of Wounds.**—Dixon and Bates have used this dressing in 368 cases. During the same period they treated similar cases with other antiseptics, including eusol, hydrogen peroxid and bismuth iodoform petrolatum paste, with the result that they are using more soap and less of the other antiseptics. A sample of common yellow soap was analyzed and found to contain, per cent.; water, 24.6; fatty acids, 63; combined alkali, 4.6; free alkali, nil; impurities, 7.8. This was considered suitable, and it was found possible to make a 2.5 per cent. solution of it. Small open muscle wounds in which there was no gas gangrene, after being opened up, and metal and cloth removed, were dressed with sterile gauze soaked in this solution. The dressings were left undisturbed for two, three or four days, provided there was no rise in temperature. At the first dressing the most striking features were less pain, the unusually clean appearance of the wound, absence of pus, and the redness of the whole of the tissues, the muscle in particular. In the same treatment of larger and deeper wounds a 2.5 per cent. solution of the bismuth paste in soft green soap was found to be quite satisfactory. Cases of penetrating wounds of the knee joint were treated by this method, the joints being irrigated and the capsule and external wounds closed. The patients did very well. In cases of gas gangrene the results were usually good. The points claimed for the soap solution dressings are that they clean up a wound quickly, the dressings are much less painful than ordinary dressings, there is a saving of labor, as the dressings need only be changed every three or four days, and the solution is easily procured, easily made and inexpensive.

16. **Surgery in Typhoid and Paratyphoid.**—The most striking point of all Johnson's review is the remarkable difference in severity of disease, incidence of complications and mortality between the inoculated and the noninoculated. In the unprotected the mortality was more than five times as high as in the protected. The specific bacteria are not found in either blood, feces or urine with anything like the same frequency, or in such numbers in the inoculated as in the noninoculated, since the microbes are killed more rapidly and effectually owing to protective substances being in the body ready for the attack. It follows, therefore, that the sequels and after-effects of typhoid and paratyphoid infection must be fewer in the inoculated, and there is also less chance of infected individuals becoming carriers of the bacilli. Therefore, not only is the inoculation of immediate and ultimate benefit to the individual and to the army in largely preventing infection, as shown by the small incidence of cases; in controlling the disease in those who become infected and making the attack milder, complications and sequelae less frequent and mortality much smaller; but it will also be of lasting benefit to the community at home by diminishing the number of men who become carriers.

17. **Serum Disease After Intrathecal Injections of Serum.**—Out of ninety-six bacteriologically proved cases of cerebrospinal fever treated by serums and surviving for ten days or more, fifty-eight, or 60 per cent., had a serum reaction, as judged by the appearance of a rash. Among these fifty-eight cases there were nine, or 15.5 per cent., in which the rash was preceded or accompanied by a more or less definite recrudescence of meningitic manifestations, thus, especially when preceding the rash, suggesting a relapse of the disease. These symptoms are relieved by lumbar puncture, and under the assumption that they point to a relapse, a fresh injection of serum may be given, as was done in six out of the nine cases. The three patients not so injected recovered, and of the six cases injected intrathecally with serum, five were made worse, four eventually proving fatal, though it is not suggested that death was thus induced.

18. **Serum Sickness in Cerebrospinal Meningitis.**—There were sixty cases in Ker's series, but a certain number of these patients died before there was any probability of a reaction occurring. Forty-eight patients, however, lived nine days or over, and thirty-six, or 76 per cent., of these suffered from serum sickness. The reactions were, as a rule, sharp, and in most cases were accompanied by considerable fever. The outstanding feature was, as usual, the rash, which most often started as an urticaria and ran into a multiform erythema. There was much skin irritation, and those patients whose consciousness was not blunted by their original illness were much distressed by the itching. Arthritis was noted in six patients, but was very severe, and may have been present in a milder form in some others. Adenitis of the cervical glands was very well marked in two instances. An interesting point was the occurrence in nine cases of prodromal fever for twelve or twenty-four hours before any other symptoms.

21. **Serologic Work on Meningococcus.**—A working hypothesis based on the present state of our knowledge with regard to the meningococcus, Andrewes says, is as follows: The meningococcus is a single, definite species, recognizable by its cultural characters and fermentative reactions, and widely spread as a pharyngeal saprophyte, often a transitory one. In its most primitive form it is a relatively harmless organism, but even at this stage its protein presents two antigenic components. These two components are rarely evenly balanced, and from a serologic point of view there emerge two primary races of the coccus—Group 1 and Group 2—which correspond to the meningococcus and parameningococcus. The latter term is a misnomer, since both are true meningococci. The term pseudomeningococcus is equally erroneous; so far as it has any meaning it signifies a meningococcus of primitive type and low pathogenic power. Under ordinary circumstances the bulk of the saprophytic meningococci of the pharynx are of this low type and mostly fall under Group 2, though some are indeterminate. Even in nonepidemic times certain strains of these simple cocci possess sufficient virulence to attack the very young; hence we always have with us sporadic cases of cerebrospinal meningitis. For unknown reasons there is a tendency at times for certain strains to increase in virulence, and this is accompanied by an increased complexity in the structure of the antigen, taking different forms in different strains. When cerebrospinal fever attains epidemic prevalence the virulent strains concerned stand out with relative but not absolute distinctness.

24. **Traumatic Pericarditis Due to Needle.**—In this case a needle was driven through the sternum and pericardial inflammation appears to have been set up by the mechanical irritation of the needle point sticking into the sac rather than to any infection, for there was no evidence of wound infection, and the effusion subsided quickly when the needle was removed.

25. **Acquired Diaphragmatic Hernia.**—In the diagnosis of diaphragmatic hernia Murray and Morgan point out that the most important evidence is to be found in: (1) displacement of the heart to the right; this was evident to some degree in all of the cases reviewed; (2) metallic tinkling heard high up in the chest, having relation to the peristaltic movements of the stomach, and not especially corresponding in time to the respiratory movements; (3) tympany of some degree high up

in the left chest; (4) absence over the left chest of the dull note indicating fluid, or of the hyperresonant note of pneumothorax.

### Medical Journal of Australia, Sydney

November 17, 1917, **2**, No. 20

27 Repair of Skull Defects. R. C. Brown.—p. 409.
28 Disabilities of War. T. F. Brown.—p. 411.
29 Method of Estimating Minute Traces of Calcium. S. Pern.—p. 411.
30 Treatment of Pott's Disease by Autogenous Tibial Bone Grafts. T. Ambrose.—p. 413.

November 24, 1917, No. 21

31 Symptoms, Prophylaxis and Treatment of Toxemia of Pregnancy. J. A. G. Hamilton.—p. 431.
32 Case of Inversion of Uterus—Death. R. A. G. Malcolm.—p. 437.

### Archives de Médecine et de Pharmacie Militaires, Paris

April, 1917, **67**, No. 4

33 *The Surgical Sector of the Seventh Region. M. Patel.—p. 453.
34 Amputation of the Leg in War. M. Patel.—p. 472.
35 *Work for the Tuberculous. Cantonnet.—p. 480.
36 *Spirocheturia. M. Favre and N. Fiessinger.—p. 494.
37 *Hematoma in the Ear. P. L. Marie.—p. 501.
38 *Evaluation of the Hearing. E. Escat.—p. 506.
39 *The Neuro-Psychiatric Centers. R. Cruchet.—p. 522.
40 *The Genito-Urinary-Dermatologic Centers. O. Pasteau and E. Mallein.—p. 526.
41 Conclusions Adopted by the Interallies Surgical Conference.
42 *Greased Tulle for Dressings. Descour.—p. 552.
43 *Stretcher for Abdominal Wounds. Blondel.—p. 556.
44 Abbreviated Records for Findings in Air Passages. A. Gonthier. —p. 572.
45 Folding Case for Sulphur Sterilization of Clothing. Ollé and G. Davizé.—p. 578.
46 *Suppression of Alcohol in Histologic Technic. H. Couturier.—p. 580.

33. **Surgical Work in One French Sector.**—Patel is chief of the surgical service in a sector including fifty-five base hospitals representing 8,184 beds. The hospitals are classified in three groups, to receive the severely wounded, the mildly wounded and the wounded on the road to healing. He made his rounds to all at least once a month, inspecting, seeking out the wounded men requiring special measures, and attending to their being taken where they can get them. A monthly reunion of the physicians and surgeons of the sector was the rule. An important feature of his service is an "extraction center" for removal of projectiles and other foreign bodies. In 363 cases there was only one failure and one death, both intrapulmonary cases. Experience has demonstrated that nothing short of practical and extensive intervention under anesthesia will cure cases of fistula into bone tissue. A separate center for fractures, where the men could be kept until complete consolidation, he thinks would be an advantage. Cases of vicious callus, deforming the limb, are still too frequent. The cause of this is the passage of the wounded from one surgeon to another, and the leaving on too long the plaster cast applied merely for evacuation purposes.

35. **Occupation in Treatment of the Tuberculous.**—Cantonnet regards work for the tuberculous as a kind of tuberculin therapy—the tuberculin being forced out into the circulation by the physical exertion—and he insists on its being as carefully systematized and the doses regulated as is the rule with tuberculin treatment. The experiences at the Bligny sanatorium in this line since 1904 are summarized, and the advantages of thus gradually preparing the tuberculous for resumption of wage earning are emphasized. At the sanatoriums for tuberculous soldiers, the aim should be to rest the man from the fatigues of yesterday at the front and in self-support since, but without letting him forget the necessities of tomorrow. The ideal is for the man leaving the hospital sanatorium to find regular assistance provided for his family and suitable occupation for himself.

36. **Spirocheturia.**—Favre and Fiessinger comment on the importance of spirocheturia in the diagnosis of infectious jaundice, and describe the various technics in vogue for detection of the spirochetes. The method they have found best adapted for the purpose is by staining the sediment from centrifuged urine. The sediment spread on the cover glass, after drying, is covered with a solution of 2 c.c. formol with 1 c.c. acetic acid in 100 c.c. water. It is left in contact for two minutes, then washed off with alcohol at 90 degrees and dried by evaporation. It is then treated hot with a 5 per cent. solution of tannin for one minute and then rinsed thoroughly, with ordinary water. Then the specimen is treated with an ammoniacal solution of silver nitrate. This is obtained by adding ammonia, a drop at a time, to a 3 per cent. solution of silver nitrate, until the black precipitate has disappeared and slight opalescence is perceptible. Heat a minute. Rinse in ordinary water and dry. The spirochetes show up well by this method. They are smaller and not so regularly spiral as the spirochetes of syphilis. Ordinary staining methods do not show them up at all or only indistinctly.

37. **Hematoma in the Ear.**—Under the heading *Maladies de Captivité* Marie describes ten cases of a hematoma in the external ear, encountered in the course of his ten months in a German prison camp. The hematoma may have been the result of sleeping on a hard surface, but it may have been a manifestation of a tendency to scurvy from the defective diet.

38. **Classification of Deafness for Recruiting Officers.**—Escat advocates classification by six grades of hearing which he describes and tabulates, specifying the fitness for service which each entails.

39. **The Army "Neuropsychiatric Centers."**—Cruchet expatiates on the inestimable service being rendered by the specialist center for nervous and mental disease. He advocates that it should be organized in connection with the genito-urinary center, the two often having to deal with the same subjects. The center should be located at the rail head, the *gare regulatrice,* through which the soldiers have to pass, coming and going.

40. **The Genito-Urinary Center.**—Pasteau has previously published the results of his extensive experience as to what a stable genito-urinary center should be for the army, and he here insists on the necessity for a similar installation as the army moves on. It should be located at the rail head where it can sift out the men with skin disease, syphilitic or urinary disturbances which can be cured in a month or less under proper treatment. These men are thus saved to the army without loss of time. The service further sorts out the men according as they need surgical treatment or a stay at a sanatorium, and evacuates them accordingly. A further advantage of the post being at the rail head is that those liable to spread contagion can thus be detected and detained for treatment. A consulting dispensary is always part of the service. As the army moves on, the dispensary can be handed over to the physicians in the region, and the center itself moves forward with the rail head as it is advanced. The towns with rail head, occupied by the troops, should have at once a subsidiary center organized with consulting dispensaries for men and for women.

42. **Oiled Gauze for Dressings.**—Descour relates that the men who have had their wounds dressed with oiled tulle clamor for it in preference to ordinary gauze, as it does not stick to the tissues. The gauze is impregnated with a mixture of two parts petrolatum to two parts castor oil and one part yellow wax. A little Peruvian balsam in addition perfumes it but does not seem to improve it otherwise.

43. **Stretcher for Abdominal Wound Cases.**—An illustrated description is given of an adjustable stretcher on which the wounded man can be kept in the Fowler semi-sitting position as he passes through various hands to the base hospital.

46. **Suppression of Alcohol in Histologic Research.**—Couturier states that acetone is able to take the place of alcohol in histologic technic in almost all its applications, as he describes in detail.

### Bulletin de l'Académie de Médecine, Paris

November 13, 1917, **78**, No. 44

47 Substitutes for Wheat. (Comment compenser le deficit actuel de froment panifiable?) A. Gautier.—p. 573.
48 Comparative Morphology of Brain of Monkeys and Man: New Classification Required. R. Anthony.—p. 579.
49 *Autovaccine in Treatment of Cerebral Abscess. Villandre and Rochaix.—p. 580.
50 *Treatment of Contracture after Tetanus. L. Bérard and A. Lumière.—p. 582.

51 Control of the Circulation in Excising an Aneurysm Sac. E. Mériel.—p. 584.

49. **Abscess After War Wounds of Skull.**—Villandre and Rochaix state that an infectious process had developed in 14 per cent. of 450 skull cases reaching their neurologic center. When there was a fistula, a prompt cure followed surgical measures; in the fourteen abscess cases six of the men died notwithstanding prompt incision and draining. One man required puncture of the brain every four or six days during three months, and finally recovered. The staphylococcus was found in the pus of these deep-seated abscesses, and three of the men were given an autovaccine under which the purulent cavity healed up, although the suppuration recurred once or twice, compelling the making of a new vaccine. The benefit was marked even in the one case that terminated fatally. The recovery of the others shows the efficacy of this autovaccine therapy for deep abscesses in the brain, close to the ventricle.

50. **Contracture After Tetanus.**—Bérard and Lumière have found regional anesthesia extremely valuable in aiding in correcting the permanent contracture in the injured limb. Contracture is rather common now as a sequel to the tetanus attenuated by serotherapy.

### Journal de Médecine de Bordeaux

November, 1917, **88**, No. 12

52 Blunders in Diagnosis of Paralysis after War Wounds. A. Pitres. —p. 239.
53 *Action on the Eye of Asphyxiating Gases. Teulières.—p. 247.
54 Quinin Hemoglobinuria; Two Cases. R. Le Dentu.—p. 253.

53. **Action of War Gases on the Eyes.**—Teulières remarks that the asphyxiating, toxic or "weeping" gases used early in the war caused intense congestion in their effect on the eyes, and sometimes even considerable reduction in the visual acuity, but the whole was transient. Recently, however, the Germans are using in shells a different gas which has a direct corrosive action. It seems to act only on moist surfaces, and hence men exposed to it should not be washed. A cocain salve or collyrium seems more rational treatment at first, followed by instillation of a medicated salve for a whole week, even in the mild cases. In the grave cases, a hot medicated spray may be used later, alternating with the salve to ward off symblepharon. In the mild cases the action is like that of the old gases, but in the graver cases the lids swell and ulcerate and the conjunctiva looks as if it had been burned with sulphuric acid. The cornea ulcerates, while the iris shows the effect of intense congestion. The fundus of the eye keeps normal, and, as the conjunctiva of the lids escapes, there has been no symblepharon to date. To illustrate the action of the gas on moist surfaces, he mentions that one man who had been sweating profusely, presented the corrosions only in the axillae and along the lines of sweat that had run down the trunk. The rest of the skin was intact.

### Paris Médical

November 17, 1917, **7**, No. 46

55 Insincerity in the Wounded. Laignel-Lavastine and P. Courbon. —p. 407.
56 *Reaction of Degeneration in Muscles. Hesnard.—p. 410.
57 *Suprarenal Insufficiency in Cholera and Seasickness. Naamé. —p. 415.
58 Fatal Hemorrhagic Pancreatitis in Two Phases with Three Months' Interval. A. Martin—p. 417.

November 24, **7**, No. 47

59 *Evolution of the Disturbances after Operative Treatment of War Wounds of the Skull. L. MacAuliffe.—p. 421.
60 *Roentgen Treatment of Keloid. E. Albert-Weil.—p. 424.
61 *Detection of Syphilis by Examination of the Mouth. G. Railliet.—p. 427.
62 *Chemical Purification of Drinking Water. G. Denisot.—p. 431.
63 Vanadium Hyperoxid as Tonic for War Fatigue. Le Tanneur. —p. 433.
64 *War Wound of Subclavian Artery. G. Métivet.—p. 433.

56. **Reaction of Degeneration in Muscles.**—Hesnard calls attention to galvanotonic hyperexcitability as an instructive element in the reaction of degeneration. When the galvanic current is passed lengthwise through the whole length of a normal muscle (bipolar method), the muscle contracts and keeps contracted as long as the current is passing. The current must be one of 30 or 40 milliamperes and the tonic response must always be compared with that on the sound side. With a degenerating muscle the contraction occurs with a much weaker current, 5, 10, 15 or 20 milliamperes. This sign is easy to induce, while it can be regarded, he says, as an important element in the degeneration picture. He shows this by a tabulation of the findings of the reaction of degeneration at different intervals. By the twentieth day this galvanotonic excitability is seen to have a lower threshold, the contraction occurring with a weak current. From the fortieth day to the fourth or eighth month, the other elements of the reaction of degeneration may show no change, but the galvanotonic excitability is dying out. The contraction occurs discontinuously, and it grows less and less until after the eighth month even the strongest currents are unable to elicit any contraction. The article is illustrated.

57. **Epinephrin Treatment of Cholera and Seasickness.**—Naamé has long insisted that cholera is a syndrome of acute suprarenal insufficiency. This suprarenal deficit is found in different infectious and toxic states but in cholera it reaches its acme. A number of recent writers are cited who have described choleriform attacks in fatal erysipelas, in dysentery, etc., all traced to suprarenal insufficiency, and Sergent reported in 1915 the discovery of lesions in the suprarenals in an epidemic of false cholera finally explained by cadaver contamination of the drinking water. In short, Naamé declares that epinephrin should be given systematically in cholera and other diseases with pure glandular symptomatology.

He also calls attention to the close analogy between the symptoms of seasickness and what we know of suprarenal insufficiency resulting from purely nervous inhibition of suprarenal functioning. The swaying of the ship swings the viscera in an unaccustomed way; as they impinge on the solar plexus they irritate it more or less, and this in turn inhibits normal suprarenal functioning. A belt holds the viscera more firmly in place and hence aids in warding off seasickness. Children are less subject to seasickness. Their organs are small and do not swing around so much, while their abdominal walls are more elastic. This assumption explains why seasickness stops as soon as the foot touches dry land. Sedatives have no influence on seasickness, but he has found epinephrin effectual: 5 or 6 mg. fractioned in three doses at intervals of an hour or half or before meals. He has always been impressed with the tolerance for and the success of epinephrin. The discomfort subsides and the meals can be taken as usual. Car sickness is a form of the same trouble, and yields to a small dose of epinephrin.

59. **War Wounds of the Skull.**—Mac-Auliffe has had men under observation for two years or more after trephining. First there were torpor and slow pulse, sometimes arrhythmia. Then as the brain functioning was resumed, dissociation was evident, but the reactions indicating inertia predominated. Indications of visual and auditory inhibition persisted for two years or more but gradually the brain regained its usual balance although never on as high a plane as before the wound of the skull. The heart passed through a phase of accelerated rhythm before it settled down at last to a regular beat, and this was always a little slower than normal.

60. **Radiotherapy of Keloid.**—Weil's experience has been very favorable with roentgen treatment of keloid. Even the most hypertrophied subside under it. If a less protracted cure is advisable, he exposes the keloid to very hard rays as a preliminary to excision. No further exposures are necessary unless the scar is more than linear.

61. **The Mouth Stigmata of Syphilis.**—Railliet reports that in examining men at the front before antityphoid vaccination he examined the mouth for traces of syphilis, but was unable to apply the Wassermann test. He found thus in 103 men of the same company that over 42 per cent. presented leukoplakia; nearly 37 per cent. had fissures in the tongue, and over 38 per cent. had the supernumerary cusp on the teeth called by dentists Carabelli's tubercle. Glands in the mouth or lips were found hypertrophied only in 14.56 per cent. All but six of the men were between 35 and 46. No connection

between the leukoplakia and smoking could be detected. In forty-eight of the men there was only one of the above lesions, but in twenty-eight they were associated in various combinations.

62. **Purification of Drinking Water.**—Denisot expatiates on the prompt disappearance of germs in water treated with strong oxidizing substances. The procedure he has found most effectual is to combine potassium permanganate and hydrogen dioxid in the water. The consequent reaction is complex, but the result is the precipitation of insoluble manganese oxides while nascent oxygen is liberated in large amounts and acts on the organic matters in the water. An illustration is given of a portable tank. The treated water in the upper part passes through a small tube and filter into the middle part where the oxides drop out and the water is passed on through cotton, and is then ready to use. The three parts of the tank fit into each other for transportation, and a 20 liter supply answers for an ambulance and 250 patients. (The amounts of the chemicals used are not specified.)

64. **Wound of Subclavian Artery.**—The case described shows the tendency to hemorrhage, while the wounded are being carried from the advanced station to the base hospital, when hemostasis is not thoroughly assured. The case further demonstrates the feasibility of even a long and tedious operation on a much weakened man without general or local anesthesia. The small scrap of shell was beyond reach and does not seem to be causing any disturbance. The difficulty of operating in this region compels a special technic which Métivet describes.

### Presse Médicale, Paris

November 19, 1917, **25**, No. 64

65 *Suspension and Traction in Treatment of Fractures. J. A. Blake and K. Bulkley.—p. 653.
66 Falling of the Hair in Syphilitics. R. Sabouraud.—p. 659.
67 *Acute Congestion of the Liver in Infants. R. Raimondi.—p. 660.
68 Important Share of the Bone Marrow in the Coagulation of the Blood. M. Romme.—p. 661.

65. **Suspension and Traction in Treatment of Fractures.**—This profusely illustrated article by two American Army medical officers in France shows the mechanical principles involved in restoring normal conditions in a fractured limb, and how to apply them in practice.

67. **Acute Congestion of the Liver in Infants.**—Raimondi remarks that acute congestion of the liver is extremely frequent in infants, affecting the "big eaters" and those whose parents had had liver trouble. Too much fat in the food and too much food are generally responsible for it. Children from 1 to 3 years old returning from a stay in the country are particularly liable to it. They have been eating heartily in their outdoor life, and the change to the city environment brings the upset. The congestion of the liver is primary. The temperature rises but there are no stomach symptoms except the small appetite and, exceptionally, the child vomits once or twice. There is no diarrhea. The urine is dark colored and scanty and indican is found in large amounts. There is always some glycuronuria but not much. The liver enlarges and is tender, but there is no jaundice. The disturbances are more pronounced the longer the excessive feeding had been kept up. They last from six to eight days as a rule, but may linger for three weeks or subside earlier under prompt treatment. He gives calomel at night after a bottle of boiled sweetened water. In the morning a teaspoonful of castor oil is followed three hours later with rinsing out the bowel. The latter is repeated daily until the temperature is normal. Baths or wet packs aid in reducing the temperature, and he gives also organ therapy and powders of the bicarbonate, sulphate and benzoate of sodium, with fluid extract of boldo during convalescence. The main thing is prevention, and he makes a point of giving children with inherited liver taint a calomel purge once a month, followed by partial restriction of the diet. Children whose parents have suffered from the liver should never be allowed to eat too much. In the diet, butter and sugar should be kept down to the minimum. The congestion subsides but is liable to return again and again in children with large appetites.

### Revue de Chirurgie, Paris

March-April, 1917, **36**, No. 3-4

69 *War Wounds of Arteries in the Legs. P. Mocquot and B. Fey.—p. 241.
70 *Projectile in Wall of Heart. F. Escande and P. Brocq.—p. 268.
71 *Traumatic Monomyoplegia. Mally and Corpechot.—p. 281.
72 *Functional Cure of Hip Joint Disease in Youth. M. Froelich.—p. 307.
73 *First Treatment of War Wounds of Joints. Maisonnet and E. Chauvin.—p. 325.
74 *War Wounds of the Foot and Ankle. E. Quenu.—p. 373. Conclusion.
75 *Needle for Suturing with Wire. A. L. Soresi.—p. 481.

69. **Wounds of Arteries in the Legs.**—Mocquot and Fey analyze sixty-one cases of a wound of a large artery in the leg. Only 44.3 per cent. recovered without amputation; 32.7 per cent. after amputation, and the others died in equal numbers with and without amputation. The mortality in the amputation cases was thus 23 per cent. These figures show the extreme gravity of injury of the nerve trunks in the legs. The projectile not only injures the artery itself but the tissues around, thus arresting the circulation in the nerve trunk and the anastomoses as well. The ischemia and the infection aggravate each other while the contusion of the muscles favors gas gangrene. The injury of the artery may be masked by the fracture. There was hemorrhage in only four of their cases.

70. **Projectile in the Heart.**—Escande and Brocq describe a case in which a bullet in the wall of the heart seems to cause very slight disturbance. The rhythm seems regular, and except for a shortness of breath on exertion and occasional precordial pains the condition is good. There has been no change for the worse during the twenty-six months to date. In a second case a scrap of shell in the apex causes absolutely no disturbance when the young man is not called on for heavy work. At the time of the wound, nineteen months ago, he repaired on foot the 500 meters to the dressing station. They have compiled a total of 14 cases, including 7 with the projectile in the wall of the heart; in 7 it is in a cavity in the heart. In 5 the tolerance is almost perfect. Dyspnea on exertion was marked at first in all but subsided to mere shortness of breath in 4 cases and disappeared completely in 2 others. Precordial pain was severe in 6 cases but subsided completely in some of them. In 2 others there was merely a dull ache. The presence of the projectile could not be determined by physical examination. Radiography proved especially instructive when the findings were compared with the heart from a cadaver cut open on a plane to correspond, and marked with the radiographic measurements. In the 14 cases operative measures became necessary in 7, with recovery in 4; the others died. One of the other men died before the operation could be attempted. In one case the bullet left the heart and was found in the hypogastric vein and easily removed.

71. **Monomyoplegia After War Wounds.** — Mally and Corpechot have been making a special study of neuromuscular paralysis restricted to a single muscle, of which they describe forty-five cases. If the monomyoplegia persists, surgical intervention can seldom attack the cause. The aim generally has to be restricted to correction by prostheses.

72. **Fate of Hip Joint Disease in Youth.**—Froelich has noted in a number of soldiers that notwithstanding the apparently good functioning of the hip joint it showed signs of some old chronic process in childhood. He traced them back to epiphyseal osteitis or the essential coxa vara or coxa valga of adolescence or else to tuberculous coxalgia without effusion or osteomyelitis inducing hyperostosis, or hypertrophic coxalgia of tuberculous origin. Although these affections were accompanied by partial destruction and some deformity of the bone, they healed in time with complete restoration of function, and presented no grounds for exemption. In a few cases the trouble flared up anew under campaign conditions.

73. **Primary Treatment of Wounds of Joints.**—Maisonnet and Chauvin discuss what should be done when a man with a joint wound has been left lying on the field up to three days. They discuss the different joints in turn, giving the details and outcome in thirty-six of their own cases classified

by joints. All but six left the station in good condition; four in this group required amputation and two died. When a large joint is involved, the man should not be moved. Operative measures taken at once, without transportation, give promising results. Ample drainage and immobilization are indispensable. The technic should aim to explore, drain, remove all sequesters and resect as necessary. This single incision should follow the path of the bullet when possible. The wrist and finger joint cases can be sent to the rear, while hip and knee wounds must be kept and treated at the advanced station. Wounds of the elbow, ankle, and shoulder can be treated in the field hospital with surveillance to watch when a secondary operation may be required.

74. **War Wounds of the Foot and Ankle.**—Quénu concludes his long study of this subject which has been running through several issues of the *Revue,* with a total of over 477 illustrations. When amputation is necessary it must be guided by the extent of the lesions rather than their duration.

75. **Suture Needle for Wire.**—Soresi's needle has no eye, merely a slanting slit near the tip, and the end of the wire is fused into this slit. There is thus no occasion for the wire being doubled back as in the loop necessary when the wire is threaded through the eye of a needle.

### Revue Médicale de la Suisse Romande, Geneva

October, 1917, **37**, No. 10

76 *Tests of Functional Capacity of the Liver. P. Gautier.—p. 597.
77 The Phenolsulphonephthalein Test of Kidney Functioning. E. Cottin.—p. 610.
78 *Abderhalden Reactions. Amann.—p. 617.
79 Dislocations of the Wrist with Fracture. C. G. Yersin.—p. 627.
80 *Intermittent Kinking of Ureter in Child. C. Martin-Du Pan.—p. 638.

76. **Tests of Liver Functioning.**—Gautier reviews the various functional tests in vogue, commenting that all have the drawback that the reaction is not on the part of the liver alone. Other organs intervene and obscure the interpretation of the facts observed. This is particularly noticeable with the urine tests. He deems most instructive the study of dissociated retention of bile elements, especially retention of salts which come only from the liver, also the study of glycuronuria. These throw the most light on the functional capacity of the liver, especially when supplemented by exploration of the other functions of the liver. Glycuronuria and Roger's reaction seem to be the only signs of import for the prognosis.

78. **The Defensive Ferments.**—Amann calls attention to the instructive findings with Abderhalden's technic in some cases of disease of the pancreas, liver, suprarenals and dementia praecox. Several of the patients showed the presence of several specific defensive ferments, confirming, he says, the correlation between various organs. He uses only one half of the quantities called for by the original Abderhalden technic, diluting 1 c.c. of blood with inactive serum or other indifferent fluid not inducing hemolysis or inhibiting the ferments.

80. **Intermittent Hydronephrosis.**—In the boy of 9 an operation revealed that the ureter was kinked by a supernumerary artery.

### Gazzetta degli Ospedali e delle Cliniche, Milan

November 1, 1917, **38**, No. 87

81 Vaccination against Typhoid Has Passed Tentative Stage. E. Bertarelli.—p. 1161.

### Brazil-Medico, Rio de Janeiro

October 20, 1917, **31**, No. 42

82 *Gummas in the Corpora Cavernosa. O. Clark.—p. 355.

82. **Gummas in the Corpora Cavernosa.**—The young man in Clark's case had a history of chronic gonorrhea and the abscesses and the three tumors felt in the corpora cavernosa were assumed to be of gonorrheal origin. The extreme pain on micturition, the seeping of the urine through the fistulas, and the liability to stenosis suggested the necessity for surgical intervention, but closer examination revealed the syphilitic nature of the lesions. No benefit was derived from three 0.75 gm. doses of neosalvarsan and two of calomel. An operation revealed secondary infection of the gummas, and diversion of the urine removed the constant irritation. Resumption of specific treatment then was followed by a complete and rapid cure in less than a month. The syphilis had been contracted thirteen years before and no treatment had ever been taken. At one time he had had an ulcerating serpiginous syphilitic lesion on the arm which finally healed spontaneously but left a scar as if nearly the whole arm had been burned.

### La Escuela Medico-Militar, Mexico

September, 1917, **1**, No. 4

83 *Histology of the Cornu Ammonis. I. Ochoterena.—p. 3.
84 *Gastro-Enterostomy in Mexico. J. Martinez y Gonzalez.—p. 9. Conclusion.
85 Traumatic Osteomyelitis. A. E. Vidales.—p. 20.
86 Infectious Diseases in the Light of General Biology. S. Ramos.—p. 22.

83. **Cornu Ammonis.**—Ochoterena gives an illustrated description of his histologic findings. Recent improvement in staining technic has thrown new light on the histology of the horn of Ammon and its vicinity.

84. **Gastro-Enterostomy in Mexico.**—Martinez remarks that he has been able to find records of only one case in which anterior gastro-enterostomy has been applied in Mexico. All the others were by the von Hacker posterior technic. He analyzes the experience of six leading surgeons of Mexico, with illustrations, discussing also the preoperative and postoperative care. In the fifty-one Mexican cases he has compiled, a vicious circle developed in only one case. The young man had lost excessive amounts of blood from a pyloric ulcer, and he died four hours after jejunojejunostomy to correct the vicious circle. All the other patients recovered except a few who have succumbed since to progressive visceral tuberculosis.

### Prensa Medica Argentina, Buenos Aires

October 30, 1917, **4**, No. 15

87 *Syphilitic Nephritis. M. del Sel.—p. 191. Conclusion.
88 *Mixed Inguinal Hernia. E. Finochietto and C. M. Squirru.—p. 191.
89 Granulomatosis. P. de Elizalde and J. C. Navarro.—p. 192.
90 *Syphilis as a Factor in Gastric and Duodenal Ulcer. M. R. Castex.—p. 194.

87. **Syphilitic Nephritis.**—Del Sel remarks that the renal epithelium is in danger in every case of recently acquired syphilis, and hence it seems rational to regulate the diet to ward off nephritis as during convalescence from scarlet fever. Nephritis is not so common with syphilis as with scarlet fever, but it occurs often enough to justify reduction of salt and a milk-vegetable diet during the first phase of syphilis. In a case of nephritis in the third stage of syphilis, no benefit followed three weeks of dieting, and after several mercurial injections there was no improvement in the extreme edema and ascites while the dyspnea had slightly increased, but as there was less albumin in the urine, iodid treatment was pushed and in two weeks there were no further signs of dropsy or headache. There were no cardiovascular complications evident in this case. With hypertension or aortitis complicating the nephritis, specific medication may aggravate the symptoms as in a case described. The dyspnea increased and there were symptoms of congestion of the lungs, with blood-stained sputum. Then the mercury and iodid were suspended and under repose, restriction to milk, wet cupping and small venesections, the cardiovascular condition was improved until the man was able to stand cautious resumption of the specific treatment.

88. **Mixed Inguinal Hernia.**—Finochietto describes a variety of hernia with both an intra-inguinal and a retro-inguinal sac. The retro-inguinal sac may develop years after the other.

90. **Syphilis as a Factor in Gastric and Duodenal Ulcer.**—Castex in reviewing the literature on gastric and duodenal ulcer has been astonished to find how little reference is made to syphilis as a causal factor. It has been his experience that syphilis can be incriminated in the majority of cases in Argentina. Surgical treatment is futile in such cases, and even medical-surgical measures give no permanent cure. He reports in detail nine cases from his practice. In one case of tertiary syphilis while specific treatment was under way,

hematemesis compelled gastro-enterostomy; two ulcers were found, one already healing. In the other cases the disturbances returned after gastro-enterostomy for a gastric or duodenal ulcer, and the discovery that the men were in the third stage of syphilis or presented signs of inherited syphilis suggested specific treatment under which the symptoms subsided. Suprarenal insufficiency had to be combated also in one case of the inherited disease. One patient was a woman of 27 who for eight years had had symptoms from the stomach. A gastro-enterostomy then gave relief for a time but the symptoms returned during a pregnancy the next year, and subsided under treatment for inherited syphilis. In a tenth case, the symptoms from a duodenal ulcer in a man of 60 subsided under mercurial treatment but soon returned, and an operation revealed intense and extensive lesions indicating that the gastric ulcer had perforated at some time.

### Repertorio de Medicina y Cirugia, Bogota

November, 1917, **9**, No. 2

91 *Dislocation of the Lens. C. J. Lopez.—p. 59.
92 *Ascarides. V. Ribon.—p. 66.
93 Seven Major Operations. Z. C. Duran.—p. 75.
94 Ankylostomiasis in Colombia. C. J. Lezaea.—p. 87.

91. **Dislocation of the Lens.**—Lopez reports the case of a woman of 55 on whom he operated for dislocation of the lens into the anterior chamber in consequence of a blow on the eye from a branch. Six months later the woman returned with exactly the same accident in the other eye. In one of his other cases of dislocation of the lens, months had elapsed since the accident and there was secondary glaucoma, with loss of vision, and enucleation became necessary at last.

92. **Lesions Due to Ascarides.**—Ribon describes two cases in which children succumbed to ileus caused by accumulation of ascarides at some point in the bowel. Under castor oil, one of the children passed 300 dead ascarides of exceptional length. Among the mishaps that may be credited to ascarides he cites the predilection of the helminths for the seclusion of a herniated loop of intestine. They induce lesions in the hernia which may entail minute perforations and adhesions.

### Semana Medica, Buenos Aires

November 1, 1917, **24**, No. 44

95 Stab Wound of Knee in Child. J. M. Jorge, Jr.—p. 491.
96 The Secondary Rays in Deep Roentgen Treatment. C. Heuser.—p. 494.
97 Experiences with Treatment of Tuberculosis. C. Ferreira.—p. 502.
98 Matter and Life. V. Delfino.—p. 505.

### Siglo Medico, Madrid

November 3, 1917, **64**, No. 3334

99 False Interpretations of Wassermann Reaction. J. de Azua.—p. 826.

### Russkiy Vrach, Petrograd

1917, **16**, No. 29-32

100 *Palpation of the Vermiform Appendix. I. E. Hagen Torn.—p. 457.
101 *The Problems of the Moment. A. A. Kisel.—p. 465.
102 Pathologic Anatomy of the Gassed. M. M. Tizengauzen.—p. 466.
103 Sanitary Conditions of Russian Soldiers in Enemy Prison Camps. D. P. Nikolsky.—p. 468. To be continued.

100. **Palpation of the Appendix.**—Hagen Torn comments on the contradictory opinions held by various writers as to the advisability of palpating the appendix and the reliability of the findings. He quotes Edebohls and others and his own experience, comparing the deductions from palpation with the conditions actually found at the operation. Even more instructive were the palpation findings after removal of the appendix, both at the time and months later. The palpation should begin with the outer limits of the iliac fossa and work inward. In the few cases among his 207 in which the findings were misleading, the blunder was explained by extreme atrophy of the appendix or it lay too high for palpation, or a fold in the movable cecum, a deposit of fat in the mesentery or adhesions had been taken for the appendix. Light palpation may sometimes be enough, but usually the appendix has to be pressed against a hard background. It aids if the patient breathes deep and bends the trunk to force the appendix nearer the surface.

If the appendix itself cannot be definitely outlined, the other intestines in the region should be outlined. With acute periappendicitis, palpation in connection with light percussion determines the location, depth and character of the infiltration. It also shows with diffuse infiltration the moment when the appendix can be removed without danger of scattering its contents. With chronic appendicitis, palpation discloses the condition of the walls and cavity, the direction, length and movability of the appendix, and may also reveal concretions. The healthy appendix is harder to palpate than the diseased, and the findings are quite different. A movable appendix is liable to slip in between loops of intestines and thus escape the finger. Some of the cases described in detail emphasize the importance of palpation in warning of the unsuspected gravity of the case, but they also warn that the palpation must be extremely cautious in the acute cases.

101. **The Task Before the Medical Profession in Russia.**—Kisel pleads that the question of medical education, the training of physicians for the great tasks before them, is the most prominent problem before the medical profession of Russia today.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

October 13, 1917, **2**, No. 15

104 Experimental Research in General. VII. G. van Rijnberk.—p. 1287.
105 *Cancer Mortality and Tuberculosis Mortality in the Netherlands. H. T. Deelman.—p. 1303.
106 *School Hygiene. E. J. Hamburger.—p. 1317.
107 Isolated Paralysis of Suprascapular Nerve. G. C. Bolten.—p. 1329.
108 Adhesions on the Vocal Cords; Two Cases. C. R. J. Versteegh.—p. 1330.

October 20, **2**, No. 16

109 *Experimental Research in General. VIII. G. van Rijnberk.—p. 1383.
110 Erythrophlein: Action on Isolated Heart of Frog. J. B. Polak and A. J. L. Terwen.—p. 1389.
111 *Iodometric Estimation of Hydrochloric Acid in Gastric Juice. M. W. Scheltema.—p. 1405.
112 Roentgen Treatment of Uterine Fibromyomas. N. Voorhoeve.—p. 1407.
113 Thrombosis of Sinus Cavernosus or Orbital Abscess? D. J. de Levie.—p. 1412.

105. **Cancer and Tuberculosis Mortality in the Netherlands.**—Deelman reviews the statistics for the last thirty years for cancer and tuberculosis, comparing the local incidence of each, with numerous maps. No direct local connection between them could be detected, but the data show that tuberculosis keeps at about the same figure in different localities although the trend is downward. The cancer mortality, on the other hand, varies materially in place and at different periods. This demonstrates, he argues, that if a microorganism is responsible for cancer it stands in a different relation to it than the tubercle bacillus to tuberculosis. With the latter we behold a regular transmission from man to man, hence a certain regularity of incidence in a given place.

106. **Hours of School Work.**—Hamburger discusses whether the manual training and domestic science work should be done outside of the school hours proper. He bases his conclusions on psychologic tests of the children in different schools. The manual training and domestic science classes do not seem to fatigue the brain.

109. **Experimental Research in General.**—This is the eighth and concluding portion of van Rijnberk's study of this subject. His arguments as to whether animals feel pain were summarized in these columns, Nov. 24, 1917, p. 1835.

111. **Iodin Test for Hydrochloric Acid in Gastric Juice.**—Scheltema remarks that the tests in vogue for this purpose allow some guesswork as to the findings. Titration with iodin is simpler and more reliable. When hydriodic acid is added to iodic acid, they act on each other with the result that water and iodin are formed. The equation is $HIO_3 + 5HI = 3H_2O + 3I_2$. This reaction can serve as a sensitive reagent for hydrogen ions. The quantity of iodin separated out can be determined with sodium thiosulphate. To 10 c.c. of filtered gastric juice are added 5 c.c. of a 5 per cent. solution of potassium or sodium iodate, and then a crystal of potassium iodid or sodium iodid. Iodin separates out at once, as is evident from the dark coloration. Then 10 c.c. of a tenth-normal solution of sodium thiosulphate are added, or more,

with a pipet, until the fluid is decolored, growing limpid again. Then a little starch solution is added, and titrated with a tenth-normal solution of iodin until a dark blue color appears. The quantity of iodin which was released at first, must be equal to the 10 c.c. minus the number of cubic centimeters of the iodin solution required to react with the excess sodium thiosulphate solution. The presence of acid phosphates and organic acids does not interfere with the reaction as they do not act unless in concentrations above what are encountered in the gastric juice. The iodin test here described indicates only the amount of free hydrochloric acid; the bound acid does not seem to share in the reaction. By adding merely a solution of some iodate and a little potassium iodid or sodium iodid to gastric juice, if iodin separates out, we can be confident that there is free hydrochloric acid present.

### Svenska Läkaresällskapets Handlingar, Stockholm

September, 1917, **43**, No. 3, Second Half of A. Pettersson Festskrift.

114 *Notification of Tuberculosis. E. Lindhagen.—p. 788.
115 Tabes Followed by Epilepsy. G. S. Lundahl.—p. 828.
116 *Tubercle Bacilli in Sputum. F. Pettersson.—p. 838.
117 Importance of the Center of Gravity for the Erect Posture. T. Resmark.—p. 847.
118 *Arrow Poison from Brazil. C. G. Santesson.—p. 888.
119 *Mycosis of Hands and Feet. J. Strandberg.—p. 913.
120 *Serotherapy in Meningitis. I. Syk.—p. 917.
121 Further Studies of the Innervation of the Abdominal Muscles. G. Söderbergh.—p. 989.
122 Test for Succinic Acid in Muscle, etc. T. Thunberg.—p. 996.
123 Pneumococcus Meningitis; Four Cases. J. Tillgren.—p. 1002.
124 *Lymphogranulomatosis. A. Wallgren and T. J. Hellman.—p. 1015.
125 *Propagation of Pleural Friction Sounds. A. Wallgren.—p. 1049.
126 Improvised Sterilizing Plant for Clothing and Equipment. G. Wirgin and J. Näslund.—p. 1060.
127 *Internal Treatment of Gastric Ulcer with Roentgen "Filling Defect." H. Ohnell.—p. 1076.
128 *The Second Epidemic of Poliomyelitis in Sweden, 1911-1913. W. Wernstedt.—pp. 1097-1408.

114. **Notification of Tuberculosis.**—Lindhagen compares the statistics in regard to tuberculosis mortality in the countries with and without compulsory notification. He advocates it, and presents data and arguments that justify its adoption in Sweden. The general mortality in Swedish cities has dropped from 17.4 to 13.31 per thousand inhabitants since 1891, but the proportion of deaths from tuberculosis has dropped only from 15.6 to 14.1 per cent. In the Danish cities, where notification has been enforced since 1897, the corresponding figures are 19.8 and 13.1, with the tuberculosis percentage 10.6 and 7.8.

116. **Quantitative Determination of Tubercle Bacilli in Sputum.**—Pettersson's method consists essentially in adding to the diluted sputum, cleared of cells, a suspension containing a given number of leukocytes. By comparing the tubercle bacilli with the known numbers of leukocytes, it is easy to estimate the proportional quantities of the bacteria.

118. **Arrow Poison.**—Santesson reports on some arrow poison brought from western Brazil. The poison is of the curare type. The front end of the arrows is wound with thread in order to hold more of the poison. They are used by the Huanyam Indians.

119. **Mycosis of Hands and Feet.**—Strandberg gives a colored plate of the findings in one out of several cases of eczema with abnormal sweat secretion in which he found a fungus in the horny layer of the skin. Treatment with iodin proved effectual.

120. **Serotherapy in Meningitis.**—Syk's experiences in fifty cases are given with ample detail in the seventy-two pages of this work. About ten pages are devoted to personally analyzed bibliography, and nearly five to a summary in German. The variability of meningococci at different seasons, etc., is emphasized, as also the advisability of testing the potency of the antiserum. The most reliable means for this seems to be by titrating out the smallest amount of antimeningococcus serum which induces specific phagocytosis in vitro. This seems to be a safe and uniform guide; it can be supplemented with the fixation of complement test. The antiserums of different makes differ in strength. The single dose must be not less than 20 c.c. and the doses must be repeated daily. In case the diagnosis is dubious, do not hesitate to inject the serum. He regards the intraspinal as the only effectual route. Analysis of 241 cases on record of deaths, notwithstanding antiserum treatment, shows inadequate dosage as responsible or else the physician yielded to the patient's demand to be let alone, or the physician took a hopeless attitude from the start. Five died soon after the injection; five died apparently from anaphylaxis; fifty-five were moribund when the first injection was made. In Syk's own experience, one of the four who died soon after the injection was found to have acute miliary tuberculosis with the acute meningitis. Epinephrin before puncture is a useful precaution if the blood pressure is low. He adds that sudden and unexpected deaths occur in epidemic meningitis even when no antiserum has been given, and hence the antiserum should not be incriminated for every fatality.

124. **Lymphogranulomatosis.**—The boy of 4 had no signs of tuberculosis but bacilli strongly suggesting the tubercle bacillus were found in all the glands involved and in the spleen and liver. A colored plate accompanies the article.

125. **Propagation of Pleural Sounds.**—Wallgren shows by seven examples that the sound of rubbing of the pleural sheets may be transmitted to a distance, for example, to the apex.

127. **Medical Treatment of Gastric Ulcer.**—The roentgen findings over several months are reproduced from six cases of gastric ulcer given systematic internal treatment alone. Each showed the filling defect which is usually regarded as a peremptory indication for operative treatment as indicating deep burrowing of the pathologic lesion, the "niche" of the callous ulcer warning of possible cancer to follow. In four of the cases the filling defect gradually disappeared completely, and in two it has nearly disappeared, along with all the other manifestations from the ulcer. These experiences and analysis of similar cases on record have convinced Ohnell that the visible filling defect may have been a diverticulum of some kind, possibly result of pressure or traction, a *pulsions diverticulum.*

128. **Poliomyelitis in Sweden.**—Pettersson, in whose honor this bulky *Festskrift* is published, conducted extensive research on poliomyelitis during the 1911-1913 epidemic, and with his co-workers proved the existence of healthy carriers and other important epidemiologic data. Wernstedt here gives the minute details of the epidemic and of their research, his report filling over 300 pages with numerous tables, maps and data compiled from a question blank sent to physicians and medical institutions throughout the country. Of the total 6,775 cases, 24.2 per cent. were in patients of 15 or more. The youngest were 5 and 14 days, the oldest 78 and 79 years old. In the overwhelming majority of cases the incubation period was from four to seven days. A tendency to ataxia or spasticity should always suggest possible oncoming poliomyelitis. Sometimes this did not attract attention until another case of frank poliomyelitis developed in the family. He warns that every case of diarrhea, sore throat and bronchitis should be regarded with suspicion when poliomyelitis is prevailing. Pains in the legs and even swelling of joints may be encountered with early poliomyelitis. Polyneuritis generally develops symmetrically, and has a longer course, without acute fever. Meningeal symptoms may accompany the poliomyelitis, but there is no opisthotonus, and poliomyelitis is a summer disease in comparison to epidemic meningitis, which occurs usually in winter. The lumbar puncture fluid is clear with poliomyelitis. In one of the cases the symptoms were mistaken for appendicitis and an operation was done; a few days later the characteristic paralysis of legs and bladder developed. In another case an emergency tracheotomy was done for supposed diphtheria. There were 1,239 deaths among the 6,700 cases. The mortality ranged from 10.3 to 21.4 per cent. in children under 10, jumped to twice this in older children; three times as much in adults under 30, and four times at 50 to 60. In treatment, he emphasizes the necessity for personal supervision and extremely careful nursing of the patient even during the stage of repair. The spread of the disease along the routes of traffic is shown by the maps. The fact that the poliomyelitis virus can continue to live in the rabbit organism, suggests that it may be transmitted by animals besides direct contact from man.

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# BENCE-JONES PROTEINURIA

## SOME OBSERVATIONS ON ITS OCCURRENCE, WITH PARTICULAR REFERENCE TO NEPHRITIS AND HYPERTENSION

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In 1847, Bence-Jones, an English chemist, first described the occurrence of a protein-like substance of an unusual nature found in the urine of a person suffering from a serious disease of the bones. Little attention was paid to the matter until the substance was rediscovered and described in much greater detail by Kuehne in 1869. In 1873, von Rustizky first classified the primary bone lesions now known as multiple myeloma. Finally, in 1899, there appeared the joint report of Kahler, a clinician, and of Huppert, a chemist, in which, for the first time, the clinical relationship between Bence-Jones proteinuria and primary diseases of the bones was noted. Recognition of this relationship is found in the term "Kahler's disease," which is synonymous with the clinical syndrome of multiple myeloma and Bence-Jones proteinuria.

Since 1889, the general subject of Bence-Jones proteinuria, its nature, origin and significance, has been investigated by numerous workers. Formerly considered an albumose, or, possibly, closely related to the proteoses, the Bence-Jones body is now regarded by most observers as a true protein *sui generis*. This assumption is based on the facts that it possesses its own peculiar amino-acid partition, and characteristically yields a high proportion of aromatic radicals—facts established by Hopkins, Savory and others. Hopkins and Savory state that recent studies indicate that the Bence-Jones molecule is of very large size, and since it yields all of the ordinary amino-acids, it cannot in any sense be regarded as some unusual fractional unit, arising from the partial breakdown of proteins during metabolism. The distinguishing features between Bence-Jones protein and the urinary proteoses are very well summarized by Rosenbloom. More recently certain biologic reactions, supported by the complement fixation work of Massini, suggest a close relationship between Bence-Jones protein and serum proteins. Finally, it is to be noted that the excretion of this body does not depend on either the type or the amount of protein ingested.

As to the origin of the substance, its mode of formation, and how it enters the blood, there is still much doubt. Numerous theories have been advanced, none of which have been conclusively proved. All are of great interest. The most important ones may be thus summarized:

1. The substance arises by reason of the loss of some unknown important function of the bone marrow, a view advanced by Donneti.
2. Magnus-Levy, Senator and others assume that it results from some abnormality in protein metabolism.
3. Chittenden, Parkes-Weber, Leddingham and Hutchinson regard Bence-Jones protein either as arising from some enzyme action of the tumor cells, or that it is a special product elaborated by them; or, finally, that it may be a degeneration product of the tumor cells.
4. Ottenburg, Gies, and more recently Rosenbloom have shown that Bence-Jones protein possesses many properties in common with the elastoses, and hence assume that it may arise through the action of some bone marrow ferment on bone elastin or osseoalbuminoid.
5. Although their evidence is inconclusive, the theory propounded by Hopkins and Savory is perhaps the most satisfactory. On the basis of metabolic and dietetic studies, they assume that Bence-Jones proteinuria is the result wholly of endogenous metabolism, "an endogenous metabolic anomaly analogous to cystinuria and alkaptonuria, occurring on a higher level." Or, stated in another way: Bence-Jones proteinuria represents either the normal, abnormal or aberrant stage of bone synthesis, the completion of which is hindered by some unknown deficiency, in association with some unusual set of physicochemical adjustments, which permit the body to pass through an organ capable of holding back smaller protein molecules. It is certain that the large amounts excreted strongly suggest some general and not easily exhausted source of supply; and its unusual amino-acid content, of which tyrosin and phenylalanin constitute over 9 per cent., is a strong argument in favor of this attractive theory.

### OCCURRENCE OF BENCE-JONES PROTEINURIA

The condition of multiple myeloma is relatively an uncommon one. About forty authentic cases were described up to 1904. Writing in 1916, Martin gave a total of 205. Ever since Kahler and Huppert's paper, the view has been accepted that Bence-Jones protein occurred only in cases of myeloma, and hence that body was regarded as a urinary anomaly of rather rare occurrence. Even in very recent times, such men as Parkes-Weber and Moffatt have seriously attempted to exclude from the multiple myeloma group those cases in which the characteristic bone tumors were unaccompanied by Bence-Jones proteinuria. Such a point of view is untenable; for although 80 per cent. at least of the multiple myeloma cases do occur in association with Bence-Jones protein, definitely proved cases of myeloma have been observed without the unusual urinary body. It can be definitely stated, therefore, that Bence-Jones proteinuria is not pathognomonic of multiple myeloma.

Of far greater importance is the accepted fact that Bence-Jones proteinuria may occur, not infrequently, in conditions other than multiple myeloma. This point has been particularly emphasized recently in a series of articles by Boggs and Guthrie. Orum, in 1904, observed Bence-Jones protein in a case of bone carcinomatosis. Askanazy noted it in a case of lymphatic leukemia, a finding confirmed in 1909 by Decastello, who observed the protein in two out of nine cases of lymphatic leukemia, but in none of ten cases of myeloid leukemia. Writing in 1913, Boggs and Guthrie reported three cases, the first, so far as they were able to ascertain, in the literature, of Bence-Jones proteinuria in association with myeloid leukemia. Up to that date, the protein had never been observed in the acute forms of the disease, either lymphatic or myeloid, and, including the cases which they presented, only eight times in the chronic varieties. Within a period of fifteen months, they detected Bence-Jones proteinuria in five cases—four of leukemia and one of metastatic bone carcinoma. On the other hand, they compiled sixty-five other cases in which there were existing bone or bone marrow lesions, but in which they were unable to discover Bence-Jones protein. Their findings furnish additional confirmation of the view that Bence-Jones proteinuria is not essentially dependent on one disease, but is a manifestation of disturbances in the bone marrow affecting endogenous metabolism. On the basis of the available material, one is rather obliged to agree with Vance, who points out the significant fact that in no case of Bence-Jones proteinuria have the bones or bone marrow been definitely proved to be free from some pathologic process. In this light it is interesting to note that Taylor, Miller and Sweet have recently reported a case, with necropsy, in which definite myelomas of the sacral bones, ribs and vertebrae were found, although during life the roentgen ray had failed absolutely to detect their existence. In the same case Bence-Jones protein was found, postmortem, in the pleural fluid and in the heart's blood, findings which would indicate that the substance circulates readily, despite many attempts to isolate it from the blood during life.

Where and how the body is formed, why it appears in the urine in some cases and not in others of the same clinical type, are totally unsettled points. One might easily assume that for unknown reasons it is not formed in some cases, or that in others it is, but, for some equally unknown reason, fails to pass through the kidneys.

It is rather singular to note how few references there are in the literature to the coexistence of Bence-Jones proteinuria and nephritis. The first intensive study of the cases was made by Decastello. His analysis of reasonably authentic cases recorded up to that time revealed these points:

1. In sixteen cases of multiple myeloma with necropsy, 68 per cent. showed renal lesions that would have sufficed to produce ordinary albuminuria.
2. In thirteen cases of myeloma in which the urine was not examined for Bence-Jones protein, the kidneys were diseased in 77 per cent.
3. In twelve myeloma cases in which Bence-Jones protein was sought for, but not found, the kidneys were normal in 66.7 per cent.
4. In many cases of Bence-Jones proteinuria that have not come to necropsy, serum-albumin and all sorts of casts have been found in association with Bence-Jones protein.

Decastello cites a number of experiments, made both on animals and on human beings, in which the results all seem to point to the conclusion that Bence-Jones protein is not excreted by the normal kidney. Some evidence of renal involvement was afforded by the finding of a chlorid retention in four cases studied by Boggs and Guthrie. Folin and Denis report the finding of casts, in association with Bence-Jones proteinuria, in the absence of other signs of nephritis. Groat and Brewer, in 1916, reported briefly, so far as is known, the first instance of Bence-Jones proteinuria observed in a case of genuine nephritis; the patient had no bone marrow lesions other than a secondary anemia. No mention has been found of the occurrence of Bence-Jones proteinuria in association with marked hypertension in persons otherwise well.

## CASES OBSERVED BY THE AUTHORS

Our object is briefly to record the fact that within the past eighteen months, we have observed seven cases of Bence-Jones proteinuria.[1] One of these occurred in the course of a well defined chronic myelogenous leukemia, and no further mention need here be made of this patient. One occurred with a true myeloma (Dr. Beck). In the five other cases, the important features noted were:

(*a*) The complete absence of any bone marrow, bone or blood disease, so far as modern methods could detect them.

(*b*) The occurrence of hypertension in all cases.

(*c*) The fact that the protein was discovered accidentally in three instances, in young persons, otherwise well, all of whom showed excellent renal function, despite the presence of numerous casts, but without the presence of serum-albumin in the urine.

(*d*) The finding of the protein in two cases which clinically would fall in the group of true chronic nephritis, with edema; the patients were between 40 and 45 years of age.

Three of these patients may be considered as so-called normals with Bence-Jones proteinuria.

*History.*—F. M., man, aged 27, had always been remarkably well, and by reason of incessant athletic indulgences, always phenomenally strong; he had had no serious diseases, and never used alcohol or tobacco, but was refused insurance, Feb. 26, 1916, because of "high blood pressure and a terrible amount of albumin in the urine." This unexpected finding brought him in for consultation. He had had no nephritic symptoms. Physical findings on examinations made by Drs. T. R. Boggs, W. A. Baetjer and S. R. Miller were all essentially normal. The blood pressure was 180 systolic and 100 diastolic.

*Special Studies.*—Roentgenograms of all bones of the body were normal on two occasions with a one year interval (Dr. C. R. Waters). Blood examinations were normal. The Wassermann test was negative. The urine was clear; had a specific gravity of 1.018; was acid, and the Bence-Jones body was present. Renal function tests revealed: Phenolsulphonephthalein, 97.5, 78 and 83 per cent.; renal test meal, normal result; Ambard's coefficient, 0.074; nonprotein nitrogen of the blood, 29 mg. per hundred c.c.; urea nitrogen of the blood, 18 mg. per hundred c.c.

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[1] We are indebted to Drs. W. S. Thayer, Lewellys F. Barker, Henry B. Thomas and Harvey Beck for the opportunity of studying four of these cases.

The kidney function tests were carried out in the Johns Hopkins Hospital, under Dr. Herman Mosenthal. These have been repeated frequently and always with a normal result. At no time has the urine shown less than 4 gm. of protein per liter; yet, to date, the patient has remained absolutely well. The degree of hypertension has increased slightly.

The other two cases included in this group were discovered in the course of routine examinations, undertaken in one instance because of the complaint of headaches, in the other the complaint being "nervousness." In one, the blood pressure was 165; in the other, 180. All renal function studies were normal.

The remaining two patients had hypertensive nephritis with Bence-Jones proteinuria. Both were men, aged 40 and 45, clinically suffering from nephritis. One, a patient of Dr. L. F. Barker, was under close observation for some months; the other was seen casually, although long enough to permit complete studies. This patient has since died from nephritis.

*History.*—Dr. Barker's case: patient, Mr. W., aged 42, complained of nervousness, dyspnea, headaches, dizziness, and swelling of the feet. He was found to be 60 pounds overweight. There were evidences of hyperthyroidism. There was cardiac enlargement. The patient had numerous carious teeth. The blood pressure was 250.

*Special Studies.*—The blood picture was normal. The Wassermann test was negative. Roentgenoscopy revealed no bone tumors. The specific gravity of the urine was from 1.015 to 1.022; it was clear and acid; the Bence-Jones body was present; there were many casts of all varieties. The protein varied from 8 to 12 gm. per liter. Renal function tests revealed: Phenolsulphonephthalein, 33 per cent. in two hours. Renal test meal revealed slight fixation of the specific gravity, and a well marked retention of water, nitrogen and sodium chlorid; slight nocturnal polyuria. The nonprotein nitrogen was 33 mg. per hundred c.c.

Under treatment, the patient's general condition became much better, although the excretion of protein remained essentially constant, as did the hypertension. Soon after leaving the hospital, he developed a pronounced albuminuric retinitis.

### TESTS EMPLOYED

The discovery of so many cases of Bence-Jones proteinuria aroused in our minds suspicions as to the exactness of the different tests employed for its detection, which were the following:

1. It was noted in all instances that the urine began to cloud almost as soon as the tube was placed in a Bunsen flame. This early precipitation by heat was always so marked that our suspicions were immediately aroused as to the nature of the coagulating substance. This phenomenon has been particularly emphasized in the articles of Boggs and Guthrie.

2. It was found in all instances that the protein body was wholly precipitated at temperatures ranging from 42 to 56 C. (107.6 to 132.8 F.). Moreover, there was invariably an optimal degree of acidity at which precipitation was most prompt and complete.

3. In no case was there complete solution of the precipitate at the boiling point, with reprecipitation on cooling, the one most characteristic feature of Bence-Jones protein. There always was partial solution in our cases. It has been shown that this most characteristic property of Bence-Jones protein may be absent at times, and is in some way closely related to the hydrogen ion content and salt concentration of the urine.

The urine when treated with two volumes of saturated ammonium sulphate has always yielded a voluminous precipitate, often coming down very slowly.

5. The urine, plus a few drops of 25 per cent. nitric acid, always yielded a precipitate, insoluble only in a large excess of the reagent. This precipitate always showed partial solution on boiling and reprecipitation on cooling.

6. The protein was precipitated by alcohol; if immediately separated by centrifuging, this precipitate was readily soluble in water. If allowed to remain in contact with the alcohol for a while, the precipitate became insoluble in water.

7. The protein did not pass through a dialyzing membrane—a point of difference from albumoses and proteoses.

Positive results with the foregoing tests seemed sufficient to establish the existence of Bence-Jones protein, or some other very similar to it. Other tests, to be found in textbooks, special articles, etc., were resorted to in special instances. Spontaneous precipitation was not noted in any instance.

### SUMMARY AND CONCLUSIONS

The recognition, within fifteen months, of seven instances of Bence-Jones proteinuria is rather strong evidence against the accepted view of the rarity of its occurrence and its limitation to diseases of the bone or bone marrow. The protein in the urines examined answered so closely all of the accepted criteria for Bence-Jones protein that one is forced to assume that either the Bence-Jones body was present or some other protein not readily distinguishable from it.

Two points seem to stand out as of special interest:

1. Bence-Jones protein apparently may occur in seemingly healthy young persons, in whom it may be discovered accidentally. In the cases reported, there were, in addition, hypertension and cylindruria, despite functional renal tests which were in all respects normal. These cases may be strong additional proof of the theory that Bence-Jones proteinuria is an inborn error or anomaly of metabolism. The question of a possible relationship of the protein to the high blood pressure, and the query as to whether these cases may not become true hypertensive nephritics, remain to be settled after further observation. It is rather singular that such a degree of renal irritation as is evidenced by the extraordinary grade of cylindruria in these cases has, in all instances thus far studied, been accompanied by no more than the slightest grade of albuminuria.

2. So far as is known, the instances here recorded are the first in which Bence-Jones protein has been the only urinary protein occurring in cases of chronic nephritis with edema and high blood pressure. The occurrence of large amounts of albumin in these patients has long been recognized. One is forced to wonder whether Bence-Jones protein has not been missed in some of these cases, merely because of the widely accepted idea of its rarity. Stated in other words, it seems obvious that the association of Bence-Jones proteinuria, hypertension and nephritis is probably not uncommon, and the chances are that attention called to this matter will result in the finding of more cases.[2]

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[2] Tabulation of references is purposely omitted. A comprehensive bibliography has been compiled by Rosenbloom, Jacob: A Review of the History of Bence-Jones' Protein and Multiple Myeloma, with Complete Bibliography, Med. and Surg., 1917, 1, 257.

# THE MUSCULAR STRENGTH OF COLLEGE WOMEN

## WITH SOME CONSIDERATION OF ITS DISTRIBUTION: PRELIMINARY PAPER

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The present world war has called women to tasks totally unsuited to the accepted standards of women's physical strength and capacities. At the present time, therefore, when our nation needs to mobilize every particle of woman power as well as man power, it is well to determine with as much definiteness as possible what that power may be. In the case of woman particularly, it is useful to know whether these unprecedented demands on her strength and activities are liable to make her racially less efficient, and whether many of the handicaps are real or only traditional.

In hope of gaining more exact information concerning the muscular strength of woman, this study was undertaken.

Dr. Martin's method of testing muscular strength,[1] originally devised for the study of cases of anterior poliomyelitis, was used. Forty-five average healthy college women, most of whom had always been physically active, although, in the majority of the instances, not specially athletic, were studied.[2]

In the progress of this work, certain improvements in the manner of applying the spring balance method to adults were devised.

The following groups of muscles both on the right and the left side of each woman were tested: pectorals, latissimus dorsi, anterior and posterior deltoids, forearm extensors and flexors, wrist extensors, thumb adductors, and either wrist flexors or finger flexors. The wrist flexion test was found by some of the women to cause lameness. The finger flexion was substituted in the later testing. These muscle groups were tested with the subject standing. The following tests were made in the horizontal position: dorsal flexion, inversion and eversion of foot, adduction and abduction of thigh, hip extension and flexion, knee extension and flexion.

Thus a full test included observations of thirty-six groups of muscles. Each test was repeated two or three times, thus insuring as accurate observation as possible by securing the maximum cooperation of the woman on whom the tests were made. The highest record correctly made was used in each case.

These forty-five women were tested 120 times; there were ninety-five full tests and twenty-five partial tests. Every woman was tested from two to five times, and 3,576 muscle groups in the forty-five women were tested. Dr. Mosher made schematograms[3] of all the women studied.

A convenient method of classifying the persons studied is in terms of "the strength factor," which is simply the figure obtained by dividing the total strength, as determined by the tests, by the weight. In Table 1 the strength factors for the entire group of cases are summarized.

In Table 2 the cases are grouped in accordance with their strength factors. A study of the table shows that the first group, which has the lowest average strength factor, 18.78, is made up of the tallest and heaviest women, with 50 per cent. of them overweight, the average overweight being 30.1 pounds. In this group, also, three of the eight women are immature physically though not sexually, and six, or 75 per cent., show a marked lack of coordination.

The third group has an average strength factor of 26.77, which approaches the strength factor of the group of athletic college men. This group of women is especially remarkable because it is made up almost uniformly of the most perfect feminine type. Two cases (28 and 42), which fall somewhat below this standard, will be discussed later. Members of the third group of women are, on the average, shorter and more compactly built, and lighter in weight than members of either of the other two groups.

TABLE 1.—AVERAGE, MAXIMUM AND MINIMUM STRENGTHS FACTORS OF FORTY-FIVE WOMEN ARRANGED IN AGE GROUPS

| Ages | 16-20 | 20-25 | 25-35 | 35-56 | All Ages |
|---|---|---|---|---|---|
| No. of cases | 10 | 26 | 5 | 4 | 45 |
| Average strength factor | 21.5 | 23.8 | 23 | 20.8 | 22.5 |
| Maximum strength factor | 26.6 | 30.4 | 25.3 | 25.3 | 30.4 |
| Minimum strength factor | 18.4 | 19.3 | 18.7 | 16.6 | 16.6 |

We find here, with only two exceptions, the women with the highest degree of coordination. The most striking fact in connection with the women of this group is, perhaps, their history in regard to exercise. Without exception, they have always been physically active, playing with brothers and boy cousins without distinction of sex, sharing the same games and having the same activities.

TABLE 2.—FORTY-FIVE WOMEN ARRANGED IN GROUPS ACCORDING TO STRENGTH FACTOR

| | Strength Factor 20 and Below | Strength Factor Above 20 and Less than 25 | Strength Factor 25 and Over |
|---|---|---|---|
| Number of cases | 8 | 26 | 11 |
| Strength Factor: | | | |
| Average | 18.78 | 22.3 | 26.77 |
| Maximum | 20 | 24.6 | 30.4 |
| Minimum | 16.6 | 20.3 | 25 |
| Total Strength: | | | |
| Average | 2,789 | 2,960 | 3,513 |
| Maximum | 3,220 | 3,330 | 4,130 |
| Minimum | 2,320 | 2,565 | 3,060 |
| Average age | 27 | 23.5 | 23-9/12 |
| Maximum age | 56 | 53.3 | 42-4/12 |
| Minimum age | 18 | 18 | 16-2/12 |
| Average height | 65 | 64.5 | 63.7 |
| Maximum beight | 68.9 | 67.7 | 66.4 |
| Minimum height | 62 | 60.2 | 59.6 |
| Average weight | 148.9 | 133.6 | 131.6 |
| Maximum weight | 170.8 | 154.5 | 165.5 |
| Minimum weight | 119.8 | 116.4 | 112.9 |
| Overweight (5 pounds) | (4) | (12) | (5) |
| Average | 30.1 | 15.78 | 15.5 |
| Maximum | 39.5 | 32.5 | 39.5 |
| Minimum | 11 | 5.3 | 5.4 |
| Underweight (5 pounds) | | (5) | (2) |
| Average | * | 11.4 | 9.1 |
| Maximum | * | 17.8 | 13.0 |
| Minimum | * | 5.2 | 5.3 |

* None over 5 pounds.

Case 28, with a strength factor of 28.4, and Case 42, with a strength factor of 25.5, also rather immature, fall somewhat below the high average standard of type in this group, although they both, in regard to the secondary sexual characters, and functionally, are normal women. Both belong to the tall, lean type, though they lack the poise and balance found so uniformly in this group. They are precipitate in action and show a lesser degree of coordination than the other members of their group.

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[1] Martin, E. G., and Lovett, R. W.: A Method of Testing Muscular Strength in Infantile Paralysis, The Journal A. M. A., Oct. 30, 1915, p. 1512. Lovett, R. W.: The Treatment of Infantile Paralysis, p. 152.

[2] Miss Etta L. Paris and Miss Inezetta Holt of the Department of Physical Training for Women, Stanford University, have given invaluable assistance in making these tests.

[3] Mosher, C. D.: The Schematogram in School and Society, 1, May, 1915.

Case 36, the oldest woman in the group, aged 42 2/12, is married, has borne three children, and has a strength factor of 25.3. She said, "I have played running games and a little football, climbed trees, ridden horseback, played tennis in college, and had four years of gymnastics. When there was anything to do, such as moving a piano or a trunk, it never occurred to me to call a man. I did whatever there was to do. I have never worn a corset, and my clothes have been loose and supported. When fashion demanded three petticoats, I wore one." In this middle period of life, she has retained her youthfulness and sparkle to an unusual degree, and is intellectually brilliant.

Case 41, the youngest girl in this group, aged 16 2/12, has a strength factor of 26.6. She is a charming young girl, very feminine in type, an unusually good tennis player, is musical, and is intellectually of great promise. This case is of special interest since a record was made of her brother, who is only fourteen months older, and whose strength factor was found to be 26.4, a matter of 0.2 less than his sister's. The two were brought up with the same occupations and physical activities until the girl was 12 years old, when she was graduated from her overalls into skirts and into some of the conventional physical limitations of women.

The second group is composed of women in whom the same causes are operative as in the first and the third group. For lack of space, the discussion of this group will be postponed to a later paper.

Four married women ranging in age from 34 to 56 years gave an average strength factor of 20.8. The maximum strength factor in this group is 25.3, which is considerably above the average of the whole group of forty-five women, and is exceeded by only five others in the whole series of women studied. The four women of this group have borne thirteen children.

A general comparison of the series of forty-five college women with the series of athletic college men by Dr. Martin and Mr. Rich,[4] yields some suggestive results. Let us consider briefly the strength of the different muscle groups.

The pectoral muscles are commonly relatively stronger in man than in woman, the average percentage of total strength being 2.35 in man, and 2.1 in woman. Twelve women have equaled or exceeded the average of the men. Case 35 from the second group, a married woman who has borne two children, has in her pectorals 2.52 per cent. of her total strength. This difference between men and women, which is apparently not one of sex, may be explained as due to the difference in use. Constant ball playing, punching and thrusting make up a very large part of the boy's exercise. His clothing does not limit the use of the pectoral muscles, as do a woman's waist, brassière, etc. Moreover, although dress and convention have discouraged the use of the pectoral muscles in woman, their weakness is a distinct racial disadvantage. If the pectoral muscles were well developed in the woman, we should find fewer pendulous breasts in the young girl, as well as in the older woman.

The latissimus dorsi is better developed in woman than in man, contributing 1.65 per cent. of the total strength of woman and only 1.45 per cent. in man. The buttoning of women's waists and skirts in the back brings this group of muscles into constant use from childhood, while the boy's clothes are always more conveniently buttoned on the side or in front.

The anterior and posterior deltoids in woman create from 2.45 to 1.80 per cent. of her total strength, while in man they create only from 2.1 to 1.35 per cent. of his total strength. This difference again is readily explained as due to difference in use, that is, to woman's constant practice of putting up her hair. It is common knowledge that the girl with heavy hair cries with fatigue day after day as she is taught this conventionally necessary use of her muscles. An athletic woman not considered in this series of observations tells me that the fatigue of putting up her heavy hair on top of her head is still so great that she has been forced to dress it low after repeated attempts. There is no occasion for a habitual use of the deltoids among men, and, furthermore, their heavy coats tend to limit the freedom of action of the deltoids.

Forearm extensions and flexions are better developed in man than in woman, making from 1.5 to 2.35 per cent. of man's total strength and only from 1.3 to 1.85 per cent. of woman's. Here again woman's close-fitting waists and sleeves and the conventional view of her physical delicacy, which would protect her from lifting all heavy weights, might at least partially explain this difference.

Wrist extension is found to be 1.30 as against 1.05 per cent, and wrist flexion 1.90 against 1.35 per cent. in favor of woman. This is readily explained by the constant small movements in sewing, knitting, etc., which form a large part of woman's occupation. Piano playing also is probably more frequent among women than among men.

TABLE 3.—PERCENTAGES IN HIP AND KNEE EXTENSIONS AND FLEXIONS

| | Hip Extension Per Cent. | Hip Flexion Per Cent. | Knee Extension Per Cent. | Knee Flexion Per Cent. |
|---|---|---|---|---|
| Men .................. | 3.70 | 3.20 | 3.30 | 1.75 |
| Women ............... | 3.42 | 2.69 | 3.175 | 1.30 |

The result of difference in use is especially well illustrated in a brief consideration of dorsal flexion. Children between 5 and 16 years of age show 3.20 per cent., women 3.07 per cent., and men 2.85 per cent. of their total strength. Strapping the foot to the stiff unyielding sole of modern shoes might account for the falling off in power of these muscles in the adult. That woman has considerably more power than man may be due to the fact that she is more commonly trained in dancing, as was the case in this series of college women as compared with college men.

Inversion shows little difference between men and women, the percentages being 1.90 for men and 1.95 for women. Eversion makes 1.80 per cent. of the total strength in man and 1.935 in woman. Again the fact that a large percentage of these women had some training in esthetic dancing may be a factor in the difference.

Adduction is responsible for 1.60 per cent. in man and 1.68 per cent. in woman. This may possibly be influenced by the conventional requirement of ladylike behavior, which demands that a woman's knees be kept together.

Abduction causes little difference, being 1.50 per cent. of man's total strength and 1.475 per cent. of woman's.

The most striking difference is found in the hip and knee extensions and flexions, shown in Table 3.

The limitation of movement due to the skirt and the consequent limitation of activities will probably fully account for this difference. A superficial comparative study of Case 41, who grew up in overalls until she was 12 years old, having the same activities as her brother, may be profitable in discussing this point. Results of the comparison may be observed in Table 4.

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[4] Rich: To be published.

Case 41, although a most perfect feminine type, shows only slight variation from her brother in hip extensions and flexions, considered either in pounds or in percentage distribution. She has worn skirts only four years.

The effect of the limitation of skirts is well illustrated in Case 37, whose extensions and flexions are considered in Table 5. Here we have a woman more than 50 years old who has used a bicycle over a long period of years, often riding as many as 3,000 miles in a single year. We find her hip and knee extensors with a percentage distribution of her total strength exceeding the men athletes, while because of the limitation of skirts extending over a great many years, hip and knee flexors show a percentage distribution falling considerably below the percentage distribution in the group of college women who belong to a later period, when the limitation of skirts is less continuously operative. This case emphasizes the effect of use or disuse as a determining factor.

TABLE 4.—COMPARISON OF CASE 47 AND HER BROTHER

| | Hip Extension | | Hip Flexion | | Knee Extension | | Knee Flexion | |
|---|---|---|---|---|---|---|---|---|
| | Lb. | % | Lb. | % | Lb. | % | Lb. | % |
| Case 41 ............... | 155 | 4.41 | 95 | 2.85 | 113 | 3.21 | 50.5 | 1.43 |
| Brother 14 months older. | 159 | 4.41 | 102 | 2.80 | 113 | 3.14 | 62 | 1.72 |

From this hasty survey of the data concerning the muscular strength of college women, certain tentative conclusions are suggested:

There is no difference in the muscular strength of women and men which is due to sex as such. Such differences as are frequently found are due to differences in the use of the muscles, brought about by the conventional limitations of activity or by dress. Marked overweight or marked underweight tends to lower the strength factor, as does also lack of coordination, which is too frequently found in women and exaggerated by their scant physical activity in childhood. The effects of muscular training persist long after the particular exercise has ceased. A high degree of muscular power in a woman in no way lessens her racial efficiency. Lack of muscular power, as in the pectoral muscles, may be a distinct racial disability.

TABLE 5.—PERCENTAGES IN A COMPARATIVE STUDY OF HIP AND KNEE FLEXIONS AND EXTENSIONS

| | Hip Extension Per Cent. | Hip Flexion Per Cent. | Knee Extension Per Cent. | Knec Flexion Per Cent. |
|---|---|---|---|---|
| Case 37 (age $53\frac{3}{12}$ years) | 3.93 | 2.425 | 3.61 | 1.195 |
| Average percentage athletic men ............ | 3.70 | 3.20 | 3.30 | 1.75 |
| Average percentage women | 3.42 | 2.69 | 3.175 | 1.30 |

It has been shown that periodic disability in a woman when no organic disease exists is readily eliminated.[5] We may therefore conclude that sex is not necessarily a disability, and that if some method be found of adjusting work to the individual strength under proper hygienic conditions, without reference to sex, there is no reason why the potential power of woman may not be used without danger of lessening her racial efficiency.

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[5] Mosher, C. D.: A Physiologic Treatment of Congestive Dysmenorrhea and Kindred Disorders Associated with Menstrual Function, The Journal A. M. A., April 25, 1914, pp. 1297-1301; Health and the Woman Movement, National Board Y. W. C. A., 1915.

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# EXPERIMENTAL STUDIES OF THE MODE OF ABSORPTION OF MERCURY WHEN APPLIED BY INUNCTION *

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For a number of years there has been much discussion as to the manner in which mercury reaches the blood stream when rubbed into the skin in the form of inunction. Welander of Stockholm, after painstaking studies on extensive clinical material, came to the conclusion that the greatest part of the mercury applied by inunction is volatilized and absorbed through the lungs, and only a small portion through the skin. Many European clinicians were converted to this view through Welander's investigations. Welander, as a result of his work, advocated the light smearing of the skin with mercurial ointment rather than the attempt vigorously to rub the ointment in. He later advised inhalation cures, employing flat bags containing mercurial powder and worn around the neck at night.

Wile and Elliott[1] carried out studies in the mode of absorption of mercury in the inunction treatment, and by employing nonvolatile salts of mercury, came to the conclusion that mercury was absorbed through the skin as well as by volatilization and inhalation.

### ANIMAL EXPERIMENTS

It occurred to us that an experimental method was available which would definitely prove the dominant route of absorption when mercury was applied to the skin.

We had constructed a box to house two rabbits, one of which was to be rubbed with mercury and the other to breathe the mercury-laden atmosphere. Rabbit A, which received the inunctions, had his head projecting into the outer air through an aperture in a heavy piece of canvas attached to one end of the box. A padded collar served the double purpose of making the animal comfortable and of preventing the rabbit from breathing the box air. Rabbit B received no inunctions, but was constantly breathing the atmosphere of the box heavily charged with mercury. The hair over considerable area on the back was removed from Rabbit A by means of a barium sulphid depilatory in order to avoid as much as possible traumatism that might result from shaving. Rabbit B was similarly treated in order to have the rabbits under strictly parallel conditions.

The experiment was repeated five times, ten rabbits being used for the entire investigation. In speaking of Rabbit A, we refer to the rabbit that received the rubbings in each experiment. The ointment rubbed in consisted in nearly all of the experiments of a 50 per cent. official mercurial ointment and also a 50 per cent. calomel ointment. The amount employed at each

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* From the Dermatological Research Laboratories, Philadelphia Polyclinic and College for Graduates in Medicine.

[1] Wile, U. J., and Elliott, J. A.: Mode of Absorption of Mercury in the Inunction Treatment of Syphilis, The Journal A. M. A., April 7, 1917, p. 1024.

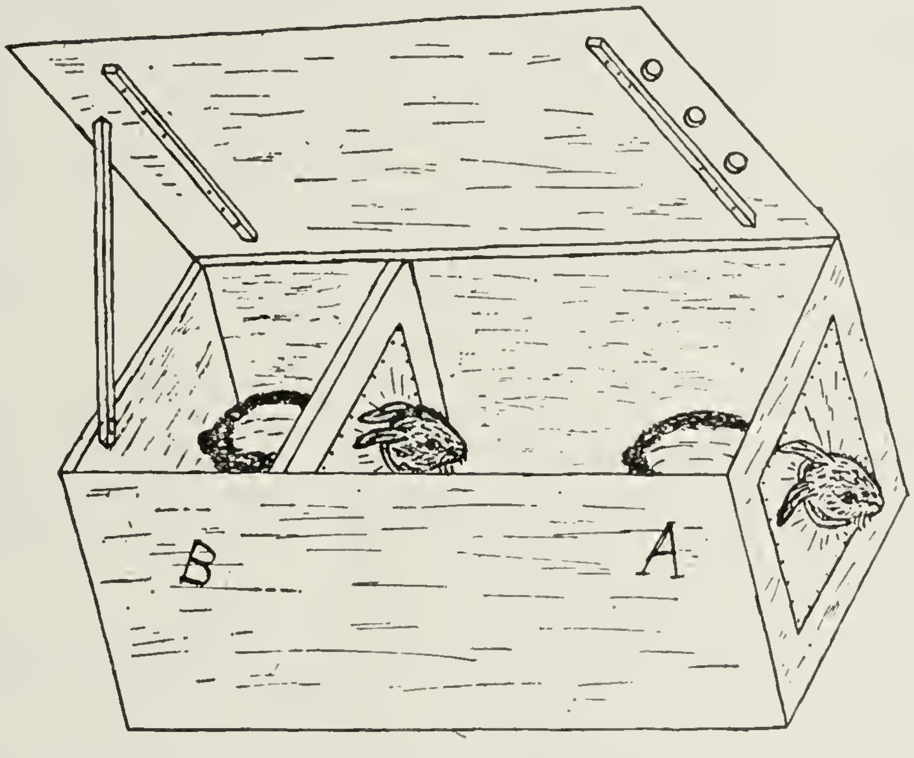
rubbing was very large in order to abbreviate the period of the experiment and to accentuate the findings. From 0.5 to 1 gm. of mercury per kilogram was applied to the skin; this is in the neighborhood of fifteen times the amount ordinarily used in man. The ointment was rubbed into the back for five minutes. Considerable unabsorbed ointment remained on the surface of the skin.

### FINDINGS

If mercury applied to the skin is chiefly absorbed by volatilization and inhalation through the lungs, then Rabbit B, which was constantly inhaling air strongly charged with mercury volatilized from the back of Rabbit A should exhibit more marked mercurial effect. If, on the other hand, mercury is absorbed through the skin to a greater extent than it is inhaled through the lungs then Rabbit A should show the dominant mercurial effect.

In each of the five experiments, Rabbibt A succumbed after a brief period to mercurial poisoning, whereas Rabbit B lived throughout each experiment except the last, in which for some unaccountable reason it died. A careful necropsy and histologic and chemical examination of the organs failed to reveal the cause of death.

The diagnosis of mercurial poisoning in the Rabbit A series was based on chemical examination of the organs and histologic studies of a number of organs, particularly the kidneys.



Box constructed so as to house two rabbits in two separate compartments: *A*, rabbit which received mercurial inunctions and breathed the outer air; *B*, rabbit which constantly inhaled the mercury-laden atmosphere.

### DETAILED RESULTS OF ANIMAL EXPERIMENTS

Experiment 1.—Rabbit 1, weighing 1,840 gm., was anointed for five minutes at a time with 20 grains of a 50 per cent. unguentum hydrargyri. The rabbit received three rubbings within nine days, and died four days later. Histologic examination of the organs revealed acute hyperemia of the glomeruli and intertubular tissues of the kidneys, also slight cloudy swelling, but no calcification; the lungs exhibited no pathologic changes, and the liver was likewise normal. No chemical examination of the organs of this rabbit was made.

Experiment 2.—Rabbit 2, weighing 1,484 gm., used as a control, was not rubbed, but inhaled the mercury-laden atmosphere, and was purposely killed on the thirteenth day, the day of death of Rabbit 1, in order that the organs might be studied histologically. No alteration of the kidneys or other organs was evident. This animal at death weight 1,707 gm., a gain of 223 gm. The kidneys on histologic examination exhibited no changes.

Experiment 3.—Rabbit 3, weighing 2,140 gm., was rubbed for five minutes at a time with 20 grains of a 50 per cent. calomel ointment. The animal received two rubbings within five days, and died five days after the second inunction. At death the animal weighed 1,565 gm., a loss of 575 gm. On microscopic examination the kidneys revealed acute hyperemia, but no other changes. The lungs, heart, spleen and suprarenal glands were normal. Chemical examination of the lungs, liver and kidneys gave positive tests for mercury, although the method pursued was not identical with those subsequently carried out, and the record is therefore not included in Table 2, exhibiting the chemical findings.

Experiment 4.—Rabbit 4, weighing 2,150 gm., was the control animal that breathed the mercury-laden air, but received no inunctions. This animal appeared in good condition, and was killed for histologic and chemical study of the organs. The kidneys, lungs, heart, spleen and suprarenal glands were found to be normal when microscopically examined. On chemical examination traces of mercury were found in the kidney and a large quantity in the liver. No examination of the lung tissue appears to have been made.

Experiment 5.—Rabbit 5, weighing 2,420 gm., received five minute inunctions of 17 grains (1 gm. +) of a 50 per cent. unguentum hydrargyri. Three rubbings were given within six days, and three days later the animal died. Microscopic examination of the kidneys revealed cloudy swelling of the epithelium of the tubules, with edematous distention of the malpighian tufts, marked edematous distention of the tubules, but no calcification. The diagnosis of the condition was acute tubular nephritis. The lungs were normal. On chemical examination there were found large amounts of mercury in the kidneys, liver and skin; the lung was free of mercury, but a faint trace was present in the brain. This animal was pregnant, and the placenta and fetus were found negative to tests for mercury.

Experiment 6.—Rabbit 6, which weighed 2,340 gm., was the control animal that inhaled the mercury-laden atmosphere. It was in good condition and was killed for microscopic and chemical study of the organs. The kidneys, skin and lungs presented no histologic changes. Chemical examination revealed that the kidneys and the exposed skin contained considerable quantities of mercury (in the skin, this must have been due to deposition of volatilized mercury). The lungs contained a moderate amount of mercury, and the brain a faint trace; the liver was mercury free.

Experiment 7.—Rabbit 7, weighing 1,640 gm., received two five minute rubbings of 10 grains of calomel in 1 dram of base, within five days. The animal died three days after the second rubbing. Histologic examination of the kidney disclosed acute hyperemia of the glomeruli and slight cloudy swelling with acute congestion. On chemical examination the kidneys, liver and skin were found to contain relatively large amounts of mercury, and there was a small quantity in the lung.

Experiment 8.—Rabbit 8, weighing 2,630 gm., the control animal that inhaled mercury-laden air, was in good condition, and was killed for microscopic and chemical study of the organs. On microscopic examination the lungs and kidneys were found normal, and chemical examination failed to reveal the presence of mercury in the lungs or other organs.

Experiment 9.—Rabbit 9, weighing 1,400 gm., received four rubbings within twelve days of an ointment of calomel containing 10 grains to the rubbing. The rabbit died six days after the fourth rubbing. At death the animal weighed 830 gm., a loss of 570 gm. Histologic examination disclosed edema of the tufts of the kidneys, with slight exudative glomerulitis and cloudy swelling of the tubules. There were no changes in the lungs. Chemical examination revealed relatively large quantities of mercury in the kidneys, liver and skin, but it was absent in the lungs.

Experiment 10.—Rabbit 10, weighing 1,380 gm., a control animal, breathed the mercury atmosphere, but was not anointed. The rabbit died four days after the onset of the experiment, without apparent cause. Necropsy disclosed no histologic changes in the kidneys or other organs. The lungs and kidneys were the only organs which were examined chemically, and mercury was not found in either of them.

### DETECTION OF MERCURY IN ORGANS

In each test, one fifth of the total weight of the organ was employed. The organ was first weighed and then divided into very small pieces. These were warmed with 25 c.c. of concentrated hydrochloric acid on a steam bath, and the organic matter was destroyed by the addition, from time to time, of a little potassium chlorate. When this was completed the clear solution was cooled, diluted with water and filtered.

TABLE 1.—OUTLINE OF EXPERIMENTS WITH MERCURIAL INUNCTIONS

| Rabbit No. | Number of Inunctions | Period of Inunctions, Days | Duration of Life | Original Weight, Gm. | Weight on Death, Gm. | Substance Rubbed in | Amount Rubbed in at Each Inunction |
|---|---|---|---|---|---|---|---|
| 1 | 3 | 9 | Died in 13 days | 1,840 | ..... | Unguentum hydrargyri 50% | 20 grains (1.3 gm.) |
| 2 | None | ... | Killed | 1,484 | 1,707 | Control | |
| 3 | 2 | 5 | 10 days | 2,140 | 1,565 | Calomel ointment 50% | 20 grains (1.3 gm.) |
| 4 | None | ... | Killed | 2,150 | 1,968 | Control | |
| 5 | 3 | 6 | 9 days | 2,420 | ..... | Unguentum hydrargyri 50% | 17 grains of mercury |
| 6 | None | ... | Killed | 2,340 | ..... | Control | |
| 7 | 2 | 5 | 8 days | 1,640 | ..... | Calomel ointment | 10 grains (0.6 gm.) |
| 8 | None | ... | Killed | 2,630 | ..... | Control | |
| 9 | 4 | 12 | 18 days | 1,400 | 830 | Calomel ointment | 10 grains of calomel (0.6 gm.) |
| 10 | None | ... | Died accidentally in 4 days | 1,380 | ..... | Control | |

The filtrate was heated just to boiling to drive off any remaining chlorin, and, after the addition of copper filings, was allowed to stand over night. By this time the mercury was deposited on the copper. When much mercury was present, it was plainly visible in gray metallic condition. Traces of mercury were invisible, but could be later detected. The copper filings, after the supernatant liquid was poured off, were washed first with water, then with methyl alcohol and finally with ether, and allowed to dry. They were then introduced into a large test tube, and inside the latter was inserted a smaller test tube filled with cold water. The outer test tube was warmed by a flame. The mercury deposited on the copper filing thus volatilized, and was condensed on the bottom of the inner test tube. When this was completed the copper filings were removed and a small particle of iodin introduced in their place. This was warmed gently, and the iodin vapor which thus formed reacted with the mercury deposited on the inner tube and former a brick red deposit of mercuric iodid. By this method we could detect as small quantities as 0.05 mg. of mercury.

### DETERMINATION OF MERCURY IN THE ORGANS

As is seen in Table 2, from two to three tests were made with tissue from each organ examined. These multiple examinations were carried out in the interest of accuracy to avoid errors as far as possible. The quantitative discrepancies, where they exist, may be in large part explained by the fact that different parts of the same organs might readily contain varying amounts of mercury.

### COMMENTS

The chemical examination of the organs discloses the fact that animals rubbed with large amounts of mercurial ointments and dying shortly thereafter exhibited considerable quantities of mercury in the kidneys and the liver. These findings, taken in conjunction with the microscopic study of the organs, warrant the conclusion that the rabbits died of mercurial poisoning. The control animals, which were so placed in the experimental box that they were constantly inspiring an atmosphere heavily laden with mercury, did not exhibit effects of mercurial poisoning.

Rabbit 6 did show the presence of mercury in the kidneys and in the lungs. It is evident that this animal received into his system considerable quantities of the volatilized drug by inhalation. The other control animals experimented on in the same box did not, however, exhibit mercury in the lungs or other organs. The variation is, in our opinion, to be accounted for by the fact that metallic mercury (in mercurial ointment) is distinctly more volatile than calomel, which was the form of mercury used in Animals 8 and 10. In Rabbit 6 that inhaled a metallic mercury atmosphere, the lungs showed the presence of distinct amounts of mercury, but in Rabbits 8 and 10, which inhaled air in which the calomel was used, the lungs were negative as far as the presence of mercury was concerned.

The inunction experiments demonstrate that calomel ointments may be absorbed through the skin in sufficient amounts to produce fatal mercurial poisoning. This finding suggests the use of calomel for inunction purposes. Mercurial ointment made with metallic mercury has been used for over four centuries. Its therapeutic efficacy is well attested, but its general employment has been restricted because it is extremely dirty, soils the bed and body linen, and thereby discloses the nature of the treatment. Calomel is far more cleanly, and, moreover, is more easily absorbed through the skin. The following formula has given us the best results:

TABLE 2.—DETERMINATION OF MERCURY IN ORGANS OF RABBITS *

| Organ | Rabbit 5 | | | Control Rabbit 6 | | | Rabbit 7 | | | Control Rabbit 8 | | | Rabbit 9 | | | Control Rabbit 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Kidney.... | $+^4$ | $+^2$ | | $+^2$ | $+^2$ | | $+^2$ | $+^2$ | | — | — | | $+^3$ | $+^3$ | | — | — | |
| Liver..... | $+^2$ | $+^2$ | | — | — | | $+^2$ | $+^2$ | | — | — | | $+^2$ | $+^3$ | $+^2$ | | | |
| Lung..... | — | — | — | $+^1$ | $+^1$ | $+^4$ | — | $+^1$ | — | — | — | — | — | — | — | — | — | — |
| Skin...... | $+^8$ | $+^8$ | | $+^3$ | $+^2$ | | $+^6$ | $+^8$ | | — | — | | $+^8$ | $+^8$ | | | | |
| Brain..... | — | F. T. | | F. T. | $+^1$ | | — | — | | — | — | | | | | | | |
| Fetus..... | — | | | | | | | | | | | | | | | | | |
| Placenta.. | — | | | | | | | | | | | | | | | | | |

* In this table, F. T. denotes faint trace; $+^1$, barely visible deposit of mercuric iodid; $+^2$, good test; thin deposit of mercuric iodid plainly visible: $+^3$, heavy deposit of mercuric iodid; $+^4$, very heavy deposit of mercuric iodid; $+^5$, extremely heavy deposit of mercuric iodid.

| | gm. | |
|---|---|---|
| ℞ Hydrargyri chloridi mitis......... | 3 | gr. xlv |
| Lanolini ............................ | 1 | gr. xv |
| Adipis benzoinati ................ | 2 | gr. xxx |

For each inunction.

It is probable that a somewhat larger dose of calomel than metallic mercury is necessary, because of the lesser mercurial content (calomel contains 85 per cent. of mercury), and because there is but little absorption through the lungs.

We believe that the safest method of introducing large amounts of mercury into the system is by inunction.

### CONCLUSIONS

1. Animal experiments demonstrate that the chief avenue of absorption of mercury, when applied by inunction, is the skin.
2. Rabbits may be fatally poisoned with mercury by inunction, even when no opportunity of absorption through the lungs exists.
3. Rabbits breathing a mercury-laden atmosphere may absorb considerable quantities of mercury through the lungs, but, as a result of our experiments, we believe the respiratory absorption to be far less important than the cutaneous absorption.
4. Metallic mercury in the form of the official mercurial ointment is more volatile and is much more apt to be absorbed by the lungs, than calomel ointments of equal strength.
5. Calomel ointments are fully as well absorbed through the skin as the ordinary blue ointment; indeed, we have the impression that calomel is absorbed with greater facility.
6. There appears to be no reason why calomel inunctions should not supplant the unclean blue ointment rubbings which have been so long in use.

# WOOD ALCOHOL POISONING *

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AND
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The prohibition by our government of the manufacture of distilled liquors will unquestionably lead to much "moonshining," adulteration and dilutions of liquors offered to the public. That such is the case, even at this early period of the war, is quite evident from the recent poisoning in this city of over thirty persons, six of whom died, with a whisky sold in one of the poorer sections of the city that on analysis proved to contain a considerable amount of wood (methyl) alcohol. Believing that similar cases will occur and with increasing frequency, despite the vigilance of our revenue and state officers, we feel it timely again to warn physicians, coroners and health officers, in order that they may be on their guard in similar cases, as prompt and efficient therapeutic measures must be instituted to hold any hope for recovery of the patient, and, furthermore, to detect any violations of the food laws.

It is our belief that the introduction into beverages of the dangerous poison, wood alcohol, is nearly always due to ignorance on the part of the blender. Many physicians and nearly all of the lay public are unacquainted with the chemical and physiologic differences between the relatively innocuous ethyl or grain alcohol and the dangerous methyl or wood alcohol when applied to the body or introduced into it. The refined wood alcohol tastes like ethyl alcohol, and, moreover, is considerably cheaper; hence the adulterator buys the latter, ignorant that severe poisoning, blindness and often death lurk within it.

The pharmacology of this poison has been presented by Pohl[1] and Hunt,[2] and we would refer the reader to their original papers. The violation of the food law and the criminal aspects of our cases are being investigated by the proper authorities, and we shall merely record the findings in the six fatal cases, with points in diagnosis and treatment and methods for detecting the poison.

Similar but meager histories were obtained, and we were unable to determine the quantities of the poison taken. Four of the patients were admitted to St. Vincent's Hospital, one to Bellevue Hospital, and one patient died in his own home. All had taken whisky a short time previously, and all had complained of violent abdominal pains, incessant vomiting and extreme weakness. Three of the patients complained of blindness. Three of the St. Vincent's patients and the Bellevue patient came into the hospitals in coma; one (Case 1), who was admitted while conscious, said that he had taken whisky a short time before; soon thereafter he noted intense abdominal pain, vomiting, increasing weakness and dimness of vision; finally he collapsed in the street, and was brought to the hospital, where he died half an hour after admission. The patient had the appearance of being in a severe toxic condition or collapse. The important points in all the physical examinations were slow respirations, dilated pupils, weak and rapid heart action, cold and clammy extremities, and deep coma.

In Case 1, stomach washings were obtained, and also some of the liquor that he had drunk. Both were found to contain wood alcohol.

The examination of the urine during life in Case 2 revealed albumin and casts, and gave a Fehling reduction (aldehyd formation?).

The diagnostic features of the acute type of poisoning are extreme physical weakness, acute gastro-intestinal symptoms, blindness, and deep and prolonged coma, ending in death with cardiac collapse. In the chronic type of cases, blindness is the chief symptom.

A differential diagnosis from epilepsy, and especially all types of coma—uremia, cardiac, diabetic, cerebral, toxic and traumatic—must be made. This frequently is very difficult; but if we bear in mind the important symptoms mentioned above, and obtain a history of whisky drinking, together with an alcoholic breath, we should be suspicious, at least to the extent that we are dealing with some form of alcohol poisoning.

The treatment, to be at all efficacious, must be promptly instituted, and consists essentially of ridding the body of the poison, and supportive measures. The poison is but slowly and incompletely oxidized in the body to more dangerous poisons, namely, formaldehyd and formic acid, and as such very slowly (for four to five days, and even longer) eliminated by the kidneys. Mayer[3] has demonstrated that the relative toxicity of formic acid is six times greater than that of wood alcohol. For a considerable period of time, the alcohol is excreted unchanged into the stomach and intestine (Bongers[4]), and it is therefore important that early and frequent gastric and rectal lavage be carried out. The stomach washings should be imme-

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* From the Department of Pathology, Bellevue and Allied Hospitals, Dr. Charles Norris, Director.

1. Pohl: Arch. f. exper. Path. u. Pharmakol., **21**, 281.
2. Hunt: Bull. Johns Hopkins Hosp., 1902, **13**.
3. Mayer: Arch. f. exper. Path. u. Pharmakol., **21**, 122.
4. Bongers: Arch. f. exper. Path. u. Pharmakol., **35**, 29.

diately examined for wood alcohol. Intravenous saline or sodium bicarbonate infusions and phlebotomy and transfusions, if the latter can be had quickly, should be administered. In addition, warmth and strong stimulation with strychnin, digitalis, caffein, camphor, epinephrin and oxygen must be given. It is said that ethyl alcohol is indicated to replace the methyl, and that it acts as a powerful stimulant; but we doubt this. For the treatment of the chronic form of poisoning, we refer the reader to the article by Buller and Wood,[5] who collected the histories of 275 American cases up to 1904, and to Birch-Hirshfeld,[6] who discusses the eye condition in considerable detail.

The postmortems in Cases 1 to 4 were performed by Dr. Otto H. Schultze, and in Cases 5 and 6 by Dr. A. V. St. George, in the presence of Dr. Benjamin Schwartz, coroner's physician. The gross anatomic diagnoses in all the cases were: marked cerebral congestion with increased cerebrospinal fluid; marked congestion of all the viscera, and acute pulmonary edema and congestion. In addition, in all cases except Case 2, only dark fluid blood was distributed throughout the heart and vessels. In Case 2 there was an aortic stenosis, and a soft red clot was present in the left heart. The brain in Cases 1 and 5 had a suspicious odor, not, however, distinctive of alcohol; no odor could be detected in the stomach or its contents. In Case 6 there was, in addition, a chronic pulmonary tuberculosis. In Case 5 there was marked parenchymatous degeneration of the kidneys and liver. Microscopic section of heart, kidney and liver did not show an increased amount of fat. Pohl reported that he found an increase in the amount of fat in the liver. Sections of the optic, vagus and phrenic nerves show marked degeneration of these structures.

RESULTS OF TESTS

| | Reduced Fuchsin | | Casein Test | | Resorcin Test | |
|---|---|---|---|---|---|---|
| | Before Oxidation | After Oxidation | Before Oxidation | After Oxidation | Before Oxidation | After Oxidation |
| Case 1, brain.... | — | + | — | + | — | + |
| Case 1, lavage .. | — | + | — | + | — | + |
| Case 1, beverage. | — | + | — | + | — | + |
| Case 2, brain.... | — | + | — | + | — | + |
| Case 3, brain.... | — | + | — | + | — | + |
| Case 4, brain.... | — | + | — | + | — | + |
| Case 5, brain.... | — | + | — | + | — | + |
| Case 5, urine 220 c.c........ | — | + | — | + | — | + |
| Case 5, blood 490 c.c........ | — | + | — | + | — | + |

Parts of the brain in all of the six cases were examined chemically according to the method given below. We selected the brain tissue for the performance of our tests, because of the assumption that the poison has a selective action on nerve tissue, as is indirectly proved by the blindness and deep coma.

### CHEMICAL ANALYSIS OF BRAIN

The sample was finely ground, and water was added to make a thin suspension; it was placed in a distillation flask; 3 drops of liquid petrolatum were added to prevent frothing; it was acidified with tartaric acid and distilled with steam. Thirty c.c. of the distillate were collected. Of this, 5 c.c. were placed in a test tube and oxidized by the plunging of a red hot copper spiral into it six or eight times. This oxidation is for the purpose of converting the methyl alcohol to formaldehyd.

The oxidized material as well as a little of the original distillate was tested by the following three methods:

*Reduced Fuchsin Test.*—To 2 c.c. of each of the distillates (both oxidized and nonoxidized), 3 drops of (colorless) reduced fuchsin were added. A red color develops if an aldehyd is present. This test is not specific for formaldehyd, but is given by the aldehyd group in general.

*Casein Test.*—To 2 c.c. of each of the distillates (both oxidized and nonoxidized), an equal amount of milk, then an equal volume of hydrochloric acid, and 2 drops of ferric chlorid are added. This is brought to a boil. If formaldehyd is present, a violet to red color develops. This test is specific for formaldehyd and is very delicate, detecting formaldehyd in dilutions of 1 : 250,000.

*Resorcin Test.*—To 2 c.c. of each of the distillates (both oxidized and nonoxidized), a few drops of 0.5 per cent. resorcin are added, and stratified on sulphuric acid. In the presence of formaldehyd a red ring develops. This test is specific for formaldehyd.

The brain in every one of the six cases was found to have methyl alcohol present. The tests before oxidation were negative, showing that no oxidation to aldehyd occurred in the brain.

In Case 5, blood and urine also were available. These were examined according to the method given; both the blood (490 c.c. of blood being used) and the urine (220 c.c.) showed methyl alcohol but no formaldehyd.

It is important to note that the refined wood alcohol, in addition to being used as a diluent of whisky, is frequently used in the preparation of essence of peppermint, Jamaica ginger, lemon extract, punch, cologne, liniments, Florida water, bay rum, witch hazel and in the arts in lacquers, varnishes, etc.

### CONCLUSIONS

Physicians and health officers should warn the public of the dangers existing in the preparations of the kind enumerated above when applied to or introduced directly or by inhalation into the body. European authorities have shown that the denatured ethyl alcohol serves every purpose in medicine and in the arts as well as wood alcohol or better. We suggest, therefore, that legislation be enacted bringing about the prohibition of the sale of wood alcohol for domestic purposes, similar to laws now obtaining in England and Germany.

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**Utilizing Shaker Colony Plants for War Purposes.**—The Shaker colonies in the United States, which spread from the first one at Watervliet, N. Y., back in Revolutionary War times, over New England, New York, Kentucky and other states, have now, on account of the great decrease in the members of the sect, been suggested as sites for convalescent camps and other war purposes. Most of the Shaker villages, which where cooperative industrial and manufacturing communities, comprise from several hundred to several thousand acres, with large, substantial houses and farm buildings, which have been kept in good repair. A few of them have been abandoned or disposed of by purchase to state authorities or corporations for various public or corporate purposes. In many of them the membership has dwindled to such small proportions that they have been offered for sale at very reasonable figures. According to the statement of a social worker from New York, as set forth in the *Survey*, one community in that state with nearly 2,000 acres of fine land and about sixty buildings comprises five families of about thirty persons, with some children as wards. The community is at a loss to farm their land on account of the scarcity of agricultural labor. Various uses have been suggested for these farm colonies, as homes for feebleminded and delinquent, etc., in addition to that regarding their use as convalescent retreats for soldiers invalided home from the war. They are certainly adapted to some public utilitarian or welfare purpose, and use should be made of them in some such way.

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[5] Buller, Frank, and Wood, C. A.: Poisoning by Wood Alcohol, THE JOURNAL A. M. A., Oct. 1, 1904, p. 972; Oct. 8, 1904, p. 1058; Oct. 15, 1904, p. 1117; Oct. 22, 1904, p. 1213; Oct. 29, 1904, p. 1289.

[6] Birch-Hirshfeld: Arch. f. Ophth. (von Graefe's), **54**, 68.

# PERMEABILITY OF THE MENINGES TO ARSENIC IN PARESIS AND TABES

## SUPPLEMENTARY REPORT

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Our knowledge concerning the permeability of the meninges has been rather limited on account of the difficulties involved in getting reliable data. When large doses of drugs can be given safely, it is easy to determine whether any part of them has passed into the spinal fluid. But in using potent drugs like arsenic or mercury, we find the proportion of the chemical to the body weight so small that even if any of it does pass into the cerebrospinal fluid, it is almost impossible to recover it. Since the advent of salvarsan, we have been enabled to inject relatively large doses of arsenic intravenously, and it is therefore possible to determine with greater ease and precision the permeability of the meninges to this drug.

After a careful study of the literature on this subject, I find that the authors have been unable, except in a few instances, to recover arsenic in the spinal fluid after its intravenous administration, and never after intramuscular or oral administration. Mercury has never been found except when it has been injected directly into the spinal canal. The only important drugs that have been found to pass through the meninges and ependymal cells are hexamethylenamin, uranin, chloroform, and in one case reported by Rotky,[1] bromin. Iodin has never been found even when administered in massive doses, according to Catton.[2]

Engman, Buhman, Gorham and Davis[3] report four cases in which no arsenic was found in the cerebrospinal fluid after the intravenous injection of 0.9 gm. of neosalvarsan. Citron[4] reports that no arsenic was found after intravenous or subcutaneous injections of salvarsan. Wechselmann[5] found arsenic in a few cases after the administration of salvarsan intravenously. Sicard and Block[6] recovered arsenic in three out of ten cases after intravenous, but none after intramuscular or subcutaneous injections. In one case, after giving 1 gm. of sodium cacodylate intravenously, Lorenz[7] found a trace of arsenic one hour later, but none six or twelve hours later.

From fifteen minutes to forty hours after giving salvarsan, 0.6 gm., Camp[8] removed the spinal fluid in seventeen cases and found arsenic in only one. Ravaut[9] found traces in six cases out of thirty-three. Benedict[10] reports traces of arsenic in four cases out of a large series. In two cases out of four, Hall[11] found arsenic twenty-four hours after the intravenous injection of 0.4 gm. of salvarsan.

From these reports we see that the presence of arsenic in the cerebrospinal fluid after its intravenous administration is variable, and some explanation of this variability must be sought. If we analyze the different theories regarding the formation of the cerebrospinal fluid, we must conclude that the most plausible source is the choroid plexus and possibly the ependymal cells. Under normal conditions we may assume that the meninges and ependymal cells are practically impermeable to the passage of all but a few drugs. What conditions, then, must obtain in order to cause these structures to lose their impermeability? Netter and Gendron[12] have shown that the injection of homologous serum into the spinal canal produces a leukocytosis. The injection of horse serum has the same effect, but also causes pain and fever. Viton[13] asserts that the meninges are not permeable except when irritated by the injection either of serums or of chemicals. Weil and Kafka[14] state that the permeability is very small normally, and only when the blood is heavily loaded, as in uremia, diabetic coma, jaundice, etc., or when patients are being treated with chloroform or uranin. The last two writers assert that the permeability is greatest in tuberculous meningitis, next greatest in epidemic meningitis, and third greatest in syphilitic meningitis. Eighty per cent. of the cases of cerebral syphilis show meningeal irritation. Hemolytic amboceptor will not pass through normal meninges, but in cases of paresis the writers find that 97 per cent. permit its passage.

Mestrezat and Sappey[15] believe that the meningitis which is provoked by the injection of electromercurol into the spinal canal creates a permeability that permits the passage of antibodies and other curative agents into the canal.

I believe that by reducing the intraspinal pressure we may also increase the permeability. It must necessarily follow that the removal of the greater portion of the cerebrospinal fluid must create a marked congestion of the meninges; and if the capillaries are dilated, they must permit the passage of their contents with greater freedom. Whether or not this theory is tenable, I have been able to demonstrate definitely that, in twenty-five out of twenty-six cases, arsenic is found in the cerebrospinal fluid twenty-four hours after its intravenous administration, if the spine is tapped almost dry shortly after the salvarsan or a similar product is given. In eighteen out of twenty-six cases, arsenic was found in the second portion of the spinal fluid which was withdrawn shortly after the intravenous injection. It is of great interest to observe that, in one patient who received four injections, arsenic was found three times only in traces. This man, while revealing many of the symptoms of tabes, had a negative Wassermann reaction in both blood and spinal fluid, as well as a negative colloidal gold chlorid test, and a negative Pandy, Nonne and Noguchi reaction.

The technic[16] which I employed is as follows: The patients were given intravenous injections of either salvarsan, neosalvarsan or arsenobenzol. Within twenty minutes the spine was tapped, and the fluid was allowed to run until it barely dropped, the quantity varying from 30 to 60 c.c. The fluid was collected in two portions. The first was tested for colloidal gold, Wassermann, Pandy, Nonne and Noguchi reactions, and the second portion for arsenic. In ten cases, 20 c.c. of blood were withdrawn within half an hour after the administration of the arsenic. This was allowed to clot, the serum was removed, and both clot and serum were tested for arsenic. Twenty-four hours after the spine was tapped, a second tapping was done, removing at least 10 c.c., though usually twice that amount was removed. This fluid was also examined for arsenic.[17]

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[1] Rotky, H.: Ztschr. f. klin. Med., 1912, **75**, 494.

[2] Catton, J. H.: Studies of the Spinal Fluid During Iodid Medication by Mouth, The Journal A. M. A., Nov. 4, 1916, p. 1369.

[3] Engman, M. F.; Buhman, Rudolph: Gorham, F. D., and Davis, R. H.: A Study of the Spinal Fluid in One Hundred Cases of Syphilis, The Journal A. M. A., Sept. 6, 1913, p. 735.

[4] Citron, J.: Berl. klin. Wchnschr., 1914, **51**, 332.

[5] Wechselmann: Berl. klin. Wchnschr., 1912, **49**, 688.

[6] Sicard and Block: Bull. et mém. Soc. méd. d. hôp. de Paris, Series 3, p. 894; Compt. rend. Soc. de biol., 1910, **69**, 624.

[7] Lorenz, W. F.: Med. Rec., New York, 1912, **82**, 185.

[8] Camp, C. D.: Jour. Nerv. and Ment. Dis., 1912, **39**, 809.

[9] Ravaut, P.: Presse méd., 1912, **20**, 182.

[10] Benedict: Am. Jour. Med. Sc., 1914, p. 699.

[11] Hall, G. W.: The Presence of Arsenic in the Spinal Fluid, The Journal A. M. A., April 24, 1915, p. 1384.

[12] Netter and Gendron: Compt. rend. Soc. de biol., 1910, **69**, 409.

[13] Viton, J. J.: Semana méd., 1913, **20**, Part 2, pp. 1393-1397.

[14] Weil and Kafka: Wien. klin. Wchnschr., 1911, **24**, 335.

[15] Mestrezat, W., and Sappey, F.: Compt. rend. Soc. de biol., 1910, **69**, 239.

[16] Barbat, J. H.: California State Jour. Med., 1915, **13**, 438.

Analyses showed that the blood serum contained more than five times as much arsenic as the clot contained, and that it averaged only about eight parts per million. This fact proved that within half an hour after the administration of 0.4 gm. of salvarsan, 75 per cent. is fixed in the body cells. The second portion of spinal fluid, which was withdrawn immediately after the administration of the salvarsan, showed 31 per cent. arsenic free and 27 per cent. with a trace, while 42 per cent. gave an average of 0.2 part per million. The spinal fluid withdrawn twenty-four hours later showed one case out of twenty-six arsenic free, two cases with a trace, and an average of 0.25 part per million in the remaining twenty-three cases.

These figures would indicate that arsenic can be made to pass into the spinal fluid in more than 96 per cent. of patients suffering from tabes or paresis, by the technic which I have described.

There has not been a sufficient number of patients treated as yet to warrant any definite statements as to the clinical value of this method; but when we consider that most of the patients were from the Relief Home and were considered absolutely hopeless, it appeared to me that my results warranted giving the matter a more extensive trial.

Two tabetics who were unable to walk, and who suffered from lightning pains, were relieved of pain and were able to walk more than they had for years. One patient came to my office more than a year after he had received five treatments, and asserted that he felt better than he had felt for a long time previous to the treatment.

In one case of beginning paresis in a patient, aged 35, whose primary infection dated back fifteen years, the difference between his former condition and the result obtained by withdrawing the spinal fluid after the injection of salvarsan was very marked. Four doses of salvarsan given at intervals of four weeks produced little effect on his mental condition, which he described as clouded. But he declared that, within a few days after the first treatment by my method, his head was clearer than it had been for years, and he requested another dose as soon as possible. After four treatments the Wassermann reaction in the blood and spinal fluid became negative, and the paresis curve, as shown by the colloidal gold test, has been rapidly subsiding, but is not yet negative.

In regard to the withdrawal of large quantities of spinal fluid in cases of paresis and tabes, we have had very little complaint from the patients, and the headaches following were no worse than those after the removal of small quantities. The patients were kept in bed twenty-four hours, and in only a few cases did they demand an anodyne. Those who did were already habitués who suffered lightning pains.

I believe that this method possesses many advantages over that of Swift and Ellis, and I feel that the clinical results will be found as good, if not better. The technic is very simple, and we avoid the dangers and discomforts that often follow the injection of foreign materials into the spinal canal. I am not prepared to say that the arsenic which is made to enter the spinal canal is the dominating factor in this method of treatment. I believe that the antibodies residing in the blood serum and passing into the spinal fluid play a more important part than the minute proportion of arsenic we find.

275 Post Street.

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[17] The arsenic estimations were made in the Hygienic Laboratory at Washington.

# BLINDNESS FROM INDUSTRIAL USE OF A 4 PER CENT. ADMIXTURE OF WOOD ALCOHOL

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T. P., aged 29, a Greek of good physique, was referred, June 1, 1917, to my ophthalmic service at the Duluth Free Dispensary because of some difficulty which an optician had had in fitting the man with glasses. Complaint was made that objects looked smoky, and that the sight of the left eye had been failing for six weeks. Vision of the right eye was 20/30 and J.2; the color fields were much contracted; the field for white was moderately reduced on the nasal side, and greatly contracted on the temporal side. No definite scotoma could be located. The optic disk showed possibly a slight pallor. Vision of the left eye was reduced to fingers at 1 foot, except in the upper temporal quadrant, where fingers could be counted at 12 feet. The disk on this side was distinctly pink—a capillary congestion. Neither at this time nor later was there increased tension of either eye, or changes in the media or fundi beyond the disks. The vessels remained of normal caliber, with no swelling nor cupping of the nerve heads. The pupils were equal, and noticeably large, the dilatation being marked in reduced light; reaction to accommodation and light was equally sluggish. Twelve days later the vision of the right eye had fallen to 20/70, at which point it remained for about a fortnight, and then sank with the left, so that by September 15 the bare detection of finger movements was the best that either eye could do. Both optic disks in the meantime had become very white.

The family history was negative. The father and mother and nine brothers and sisters were all living and in good health. There had been no visual trouble among the grandparents, as far as known. The personal history was clear up to April 1; no injury, and no illness other than the usual diseases of childhood. Syphilis was denied, and evidences of it were lacking. The patient's wife was well, in her first pregnancy, and since has been delivered at term of a healthy child. The Noguchi test was negative. There was no ataxia. The patellar and other reflexes were normal. There were no signs of tabes or paresis. The teeth, tonsils, nasal accessory sinuses, gastro-intestinal and renal functions and the pituitary and thyroid glands were all given consideration.

The man had worked as a railway warehouseman up to March 1, at which date he obtained employment in a shoe-shining and hat-cleaning shop connected with a cigar stand. Here he worked for two or three hours each day dyeing hats with a commercial product called "Colorite"—a black liquid dye with a rather faint yet distinct odor of wood alcohol. The place was fairly well ventilated; there was also a door which was very frequently opened on the street. The temperature was about 70 F. His hands were spattered and stained black "about a quarter of the time." After five or six weeks of this he first began to note that objects looked smoky, while coincidently he became easily tired, perspired freely, and suffered slightly from nausea and a somewhat vague "stomach trouble." There was slight headache and dizziness, which, however, eventually disappeared These symptoms were more or less pronounced when he came under my observation after six weeks. When last seen he was once more in good health, but totally blind. This picture is, I believe, fairly typical of wood alcohol poisoning of the slow type. To make it a more perfect case, the findings should have included a scotoma, and "contracted retinal vessels," perhaps.

An original bottle of "Colorite," of which the man had used a dozen or more, was sent to the Bureau of Labor Statistics, Department of Labor. An analysis made at the Hygienic Laboratory disclosed 4 per cent. of wood alcohol, the coloring matter being reported as one of the indulin group, negrosin. Though analin black, as well as other of the analin dyes, may sometimes be classed as poisons, and have been known to exert deleterious action on the cornea and conjunctiva,[1] no instance of nerve atrophy has been reported as following the use of any of the indulins. The man polished few shoes: nitrobenzene seemed not to be a possibility. The wife and fellow workers stated that he was an abstainer from alcoholic drinks.

### DANGERS OF WOOD ALCOHOL

In reporting one of the formidable series of imbibition cases from Russia subsequent to the abolition of vodka, Yakovleva[2] calls attention to the cumulative action of the poison. Tyson and Schoenberg[3] refer to over a hundred cases of death and blindness, up to 1912, following the inhalation of wood alcohol. Buller and Wood,[4] in their review of the subject, say, "It is also highly probable that in susceptible subjects repeated or even single methylated 'alcohol rubs' may produce poisonous symptoms, through absorption of the spirit by the skin." A few cases put on record since that report have corroborated this view. Campbell[5] mentions a patient who had his chest bathed once daily for two weeks with wood alcohol, resulting in light perception only in one eye, and vision 15/20 in the other, with contracted field. Woods[6] reported sudden blindness coming on in a man who had rubbed his legs with wood spirit each day for a month. Ziegler[7] mentions an instance in which a temporary amblyopia followed exposure to the fumes of wood alcohol for only one hour daily over a month's period. The findings of Loewy and von der Heide[8] that as small an amount of methyl alcohol as 0.2 per cent. in the inspired air may lead to absorption in the body in not inconsiderable quantities indicates the possible danger that exists in even a moderate exposure to the poison.

In a report relative to the possibility of poisoning taking place when the proportion of methyl alcohol is as small as 4 per cent., Dr. Alice Hamilton[9] quotes von Jaksch[10] to the effect that workers with denatured alcohol have shown symptoms of wood alcohol poisoning; Kobert,[11] who says that the disturbances of health complained of by these workmen are to be attributed in part to the piridin bases used in denaturing, and in part to the wood alcohol, and Goldsmith,[12] who agrees with Kobert, and who states that there was so much ill health and discomfort complained of by the men working with denatured alcohol that the workers sent petitions to the Reichstag, in consequence of which an inquiry was ordered.

Lewy[13] reports that for the time during which in Austria denaturing was done by means of a 2 per cent. admixture of wood alcohol and 0.5 per cent. piridin bases (the present U. S. Internal Revenue Formula 2), there were so many reports of sickness caused by the use of alcohol so denatured that the ministry undertook an investigation in Bohemia, where many of the Austrian industries are located. The report emphasized the fact that wood alcohol was being used as the denaturant in place of pure methyl alcohol, and that wood spirit contains large quantities of acetone, aldehyd, allyl alcohol, methyl acetate, and other volatile compounds, all of which are toxic in a higher or lesser degree; but the report admitted that the effect of methyl alcohol was undoubtedly the principal one. There were at that time a number of cases of amblyopia among the Bohemian workmen who had been using denatured alcohol.[14]

The U. S. Internal Revenue regulations prescribe two general formulas for denaturing: the one, as mentioned above, a trifle less than 2 per cent. wood alcohol, while Formula 1 provides for 10 parts of this spirit and 1 part of benzene to 100 parts of ethyl alcohol, each by volume—a mixture which, though suggested by no less authority than Dr. Wood,[15] would seem from the Austrian account to be fairly dangerous. It has also been set forth as an argument in favor of the use of wood alcohol as a denaturant that a 10 per cent. "methylated spirit" has for a long time been used in Great Britain, and that no case of amaurosis has been reported from its industrial use. I spent part of my apprenticeship in the English clinics, and again more recently was relief house surgeon at Moorefields. The vast majority of British workmen who live in or near the large centers go to the hospital clinics for their eye treatments; the clinics are usually crowded; the time for investigation is limited, nor is it common practice to follow the dubious case back to the home or workshop. It was found in reviewing the histories of 300 optic atrophy cases—an opportunity afforded through the courtesy of some of the Moorefield staff—that even when the aids of Wassermann, Roentgen and Onodi had been taken advantage of, 15 per cent. of the optic nerve degenerations remained unexplained.

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14. Horbaczewski: The Damage to Health from the Industrial Employment of Alcohol Denatured with Wood Spirit, Das Oesterreichische Sanitätswesen, 1911, **23**, 69, referred to by Hamilton (Footnote 9).
15. Wood, C. A.: Death and Blindness from Methyl or Wood Alcohol Poisoning, The Journal A. M. A., Nov. 30, 1912, p. 1962.

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**Child Welfare Legislation in 1916-1917.**—According to the Thirteenth Annual Report of the National Child Labor Committee, both good and bad legislation for child welfare was enacted during the years named. Among the states which weakened their child labor laws were Connecticut, Massachusetts, New Hampshire and Vermont, authority being given to some official to relax the enforcement of these laws during the war. New York and California gave authority to relax their compulsory education laws. Eleven states strengthened their child labor laws. Among them were Delaware, Illinois, Kansas and Texas, where new laws were enacted, and Wisconsin, which added domestic service to the list of occupations for which work permits are required. Compulsory education laws were improved in six states, and mothers' pension laws were enacted for the first time in Arkansas, Delaware, Maine and Texas, and amended in ten other states. There are now thirty-four states which have mothers' pension laws.

# THE VENEREAL DISEASE PROBLEM IN CALIFORNIA

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California was one of the first states to make an organized effort to put into effect the program proposed by the War Department and Surgeon-General's Office to combat venereal diseases. It was initiated by the organization of a bureau of venereal diseases under the state board of health. As it is believed that the program adopted for carrying on the work is one of the most rational proposed by any state up to the present, it seems desirable at this time to publish some of the details of the work that those interested in other states may benefit.[1]

The bureau as organized has a director, two sanitarians, and a social service director. The director and sanitarians are physicians. Immediately after the organization of the bureau, the state board of health passed a regulation making all local and county health officers inspectors under the state board. This gave a very efficient state-wide organization, which at once became available to promote the work of the bureau in all communities.

## Outline of the Work

The work proposed and thus far carried out can perhaps be most intelligently described by a consideration of each item of the program.

### DIRECT CONTROL

1. To secure the reporting of cases of syphilis and gonococcus infection, together with the probable sources of infection, by physicians and by the medical officers of the Army and Navy.

California already had a law requiring the reporting of syphilis and gonorrhea, but since this work has started, reporting has been so stimulated that reports[2] of these diseases now outnumber all other diseases except tuberculosis.

Arrangements were made for the medical officers of the Army and Navy to inquire into and report all sources of infection with as definite data as possible concerning the name and location of the infecting party. These reports are made daily to the local health officer, who in turn gives the information to the police that the woman, usually a prostitute, may at once be apprehended, examined, and isolated for treatment. In recently checking up this work, the bureau found that out of seventeen reports for San Francisco with definite data, seven women had been placed under treatment in the isolation ward of the hospital.

2. To investigate, with the assistance of local officials, any suspected foci of infection, and to isolate infectious persons whenever it is necessary to prevent their spreading disease.

It is expected that clinics or private physicians may report sources of infection or patients whose conduct they cannot control, and in this event the bureau, through the medium of its sanitarian, will investigate and take the necessary action to isolate such persons.

3. With the cooperation of cities and counties to care for the men and women isolated on account of venereal disease in public isolation hospitals until the patients are no longer infectious.

At present there are available thirty beds in the San Francisco hospital for isolation cases. In Los Angeles the city council has approved a plan and appropriated $25,000, which will make fifty beds available for isolation purposes. This includes also a further extension of the night clinic already in operation under the city board of health.

In San Diego, $10,000 has been secured to build an isolation hospital providing for fifty beds.

These facilities have been secured by the active cooperation of the bureau with the local health officers, Dr. Hassler, Dr. Powers and Dr. Crawford, and the city officials in providing the funds necessary. Many smaller communities throughout the state also have made provision where necessary.

It should be remembered that it is quite impossible in most cases to keep these patients in the hospital a sufficient length of time to complete their cure; therefore it is necessary to arrange for ambulatory treatment, and rules[3] and regulations concerning their control and discharge.

4. As far as possible to secure the medical examination for venereal diseases of male and female prisoners and other appropriate groups, and to provide for their isolation and treatment so that they will not spread disease when released.

The bureau has been attempting to make a survey of the various institutions of the state, and hopes shortly to stimulate better and more thorough work where indicated.

5. Through the operation of this plan to prevent the heretofore common evil of one community "passing on" to another its undesirables, thereby multiplying foci of infection.

It has been a common practice, especially in the smaller communities, to give public women when arrested twenty-four hours to get out of town; now it is proposed that such patients be first examined, and if found diseased, placed under treatment. This plan is now being followed by practically all cities in the state through cooperation of local judges and health officers.

6. To focus on this subject the social forces necessary to give former prostitutes, after they have been put into good physical condition, an opportunity to enter into productive occupations under conditions fair to themselves and to the community.

This campaign against venereal disease must include as well a campaign against the business of prostitution, and there must be no winking—no decent community is going to support with its public opinion anything that savors of regulation in any sense of the word. It must be a campaign aimed at removing the prostitute and placing her where she belongs, be that jail, institution, reformatory or home; but as the first step in this work, we must realize that, practically speaking every one of these women has syphilis, gonorrhea or both, and proper isolation and treatment are necessary. She must be mentally examined and permanently confined if found deficient. Social workers must have opportunity to study and investigate her story, and give her a chance under probation if such is indicated. Realizing that few of these women will voluntarily remain under treatment a sufficient length of time to bring about a cure, they must be kept under strict health regulations, perhaps with authority from the court.

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[1] Copies of the program, rules and regulations, etc., will be furnished by the Bureau of Venereal Diseases, 512 Underwood Building, San Francisco.

[2] For the month of September, 1917, 311 cases of gonorrhea and 142 cases of syphilis were reported.

[3] Dr. Hassler, health officer for the city and county of San Francisco, has printed rules and regulations.

It cannot be too strongly emphasized that there must be a social service director in connection with this work. Public opinion demands it, and will support much of the program that it is not interested in on account of it. The need[4] of women's courts, women probation officers, detention homes, and industrial farms for women is going to be brought home to every community in which this work is carried on.

### PUBLIC OPPORTUNITIES FOR DIAGNOSIS AND TREATMENT

1. To investigate all clinics or hospitals treating venereal diseases, and to bring into existence adequate day and evening clinics and opportunities for hospital treatment for syphilis and gonorrhea.

It is well known that few public hospitals throughout the country admit venereal diseases as such, and it is equally well known to many that they have numbers of such cases in their wards in spite of themselves. Every effort is being made to urge these hospitals to arrange for a department of venereal diseases, and to admit these patients under the same conditions that govern other diseases. This means not only a sufficient number of beds for both male and female patients, but also the organization of a competent staff under whom the best of treatment may be carried out. Patients admitted for other diseases and found to have gonorrhea or syphilis should also be placed under treatment and urged by the social service department to follow up this treatment after leaving the hospital. Most venereal disease patients are best treated in the outpatient service, and in many cities facilities for such treatment are entirely lacking or at best inadequate. So long as this campaign is a matter of public health, it seems logical that when other opportunities are lacking, local health departments should be urged to inaugurate a dispensary service. A night clinic is especially desirable; and since it serves for the most part patients who are at work, it may be a pay clinic, such as the Boston City Dispensary or the Brooklyn Hospital Dispensary; or it may be a free clinic also conducted by the board of health.

It has been proved that the bureau can be of a great deal of benefit in securing financial assistance for such hospitals and clinics; and owing to the fact that its staff is trained in venereal diseases, it can also be of considerable assistance in organizing the work. Too much emphasis cannot be placed on the benefits to be obtained by making it easy for people to get treated.

2. To make a list of accredited clinics in which venereal diseases are treated, accrediting only those which reach high standards in staffs, equipment and results.

It is quite as necessary that clinics be good as well as sufficient in number. It is unfortunately true that even many clinics run by our universities are wofully poor. About two years ago, I investigated clinics treating syphilis in ten Class A colleges, and embodied a report of this work in a paper[5] presented in 1916. Not 50 per cent. of these clinics would come up to the standards suggested by the New York City Board of Health, or to those adopted recently by this bureau. Since that publication many clinics have improved; there, are, however, many clinics throughout the country which are taking care of very few patients, when improvement in their staff, equipment and social service work would increase their value tenfold. This may be illustrated by my experience at my clinic at the University of Minnesota. By bringing the clinic up to a recognized standard, the daily number of cases of syphilis were increased in one and one-half years from eight or ten daily to as high as sixty-seven—out of all proportion to the increase in the dispensary as a whole. It is obvious, then, that having more clinics and having them better will result in getting many more cases correctly diagnosed and well treated.

3. To purchase and issue, without charge, to approved public hospitals and clinics, salvarsan or approved substitutes, for use in making cases of syphilis noninfectious in the shortest possible time.

One big problem in adequately treating patients with syphilis has been the securing of salvarsan or equivalents. Out of the budget for the bureau it is estimated that $10,000 will be used in supplying salvarsan. In order to stimulate efficiency in the clinics, this salvarsan will be supplied only to those clinics which meet with the bureau's approval, or to health officers for cases isolated under their orders.

The realization on the part of public officials that paresis[6] can be prevented by adequate early treatment, and their enlightenment on what these patients cost the community a year for asylums, ought to make it easy to secure public funds for salvarsan.

In order that this salvarsan might be immediately available for patients needing it, the bureau temporarily accredited a number of clinics which seemed certain within a short time to be approved. This time has been set as January 1, and before that date the bureau will investigate these as well as all other clinics applying, and will finally approve only those that actually come up to its standards.

4. To arrange with city laboratories to give free diagnostic tests for syphilis and gonococcus infections, and to encourage the more general use of the free Wassermann tests and other tests available at the bureau of communicable diseases.

The state board of health has for some time offered free Wassermann tests at its laboratory maintained under the bureau of communicable diseases. Since the work of this bureau was started, several cities have arranged to furnish this service. It has been very hard for the Army and Navy to supply necessary laboratory facilities, and many Army and Navy officials have appreciated our offering them the bureau for this service. By having this service at its command, the bureau has arranged to have Wassermann surveys made at several of the smaller stations. These statistics should prove very valuable both to the Army and to the Navy and to all interested in the problem of venereal diseases.

### EDUCATIONAL

1. To issue printed pamphlets, cards and placards of information relative to the prevention of venereal disease, and to cooperate with the Army and Navy and other agencies in giving talks to appropriate groups.

The state board of health, before the existence of the bureau, placed many placards regarding venereal diseases in public toilets, etc., and also printed and distributed small cards containing information for persons afflicted. Two new pamphlets have been written and will be distributed by the bureau. One, on the modern treatment of syphilis,[7] for distribution to the medical profession, is intended to answer the question as to what is adequate treatment for syphilis. The other is a pamphlet to be distributed to patients by clinics and private practitioners; it contains much interesting information regarding syphilis and gonorrhea, and directions to the patient. At the bureau's suggestion, the state board of health has passed a regulation requiring that this or other approved literature be given to every patient infected with syphilis or gonorrhea.

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[4] For those interested, "The Slavery of Prostitution," by Maud Miner, is suggested.

[5] Irvine, H. G.: Notes on the Teaching and Treatment of Syphilis, The Journal A. M. A., Dec. 30, 1916, p. 1987.

[6] California spent over $160,000 in 1916 to care for general paretics in asylums.

Duplicate sets of lantern slides on venereal diseases and social hygiene have been secured through the American Social Hygiene Association. These will be lent to the various military and naval stations in the state, or to any civilian organization that wishes them. It is also proposed that the bureau pay the traveling expenses of volunteer lecturers when it seems desirable. The medical staff of the bureau is expected, of course, to be doing educational work all the time with both the profession and the laity.

2. To cooperate with the Military Welfare Commission in the suppression of prostitution as the principal source of venereal diseases, but avoiding confusion of the campaign against venereal diseases with the movement against vice as a strictly moral issue.

3. To oppose any local plan for licensing prostitution or issuing certificates of health to prostitutes, by showing that this is in conflict with modern methods of control of venereal diseases, and to substitute the above program, which is entirely consistent with the suppression of prostitution.

Liquor, prostitution and venereal diseases are so inseparably bound together that these two paragraphs may well be considered together.

The situation in California has been particularly opportune in that Mr. French, the executive secretary of the California Military Welfare Commission, is also the local representative of the Fosdick commission. The cooperation of Mr. French and the director of the bureau has accomplished much more than either could have alone. I wish to emphasize this fact, because it would seem to be a very valuable suggestion for those organizing this work in other states.

To my notion, law enforcement in regard to liquor and repression of prostitution has the greatest effect on reducing venereal disease of anything that can be done quickly. Just the minute public officials, such as police, police court judges and the district attorney, see fit to cooperate and determine to enforce these laws, the number of daily exposures will at least be cut in two, and this must at once have its effect on disease.

There are unfortunately still many medical men who do not seem to realize that every prostitute is a disease carrier, that they all have syphilis, gonorrhea, or both, and because of this lack of knowledge, still hold to the licensed prostitute and the segregated district. These men, and I have met many, ought to learn that license never included over 10 per cent. of the prostitutes, nor did any segregated district ever house more than 10 per cent. of those known to the police as plying their business in the community.

The plan proposed by Mr. French and myself, and already in effect in San Francisco, Los Angeles, San Diego and a few smaller communities throughout the state, is as follows: All women arrested as prostitutes or vagrants are given jail sentences of from thirty to 180 days if found guilty. Before sentence is imposed, a very careful examination is made by a well trained gynecologist to see if there is clinical or microscopic evidence of gonorrhea, and a Wassermann test is made in every case. If disease is found, the case is continued and the patient sent to the hospital for treatment. If no evidence of disease is found, sentence is imposed unless the woman probation officer, who has meanwhile investigated the case, recommends the woman be placed in her charge to be given work, housed, or returned to her home. In the case of women going to the hospital, they are returned to the court at once after their treatment and handled just as those not diseased, except that arrangements are made to continue their treatment as ambulatory cases when necessary. Any woman placed on probation and caught violating any rules laid down for her is summarily given a six months' jail sentence. Arrangements are also made to have mental tests given in order that proper institutional care may be recommended when necessary. Men exploiters are to be handled the same as the women.

It will readily be seen that this is in no sense a plan to make prostitution safe, but rather a rational plan to withdraw permanently every prostitute possible from the market; the medical treatment is but the first step in rehabilitation. The social service work in connection with this plan is directed and coordinated by the bureau through its social service department. The medical examinations and treatment are under the local board of health.

To show how this works out, I will quote from a report of Judge Oppenheim,[8] who had charge of the Women's Court in San Francisco for the month of November. Out of 156 women brought before the court, fifty have been placed on probation, and are at work under the supervision of the probation officer. Thirty have returned to husbands or relatives; these also are on probation. Twenty have been returned to relatives outside the city. The other fifty-six are in jail or the hospital with their cases not finally disposed of.

## CONCLUSION

Several points should be emphasized. Such a bureau is perhaps the most logical organization to carry on this work. Its director should be a man specially trained in venereal disease work, he should have enthusiasm for public health work, and he should have some knowledge of administration. A social service department is an exceedingly important part of the organization. The work should be done under the state board of health in order that it may have the authority and organization of this board at its command.

In connection with the war work it is highly important that this bureau and the work of the Fosdick commission be in closest cooperation.

A great deal of credit should be given to the men who drew up this program, and to Dr. W. A. Sawyer, secretary of the California State Board of Health, who initiated the work and who has been of great assistance to me since I have been director.

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[7] Copies of these pamphlets may be had by writing the Bureau of Venereal Diseases.

[8] San Francisco Examiner, Dec. 2, 1917.

# RAPID METHOD FOR IDENTIFICATION AND ISOLATION OF MENINGOCOCCI FROM THE NASOPHARYNX *

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There is no subject in practical bacteriology being more actively pursued than that of the identification of the meningococcus in plate cultures prepared from the nasopharyngeal mucous membrane. This situation has been brought about through the assembling of the National Army and the National Guard, and the appearance of epidemic meningitis and meningococcus carriers in some of the Army camps. Since the detection and the segregation of the carriers constitute one measure of control of the disease, it is in the highest degree important to reduce to the minimum the time and work incident to their discovery. In this way the separation of the men from their commands is reduced, and the work of the hospital laboratories lightened. The method given here is offered as serving to save time by simplifying the identification of meningococci in mixed cultures in Petri plates. The method proposed employs a fluid medium which serves to eliminate other organisms resembling the meningococcus in about twelve hours and to reduce the full time required to identify the latter by at least one day.

## METHOD

To 1 per cent. glucose broth (made from veal infusion and having an acidity of from 0.5 to 0.7 + phenolphthalein) is added 5 per cent. of unheated, sterile, clear normal horse serum. This medium is then distributed in small tubes (from 8 to 10 mm. diameter, and 9 cm. length), 1 c.c. being placed in each tube.

Suspicious colonies on the plate cultures are fished and seeded, a colony to each tube.

These small tubes are then incubated twelve hours (or overnight, if more convenient). At the expiration of this time, they will show the distinctive characters of the organism in question, and at this early period "negatives" may be determined.

The bacteria that complicate the isolation and identification of the meningococcus on plate culture are the *Micrococcus flavus, crassus, pharyngis-siccus* and *catarrhalis;* the *B. influenzae,* and an unclassified gram-positive bacillus; and occasionally, in the hands of beginners, the staphylococci and streptococci.

Owing to the presence of normal horse serum in the medium, practically a normal horse serum control is at hand, so that the *M. flavus, crassus* and *pharyngis-siccus,* and the unclassified gram-positive bacillus will show firm agglutination. While the bacillus culture may show slight turbidity over an agglutinated sediment, the diplococci cultures show clear supernatant fluid over agglutinated masses of those organisms. As hemoglobin is absent, *B. influenzae* fails to grow. *M. catarrhalis* grows with a dense turbidity, and often shows a pellicle on the surface. The gram-positive staphylococci grow also with a dense turbidity, and show agglutinated masses in the sediment and often a surface pellicle as well. The streptococci grow with clear or turbid supernatant fluid, but show an agglutinated sediment.

The meningococci, on the other hand, grow in a characteristic manner. The fluid becomes faintly turbid, and a slight sediment forms; but, and this is all important, the sediment emulsifies uniformly when the tube is shaken.

The cultures in the fluid medium are divided into two sets by simple inspection. One set is readily excluded from being meningococci on the basis of the characters described above. The other set, which exhibits the qualities of the growth of the meningococcus, is regarded as suspicious, and to each of the tubes is added 0.1 c.c. of a 1 : 10 dilution in 0.85 per cent. saline solution of a high-titer polyvalent antimeningococcic serum. The tubes are then incubated in a water-bath (not in an incubator) at from 37 to 38 C. for two hours.

The reading of the tubes is definite and distinct. Those containing meningococci exhibit distinct agglutination; those containing other organisms remain unchanged. The readings are checked by means of films stained by Gram's method. All the tubes recorded as positive will show agglutinated masses of gram-negative diplococci of typical meningococcus morphology.

From the tubes containing the agglutinated meningococci, transplants on solid mediums may be prepared for further identification or for stock cultures. The last procedure is not necessary in order to detect or exclude the suspected meningococcus carriers.

## ADVANTAGES OF THE METHOD

1. The sparing of culture medium: hence more colonies from a given plate will or may be investigated.

2. The rapid growth of organisms in the small volume of medium, thus permitting the discrimination of negative and suspicious growth in about twelve hours.

3. The use of normal horse serum for enriching the medium and for the elimination of a variety of gram-negative micrococci that are subject to nonspecific agglutination. Among the latter is especially *M. flavus.*

4. The sharpness and rapidity of the reaction of agglutination produced by the polyvalent antimeningococcic serum with the meningococcus at the temperature of from 37 to 38 C. The substitution of a water-bath of that temperature for the thermostat at 55 C., as employed in the usual agglutination tests with meningococci, is a great simplification, especially under conditions of Army work.

5. The simultaneous yielding of pure cultures of meningococcus for stock or further study, provided all the steps have been conducted in a strictly sterile manner.

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**Earnings and Infant Mortality.**—That the chance of life of the baby grows appallingly less as the father's earnings grow smaller is shown by the combined results of the bureau's studies of infant mortality among 13,000 babies in eight American cities—Johnstown, Pa.; Montclair, N. J.; Manchester, N. H.; Brockton, Mass.; Saginaw, Mich.; New Bedford, Mass.; Waterbury, Conn., and Akron, Ohio. One fourth of all the fathers earned less than $550 a year; in these families every sixth baby died. Only about an eighth of the fathers earned $1,050 or more; of their babies only one in sixteen died. The rise of prices and the disorganization of social and industrial life with the war accentuate the importance of this persistent relation of income to infant mortality. —*Bulletin,* Children's Bureau.

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* From the Laboratories of the Rockefeller Institute for Medical Research.

# *Clinical Notes, Suggestions, and New Instruments*

## AN IMPROVEMENT ON THE BANGS SOUND SYRINGE

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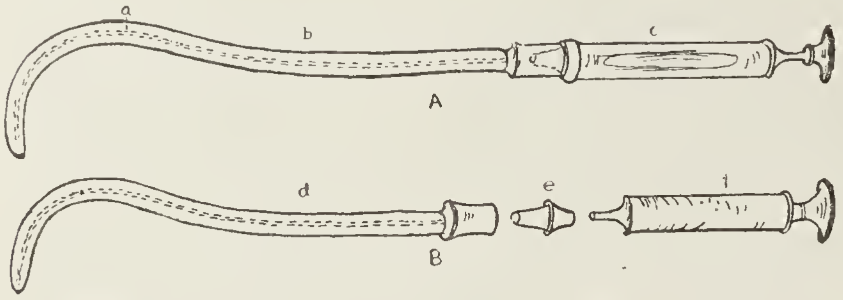
The Bangs sound syringe is practically a combination of sound and syringe. It consists of a series of sounds through the center of which is bored a small tunnel, just large enough to hold about 20 minims. The end is so constructed that the universal syringe can be applied to any of the sounds.

The instrument would be ideal were it not for the fact that the syringe has the old fashioned leather packing, which must be renewed every few months.



*A*, Bangs' sound syringe: *a*, inner tunnel; *b*, sound; *c*, Bangs' syringe. *B*, modification whereby Bangs' sound (*d*), through the medium of the adapter (*c*), may be used with a Lüer syringe (*f*).

To avoid this, I have devised an adapter which fits into any of the sounds, but the other end of which is so shaped as to fit into any size Lüer all glass syringe. With this adapter it is possible to use the Bangs sound with a Lüer syringe.

It would be well if in future the end of the sounds would be shaped like the adapter here presented, so that they may be used directly with the Lüer syringe. Since, however, most genito-urinary specialists are at present in all probability in possession of a series of Bangs' sounds, which it would be unwise to discard, the adapter, which is inexpensive, will be found very useful, particularly as only one adapter is necessary for all the sounds, irrespective of size.

320 Central Park West.

## REPORT OF A CASE OF SYPHILIS OF THE BLADDER

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July 23, 1916, I was called in consultation by Dr. Chett McDonald to see a man, aged 23, who complained of very frequent and painful urination, with much tenesmus. He gave a history of venereal sore, diagnosed chancroid, two years before, and gonorrheal infection of the urethra beginning a year later and persisting to the date of consultation. He had been in the Navy and had been sent to the hospital at Great Lakes. He stated that he had had two negative Wassermann tests and had been under treatment while there, and later at Bremerton, Wash., with sounds, irrigations of permanganate, and instillations of silver nitrate. He had obtained his discharge from the Navy, and was at the home of his parents.

There was a scar of the glans where the chancroid had been. There was a slight purulent discharge from the urethra, and urination was followed by a mucous discharge at the end of the act. The frequency was from about every half hour to one hour day and night. The prostate was not enlarged, but was fixed, indurated, and quite tender to palpation.

The patient was given sitz baths, forced water and hexamethylenamin, in combination with uva ursi and triticum. Irrigations were attempted, but were too painful. The strangury increased until it was practically continuous. At times while the patient was straining, the rectum would prolapse, and protrude for 4 inches or more.

He was taken to the hospital, August 28, and examined by cystoscope under ether anesthesia. Only 1 ounce of fluid could be introduced into the bladder. All that could be made out by cystoscopy were some papillomatous masses at the vesical margin, some of them protruding down into the prostatic urethra. The bladder mucosa was intensely congested and bled easily, thus preventing further examination.

August 29 I opened the bladder suprapubically under ether, and found its mucosa studded, especially at the base, with condyloma-like nodules, apparently deeply involving the bladder wall. There were forty or more of such nodules, and some of them, especially those near the meatus internus, were long, some as much as half an inch in length. The bladder was curetted with a sharp curet, and as many as possible of the nodules destroyed. The tissue thus removed was submitted to Dr. William K. Trimble, sections cut, and a diagnosis of syphilitic condyloma made. A Wassermann blood test done by him on the following day was strongly positive.

The patient was immediately put on intramuscular injections of mercuric salicylate. He complained of the pain of the injections, and was changed to the internal treatment (mercuric chlorid, 1 grain; potassium iodid, 1 dram; essence of pepsin, 1 ounce, from half a teaspoonful to a teaspoonful in half a glass of water after meals).

The suprapubic drainage tube was removed, September 10; the wound was clean and the patient much benefited by the improved sleep and rest.

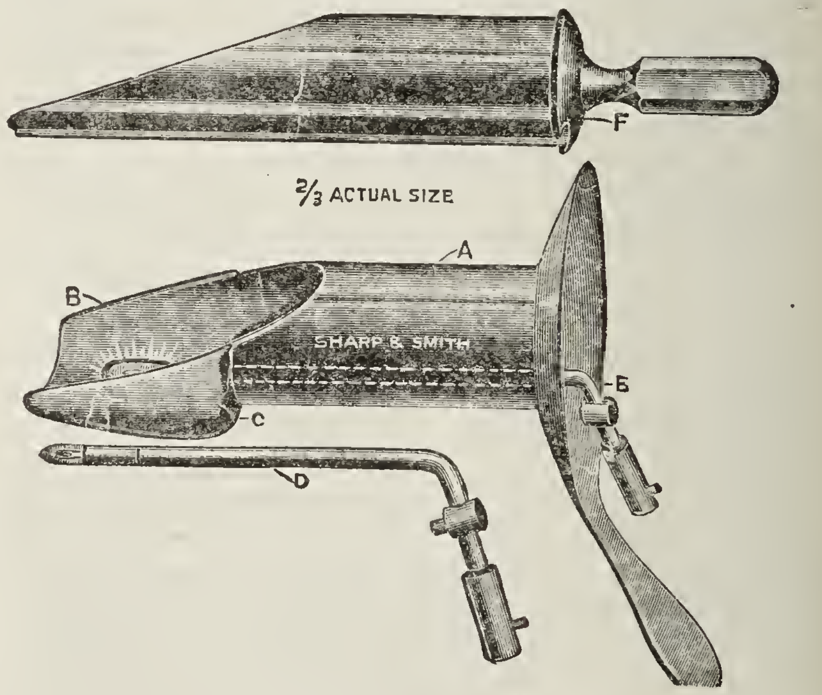
September 19, the wound had closed, but irrigations of 1 per cent. phenol (carbolic acid) solution, followed by boric acid solution, were kept up until Oct. 1, 1916.

Improvement was rapid under the mixed treatment. The bladder capacity improved until in three months or less he could go all night without arising. The urine gradually cleared up. He is now back in the Navy.

## SELF-RETAINING ANOSCOPE

J. Rawson Pennington, M.D., Chicago

If there is any one point in the region of the anus, rectum and sigmoid that is of more clinical importance than another, it is the anal canal. Yet, since the description of my inflatable rectal speculum (pneumatic proctoscope) was published,[1] in 1899, most of the inventive genius has been exerted toward improving that instrument rather than the anoscope.



Self-retaining anoscope.

Of the diseases that occur in these organs, 75 per cent. or more involve this canal, and practically all of them are infective. Because of the functions of the muscles that encircle and close this canal, a satisfactory inspection of the field, and the administration of treatment thereto is very difficult with the ordinary anoscope, which is usually conical and not self-retaining.

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[1] Pennington, J. R.: Inflating Rectal Specula, The Journal A. M. A., Sept. 30, 1899, p. 871.

Numerous instruments have been designed to aid in inspecting this canal, but none are satisfactory. The anoscope illustrated herewith is self-retaining, and gives a more complete and satisfactory view of this field than any other anoscope of which I have knowledge. It consists of a tubular instrument (*A*), with the distal end cut off on the slant (*B*), which increases the field of inspection; a bulbous enlargement (*C*) on the reverse side by which it is retained in position; an adjustable electric light (*D*) ensconced in a groove (*E*) which can be readily cleaned, and which greatly lessens the danger of breaking the lamp; and an obturator (*F*).

The instrument is introduced in the same manner as any other anoscope or rectal speculum. Since its introduction carries or pushes the pectinate line and the anal skin with it to a certain extent, it is well before removing the obturator to grasp each buttock with the full hand and pull it out, so as to bring the field into closer view.

As a rule, the left lateral or Sims position, with the hips slightly elevated, is the best posture for anoscopy. To inspect the different fields, one can withdraw and reintroduce the instrument, or may reintroduce the obturator without withdrawing the instrument, when the anoscope can be easily turned to any position desired, and the obturator again withdrawn. This procedure may be repeated as often as is necessary.

31 North State Street.

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## TWO ACCIDENTAL DEATHS FROM UNUSUAL PENETRATING WOUNDS

Edward H. Hatton, M.D., Chicago
Coroner's Physician, Cook County, Ill.

Death as the result of either external or internal hemorrhage is a rather common accident. Occasionally these accidents are associated with unusual features which justify reporting.

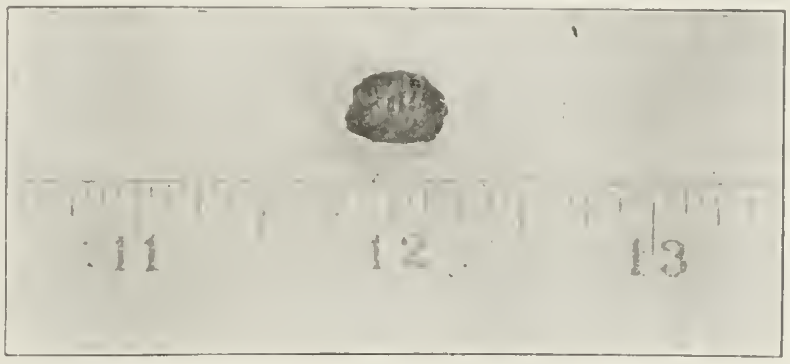
Case 1.—A section hand employed driving spikes with a large steel hammer was struck on the left side of the neck by a steel fragment from the hammer he was using. There was some hemorrhage from the external wound, but more blood was coughed up, apparently from the air passages. The man was put into an ambulance and hurried to the nearest hospital, but died before it was reached, twenty minutes after the accident occurred.

At the necropsy there was found a shallow incised wound just over the lower border of the mandible on the left side, five-eighths inch long, and a smaller wound five-eighths inch to the left of the midline and one-half inch below the prominence of the thyroid cartilage. The course of the steel fragment was traced through the subcutaneous tissues, the superficial anterior cervical muscles just below the thyroid gland, and just anterior to the trachea into a deep pocket between the trachea and the common carotid artery on the right side. Both the common carotid and the trachea were ruptured, and these defects actually faced each other, so that the hemorrhage was for the most part directly into the trachea. The opening through the muscles to the superficial part of the wound was obstructed by a valvelike action of the torn muscles. The tissues of the anterior cervical region were infiltrated with blood under considerable pressure. The lungs were edematous, and the air passages contained much blood.

The steel fragment recovered was nearly oval. Its diameters were three-eights and five-sixteenths inch. Its thickness was one-eighth inch, and the edges were quite sharp and shaped like those of a knife. It weighed 9 grains.

Case 2.—A boy, aged 11 years, unaware of its existence, crashed through a plate glass door. This doorway was an entry at the foot of a short flight of stairs, and the door frame without the glass had been installed for some time. Residents of the building had acquired the habit of passing through the frame rather than opening the door. The plate glass was installed and was without placard or any other device to call attention to the change, and it was soon after this that the victim of the accident plunged into the door with all the momentum gained by running down the stairs to which this door led.

The clothing at the level of the waist in front was blood soaked and contained many fragments of glass. There were two puncture wounds at the lower costal border, each just large enough to admit the tip of my first finger. One was one-half inch to the right of the midline, the second 2½ inches to the left. The former was traced into the abdominal cavity and the liver. The wound in the liver was one-half inch in depth. The second wound continued upward into the thorax between the fifth and the sixth ribs. There were defects in both the pericardium and the left pleural cavity, and an incised wound of the apex of the heart penetrating both ventricles. It was three-fourths inch long. There was fluid and partly clotted blood in the pericardial and left pleural cavities, and a comparatively small amount in the abdominal cavity. There was marked anemia of all organs and tissues.



Steel fragment, actual size, recovered in Case 1

Immediately after the accident, those near at hand were attracted by the boy's loud cries, and it appears that he lived for about five minutes after the accident.

6032 Stony Island Avenue.

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## SERIOUS RESULTS FOLLOWING THE ADMINISTRATION OF NEODIARSENOL

Thomas W. Ross, M.D., Portland, Ore.

A soldier, aged 24, weighing 145 pounds, presented himself with a solitary ulcer of five days' duration, the exudate from which on examination by the India ink method revealed the *Spirochaeta pallida*. Neodiarsenol in a dose of 0.45 gm. in 10 c.c. of sterile distilled water was given intravenously in my office. It was noted that the powder was extremely slow in dissolving and that the resulting solution was mahogany colored.

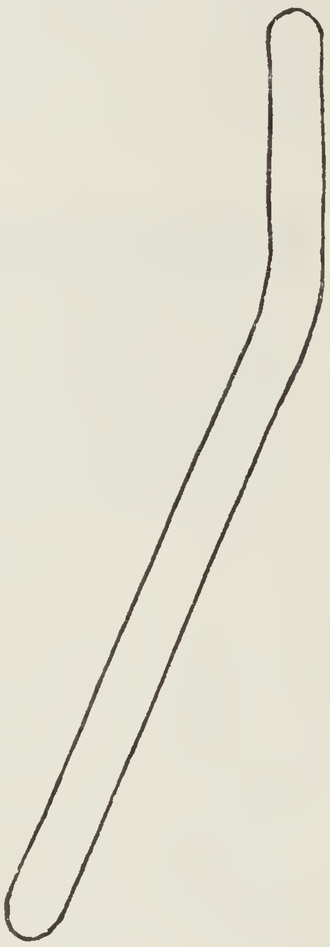
Immediately after the administration, the patient complained of a choking sensation and intense pricking pains in the soles of the feet and palms of the hands which he described as being similar to the sensation of being beaten with a stiff bristle brush.

While I was searching for some epinephrin, the patient reeled out of the chair in which he had been sitting and fell prone on the floor, unconscious. He remained in this state for about two minutes, and then rolled on the floor in agony, complaining of pains in the abdomen which he afterward likened to being crushed in a vise. After about five minutes of this pain he vomited, not severely, following which he was able to speak. Two hours later in his room an alternate chill and fever reaction of a severe type began and kept up for the succeeding five hours, after which the patient gradually recovered from the untoward effects of the dose of neodiarsenol. Some days later he returned to my office and was given a dose of 0.3 gm. novarsenobenzol (Billon) without reaction.

## SIMPLE APPLIANCE FOR TRAINING INFANTS TO STOOL

Cary Eggleston, M.D., New York

It is the common practice for physicians and the "baby books" to recommend the training of infants to have regular movements of the bowels by the insertion into the anus of the end of an ordinary clinical thermometer, or by the use of small glycerin or soap suppositories. The use of suppositories is objectionable, owing to their expense and the possibility of irritating the delicate mucous membrane through their hygroscopic properties, when they have to be employed very frequently. The soap suppository is liable also to prove irritating if used often, and unless a fresh suppository is made for each occasion, the practice is unclean and not hygienic. The clinical thermometer is expensive; it is delicate and very likely to be broken, possibly within the anus; and, being straight, it is clumsy when the infant is made to sit up on a chair or chamber.



Appliance for training infants to stool.

These disadvantages of the usual methods led me to seek some other means for stimulating the desire to evacuate the rectum, and after a number of trials I have found a simple glass rod, suitably bent and rounded, to meet every requirement and to be free from the disadvantages of the other methods, as well as more convenient. The appearance of the rod is shown in the accompanying illustration. The dimensions are: diameter, 5 mm.; length of short arm, 3 cm.; length of long arm, or handle, 7 cm.

Preparatory to use, a small amount of plain petrolatum (liquid or solid) is applied to the short arm of the instrument as a lubricant, and this is then inserted into the anus to near the bend. When the infant is in the sitting position, the bend permits the rod to be inserted and held without striking the sides of the vessel.

412 West End Avenue.

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## AN ASSISTANCE TO THE STUDY OF TISSUES CONTAINING NERVES

Sydney M. Cone, M.D., Baltimore
Captain, M. R. C., U. S. Army
Liverpool, England

In my work at the Alder Hey Military Orthopaedic Hospital, Liverpool, the surgery of injuries to the peripheral nerves proved the most interesting and difficult in the service. Nerves partly torn, scraped or bruised, and some completely severed and lost in old scars have come into our hands for repair. I have had the use of the Thompson-Yates Laboratory, University of Liverpool, for the examinations in surgical pathology which were made of all the specimens from the large base orthopedic hospital controlled by Col. Sir Robert Jones. Prof. Ernest Glynn, Captain, R. A. M. C. T., has been very kind in placing at my disposal every facility for the prosecution of my studies.

It will be three months before my final report will be in Col. Sir Robert Jones' hands; but I should like to make a few statements for the use of others working along these lines. They may also be of assistance to those interested in surgical pathology and neurology.

The finer histologic study of nerves calls for unusually careful and difficult technic, making the examination of tissues en masse a laborious procedure. I found this to be the case until the special method to be described was determined on after the use of more than twenty-five stains. Nerves were hardened in various ways. They were studied fresh, mounted in glycerin. Bielschowsky's axis cylinder stain, which takes a great deal of time and trouble and then shows only the axis cylinder, had to be depended on as my control.

With my new stain—carbolfuchsin-osmic acid-safranin—all trouble has disappeared. In twenty minutes the specimens may be so prepared that from the point of view of surgical pathology all ordinary questions within the range of the microscope can be satisfactorily answered.

The greatest difficulty in examining material from adherent, bulbous, torn nerves and surrounding tissues is to determine with surety whether or not nerves were present, and if so, in what stage of growth. It is also necessary to study the specimen with regard to progressive tissue changes and the vascular condition. We no longer have to use separate stains to study nerves, connective tissue and circulatory changes.

The nerves stain most prominently, striking the eye at once by their purple (some might call it blue-black) color with a central pink line indicating the axis cylinder. As a rule one is struck more sharply by the purple notched or capped appearance of the more fully grown nerves or the fine purple lines of the early narrow forming fibers. As these fibers increase in age, another striking appearance that meets the eye against a faint pink or unstained connective tissue field is a double purple line, more or less irregular, surrounding a pink, varicose, enlarging axis cylinder. In the bulbous ends, at the point of injury, and in the distal end where there is usually a great proliferation of neurilemma cells, the nuclei are prominently stained pink. In much of our material the infiltration with red blood cells and overgrowth by small blood vessels stands out in distinct relief by the brown color of the corpuscles. These are stained red if not sufficiently decolorized. The muscle appears red, and fat is unstained. The stain lends itself well to photomicrography, a green screen being interposed.

The method is quite simple: The specimen is hardened in 4 per cent. dilution of liquor formaldehydi for six days, carried through alcohols, and embedded in celloidin. Sections may be cut from 10 to 20 microns thick, preferably 10 microns. They are stained in carbolfuchsin fifteen minutes, washed rapidly, placed in 1 per cent. osmic acid five minutes, washed, placed in a 50 per cent. aqueous solution of safranin one minute, 1 per cent. acid alcohol one minute, 95 per cent. alcohol two minutes, absolute alcohol and oil of cloves, alternately until the sections appear deep pink and translucent. They are then placed in xylene two minutes, and mounted in Canada balsam.

Although paraffin sections sometimes stain fairly well, it is not safe, as the xylene used to remove the paraffin before staining interferes with this process. The formaldehyd hardening is essential for the success of the stain.

Alder Hey Military Orthopaedic Hospital.

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## CHEST ASPIRATIONS BY MEANS OF A SIMPLE SIPHONAGE DEVICE

Joseph Felsen, M.D., New York

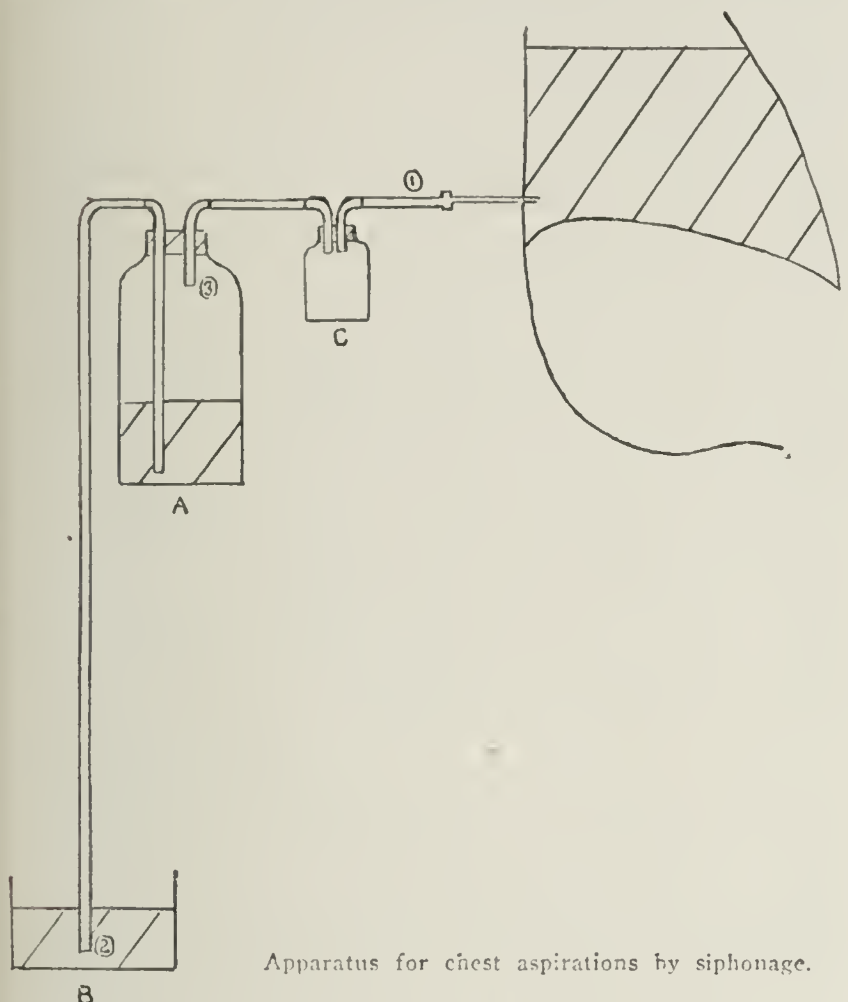
*A* is a bottle one-half or two thirds full of water and containing two glass tubes, one reaching beneath the surface of the water, the other short, inserted in a two-holed rubber stopper. To the short tube is attached rubber tubing (with a glass insert) connecting with the aspiration needle through specimen bottle *C*. To the long glass tube is attached a long piece of rubber tubing.

*B* is a glass vessel into which extends the long rubber tubing from vessel *A*.

*C* is a small specimen bottle interposed between the chest and *A* by means of glass connecting tubes.

The tube is clamped at 1. Then some fluid from bottle *A* is aspirated by mouth at 2, so that siphonage can be started into vessel *B*, which is situated at a lower level (for example, bottle *A* on a table, and vessel *B* on the floor).

As some of the fluid is exhausted from *A* by siphonage, a negative pressure results, sufficient to aspirate fluid through the needle into bottle *C*. Then the needle is inserted and the clamp removed from 1 and the aspiration is begun. Bottle *C*, and then *A* begin to fill with chest fluid, but simultaneously *A* is being emptied into *B* by siphonage. This will keep up until the fluid reached by the needle has been exhausted.



Apparatus for chest aspirations by siphonage.

Mount Sinai Hospital.

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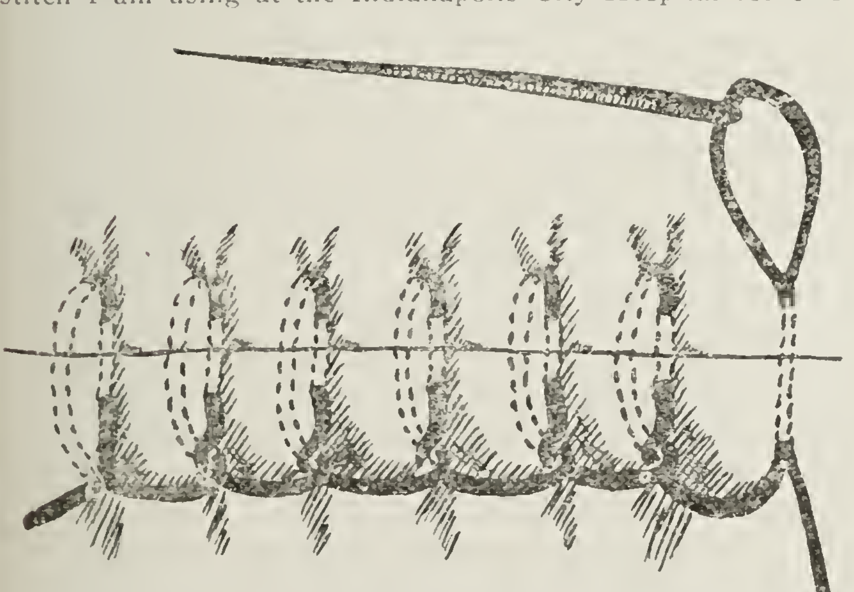
## STITCH FOR CLOSING SKIN WOUNDS

Fowler Roberts, B.S., M.D., Indianapolis
Resident Surgeon, Indianapolis City Hospital

So far as I have been able to learn, no description of a stitch I am using at the Indianapolis City Hospital for closing skin wounds has yet been published. It consists of a series of mattress-on-edge stitches, as in the accompanying illustration, made continuous by looping the suture as in a buttonhole stitch instead of tying as in the interrupted mattress-on-edge.



Stitch for closing skin wounds.

# *Military Medicine and Surgery*

## THE EXAMINATION OF REGISTRANTS

M. L. HARRIS, M.D.
Medical Member, District Appeal Board
CHICAGO

When the first draft started, it was entirely a new experience to the people of this country. The rules and regulations were so drawn as to place the carrying out of the provisions of the act in the hands of the people; in fact, the act itself forbade any one connected with the military establishment to have anything to do with the execution of the draft. The personnel of the boards, local and district, was made up of civilians, both lay and professional, none of whom had had any experience in the selection of men for the Army. Practically all of the members of the boards labored under the disadvantage of having no opportunity to acquaint themselves with the work to be done until they were appointed to the positions and ordered to proceed at once with the draft. It is no wonder, then, that things did not go at all times as smoothly as they should have gone; it is no wonder that there were differences of opinion and even a lack of harmony between the various boards, which a better understanding of the work to be done would have avoided. However, notwithstanding these facts, and in spite of the further facts that the law and the rules and regulations in many instances were vague and uncertain in their terms, the results in the main were quite satisfactory. Naturally we, as physicians, are most interested in the medical aspect, or the physical fitness or unfitness of those whom we were called on to examine. It should be understood that the question which the physician is to determine when a person presents himself for examination is not what ailment, if any, he may have, but whether he is fit or unfit to do military service. These are not necessarily synonymous, for there are certain ailments which a person may have and still be fit for military service; and, on the other hand, he may be unfit for service without there being any special physical disability. It is not always an easy matter to decide whether or not a certain condition really unfits one for service, nor are the rules and regulations definite and clear on the subject. Much is necessarily left to the judgment of the examining physician.

When physicians are taken from civil practice and asked to decide military questions, with which they have had no experience and for which they have had no time to prepare themselves, it is not surprising that a certain number of mistakes in judgment are made; the average physician is not an expert in all branches of medicine, and therefore he may fail to recognize a condition which, to another more experienced in that particular line, would be apparent. Again, it is not always an easy matter to detect malingering; and unless one is familiar with all the tricks and frauds to which some resort in order to escape military service, one will occasionally be deceived. There are still other points which should be taken into consideration; for instance, during the first draft many examinations had to be made very hurriedly on account of pressure of time; and perhaps overzealousness on the part of some examiners may have led to the acceptance of some risks that ought to have been rejected.

With all of these obstacles to contend against, it is not strange that quite a number of those passed by the first examiners had to be thrown out on appeal; or, when no appeal was taken, were returned from camp after having been sent down.

Being the only medical member of one of the district appeal boards of this city, it became my duty to reexamine many hundreds of registrants who appealed on physical grounds from the decisions of local boards. I was ably and unselfishly assisted in this work by an advisory medical board, consisting of Drs. George F. Fiske, Hugh T. Patrick, Coleman G. Buford, George F. Suker, John A. Graham, L. J. Pollock and George J. Aste. The cases examined were all appealed on physical grounds from the decisions of local boards. In the great majority of the cases the findings of the local board were before us. The method of procedure was as follows: With the registrant before us he was requested to state the grounds of his appeal, which statement was taken down in shorthand. He was then examined as to all the points made in his statement. As a matter of economy of time and labor, it was found to be very desirable to limit the examination to the complaints made by the registrant. As will be shown later, no injustice was done the individual or the government by thus limiting the examination, but the saving of time and labor was very great. Of course, when conditions were discovered during the examination which were not known, or at least not complained of, by the registrant, they were noted, but no uniform attempt was made to investigate conditions not brought out by the statements of the registrants.

### THE QUESTION OF CONDITIONS THAT DISQUALIFY

When the registrant alleged more than one ailment, which was very common, he was examined first for the most important one from a disqualifying sense. For instance, one might complain of bad eyes, trouble with his stomach, and rheumatism. The eyes would be examined first, and if the vision was found to be so defective as positively to disqualify the man, no time was spent in investigating his other complaints. It should be understood that the purpose of the examination is to determine the fitness or unfitness of the registrant for military service, not to make a complete clinical diagnosis such as one would do in practice. Hence, just as soon as a condition is found which under the rules and regulations positively disqualifies the man for military service, the examination need not be further extended. This, of course, applies to examinations on appeal, as it is necessary in all cases for the local board to make a complete examination and fill out a blank form as required by the rules and regulations.

It is not always easy to decide in a given case whether or not the condition found is sufficient to disqualify. The rules laid down for the guidance of physicians are quite incomplete and often ambiguous, so that much is left to their unaided judgment; and as one may have had, perhaps, little or no previous experience in selecting men for the army, errors in judgment are not uncommon. A condition may disqualify in one individual and not in another. This is well shown in the matter of flatfoot. For instance, a great majority of the Jews that appealed to this board gave flatfoot as one of the grounds of physical unfitness, and on examination flatfoot in varying degree was found almost universally in these cases; yet no disability was shown to exist, for the history showed that the flatfoot had always been present and had never caused the individual to lose any time from his usual occupation; in fact, flatfoot in these Jews was so very common that the condition was the rule rather than the exception. Flatfoot is really a racial characteristic, and in these cases not a disqualifying condition.

The mere presence of a heart murmur does not in itself disqualify. There were a number of cases in which a slight murmur or abnormal sound could be heard over some part of the region of the heart. Some of these sounds would disappear when the person lay down; they were not aggravated by exercise; they occurred in persons who were otherwise well, and who gave no history of previous infectious disease, and in whom there was no other evidence of cardiac disturbance. These persons should not be exempted. However, no person should be accepted in whom there is evidence of valvular leakage or of cardiac enlargement, etc., whether or not compensation is present.

Many registrants claimed syphilis as a cause for exemption, and some brought certificates from laboratories showing a positive Wassermann reaction. Syphilis, however, is not a cause for exemption, unless it is present in an active state with positive lesions, and even then acceptance should be deferred only until the active lesions can be cured, which we know today requires only a comparatively short time. Likewise, gonorrhea in itself is not a cause for exemption. Unfortunately, a number of young men came before the appeal board with an acute gonorrhea, contracted for the occasion under the mistaken idea that gonorrhea was a cause for exemption. In this connection, I may be pardoned for digressing a moment to state that the risk of contracting venereal disease is much less in the Army than it is in civil life. Statistics show that the incidence of venereal infection is less in the Army than it is in the same class of young men in civil life. This is due to the fact that the protection of the soldier against venereal infection is made a matter of business, while in civil life the protection of the young man is made a matter of hysterical sentiment.

### MALINGERING

That many registrants try to "put over" something on the physician by feigning ailments is certain, and that one occasionally succeeded must be admitted, for more than one case was brought before the appeal board that had been exempted by a local board for some condition which repeated examinations subsequently failed to verify. And this is not surprising when we recall the hurried manner in which many examinations had to be made, owing to pressure of time, and lack of sufficient help. The great wonder is that more did not get by, particularly when we consider that many of these claims were supported by affidavits of physicians, and at times by certificates from laboratories, showing findings which could not be verified. Whether or not these laboratories had been imposed on in the material that was submitted to them for examination we do not know; but when a urinalysis by a reputable laboratory shows a very high percentage of sugar, and subsequent repeated analyses of the urine taken directly from the individual failed to reveal a trace of sugar, we can only conclude that the laboratory was imposed on.

The old rules and regulations stated that the appeal board would review evidence submitted in the form of affidavits, and some registrants seemed to assume that that was the only kind of evidence that they would be called on to present. Some registrants protested vigorously when at the examination they were called on to present ocular demonstration of a disablement which they alleged they had and which was certified to by an affidavit of a physician, claiming that the physician's affidavit was sufficient; and only when presented with the alternative of submitting to the examination or of going with an officer did they submit, only to disclose that the condition alleged did not exist. Such experiences as these made it necessary practically to disregard physicians' affidavits, except to the extent that they might indicate a line of investigation. It should go without saying that in matters of this kind nothing but positive evidence or ocular demonstration should be accepted; urine, for instance, should never be examined unless passed in one's presence, and even then one must watch carefully lest deception be practiced, as it is very easy to get sugar in the urine by placing powdered glucose beneath the prepuce a short time before coming up for examination. The passing of the urine washes the glucose into the vessel, where it dissolves at once and is readily found on application of the usual tests.

Diabetes was claimed in a number of cases and supported by physicians' affidavits stating that sugar had been found in the urine; yet the most careful examination of the urine, passed in our presence under proper precautions, failed to reveal any trace of sugar. We had one interesting case of a man who claimed that he had a tumor in the abdomen. When he was stripped, a globular mass was readily visible extending nearly up to the umbilicus. Palpation confirmed the presence of the mass. When asked to urinate he said he could not, as he had just emptied the bladder before coming in for examination. However, I insisted on passing a catheter, and withdrew a very large quantity of urine, with a simultaneous disappearance of the tumor. How many physicians he had fooled by retaining his urine in that way I do not know; but the passing of a catheter ended his attempts in that direction.

Even self mutilation was tried in an endeavor to escape the draft. One young man produced a large slough 3 by 4 inches in diameter on the back of the right calf, probably by burning. A large black eschar involving the whole thickness of the skin was still present when he came up for examination. He had an affidavit from a physician stating that he had a postpneumonic ulcer (whatever that is) on his leg, and that he was subject to them, having had them before; but unfortunately for him there were no scars of previous ulcers of the kind, and no evidence that he had had pneumonia.

Malingering is an extremely interesting subject, but time will not permit me to go into it farther at this time.

### REJECTIONS IN CAMP

Through the courtesy of local boards, I have received reports of 347 men who were sent back from camp. In 97 of the cases the cause of the rejection was not given; whether or not due to physical unfitness remains an open question. In 250 of the cases the cause of the rejection is given. There were rejected on account of the eyes, 67; hernia, 25; heart, 25; bad teeth, 24; ears, 15, 11 with discharge, 1 not specified, 3 perforation of the drum; flatfoot, 11 (one with hernia and one with obesity); shortened leg from old fractures, 7; tuberculosis of the lungs, 6; syphilis, 6; mentally defective, 5; underweight, 4; overweight, 2; gonorrhea with arthritis, 3; varicose veins, 3; rheumatism, 3; hammer toes, 3; chronic asthma, 3; stiff elbow, 2; epilepsy, 2; infected tonsils, 2; toxic goiter, 2; deformity of the foot, 2, and 1 each of scar in the groin; scars from burns; piles, hemorrhoids and orchitis; tuberculous glands; flat chest; brain fever; neurasthenia; stammering; fistula in ano; depressed fracture of skull; broken toe; callosities of soles; necrosis of tibia; atrophy of leg muscles; deformity of leg; deformity of hand and of forefinger; undescended testicle, and arthritis deformans. There were 2 ambiguous cases marked simply "arm," and 2 marked "knee."

As will be seen, the greatest number of errors was made in the eye cases. It will be remembered, however, that very few of the physicians on the local boards were oculists, and therefore had had little experience in examination of the eye. Furthermore, it is not always an easy matter to estimate satisfactorily the degree of vision, on account of the great tendency displayed by some purposely to exaggerate their trouble to escape service. In our appeal work it was found necessary to recall some of these persons two or three times before a satisfactory conclusion could be reached. It is quite possible, too, that some of the persons returned on account of defective vision may have deceived the Army surgeons.

### APPEAL CASES

I shall now present a brief analysis of 740 appeal cases, which were based on physical grounds, and in which I made the examination. The list does not by any means include all the appeal cases, but all that I have had time to go over. They are taken in the order of examination, and the number is sufficiently large to be representative of the whole. Of this number, 420 men were accepted for service; 277 were rejected, and 43 were disposed of in a variety of ways. In other words, the decision of the local board was affirmed in 420 and reversed in 277, or about 40 per cent. of the cases. Of the 43 men remaining, some were given temporary exemption on account of recent injury or illness, some had dependency claims which overruled the physical claim, some were doctors and dentists who were taken into the Reserve Corps, and some were aliens who could not be accepted under any circumstances.

*Cases in Which the Local Board Was Reversed.*—Let us consider first the 277 cases, nearly 40 per cent., in which the local board was reversed. Of this number 58 men, or 20 per cent., had to be rejected on account of defective vision. The regulations under which we were operating at the time provided that uncorrected vision must be as good as 20/40 in one eye and 20/100 in the other. As the vision of none of these men came up to standard, all had to be let out. Not all of them had simple errors of refraction; several had corneal opacities due to scars, 2 had cataracts, 2 choroiditis, 2 congenital blindness of one eye, and 1 an optic neuritis of one eye causing almost complete blindness. It is no criticism of the work of the local boards that some of these cases were overlooked, as the conditions were such as would be recognized only by an experienced oculist. Twenty-nine cases, or 10 per cent., were reversed on account of valvular heart disease. There was nothing special about these cases, and most of them should have been recognized.

Twenty-six men, or nearly 10 per cent., had a chronic discharge from the ear. A chronic purulent discharge from the ear is absolute cause for rejection. As this condition is not, as a rule, a difficult one to diagnose, it would seem that these cases ought to have been recognized with a little more care in the examination of the ear. There were eighteen cases of pulmonary tuberculosis, and I am sorry to say that several of these men were, and had been for some time, inmates of the Municipal Tuberculosis Sanitarium, and should never have been accepted for service. If there is any condition in which the doubt should be resolved in favor of the patient rather than the government, it is pulmonary tuberculosis. Epilepsy comes next with 17 cases. Of course, an epileptic would be absolutely impossible in the Army. The question of whether or not a registrant was epileptic was not always an easy one to decide.

Not much reliance could be placed on the usual physician's affidavit, for it was evident that some of them were based solely on the statements of the registrants, without the physician having seen a fit or having any substantiating evidence.

The history, in all of these cases was carefully gone into by the neurologist, Dr. Patrick, and in case of doubt, parents or other members of the family were summoned and quizzed on the subject.

Affidavits of employers or others who had seen the individual in a fit were likewise obtained.

There were 17 cases of hernia, 12 inguinal and 5 postoperative. Some were quite large, and all were evident on inspection. Seventeen were underheight or underweight, or both. As the regulations prescribe 61 inches as the minimum height, and as our instructions were to make no concessions below 61 inches, of course all who fell below that height had to be rejected. In the matter of weight, more discretion is allowed when the individual is otherwise in good physical condition. I am satisfied that some deliberately tried by starvation to reduce their weight below the minimum. They knew exactly the minimum weight for their height, and watched the scales closely to see that they were under the weight allowed. I let some of these men go, then had them brought in and weighed again when they were not expecting it, and it was surprising to see how much they had gained in weight after a few days of good feeding. They were picked up and sent along.

There were several interesting cases brought to light by the neurologist, of which 9 were classified as mentally defective; 6, dementia praecox; 1, general paresis; 1, Little's disease, or cerebral quadriplegia; 1, old poliomyelitis; 1, atrophy of all the muscles of the left leg with great weakness; 1, hysteria and mental instability; 2, psychasthenia; 1, severe migraine; 1, syphilis of the cord; 1, congenital atrophy of the muscles of both hands with deformity. There were 3 cases of large nontoxic goiter, and 2 of quite severe hyperthyroidism; 4 cases of chronic nephritis, and 1 of diabetes; 3 cases of deformity of the arm from old fractures. The remaining cases represent a variety of conditions, such as old injuries to the hands, feet and legs; old osteomyelitis; aneurysm of the subclavian artery (traumatic); chronic bronchitis with emphysema; chronic asthma; nasal obstruction with asthma; varicose veins and ulcer of the leg; tuberculous glands of the neck; prolapse of the rectum; old injury to the spine; ulcer of the stomach; tuberculosis of the peritoneum; active syphilis of the mouth; stricture of the urethra; undescended testicle; severe anemia (cause not discovered); ankylosis of the elbow; ankylosis of the hip; knock-knee; bad flatfoot; loss of nearly all of the right hand; enormous varicocele, etc. There was but one case of varicocele; it was one of the worst cases I have seen; it involved both sides, and hung down fully 8 inches. It is needless to say that the ordinary varicocele is of no importance whatever. There was also only one man exempted on account of flatfoot, and this case was a bad one, amounting practically to a talipes valgus.

It is rather surprising how some of the men could have been accepted by the local board, as the deformity and disability were obvious; for instance, complete ankylosis of the hip from an old dislocation, ankylosis of the elbow, loss of most of the right hand, including the thumb, etc.

In reviewing those cases in which exemption was granted, and in comparing the findings which led to the exemption of the men with the statements made by them when asked the grounds of their appeal, we discover a fact of the greatest importance to those doing this kind of work, namely, that almost without exception the individual was cognizant of his ailment and correctly stated it when he gave the grounds of his appeal. For instance, every man who was disqualified by reason of defective vision knew and stated that his vision was bad. Every one who had gross heart disease stated that he had trouble with his heart. The same was true in tuberculous cases with only a single exception, and also in chronic discharge from the ear, without exception. Even in the mental cases, without a complete diagnosis, the men stated that they were mentally unfit. The importance of this cannot be overestimated by those who are called on to make physical examinations in appeal cases.

When I was called to Washington to assist the Provost Marshal's department in the formation of advisory medical boards, I had considerable difficulty in convincing the department that it would be unnecessary for these boards to make complete reexaminations in all cases that came up to them. It was the intention of the department at first to have the advisory medical boards make complete examinations in all cases and fill out a complete blank, as is done by the local boards, thus not only duplicating unnecessarily a great deal of the work already done, but also entailing on the advisory boards an immense amount of unnecessary labor, as well as the loss of much time and energy. After I had detailed the experiences we had here in connection with the last draft, it was finally decided to change the appeal blanks so that the registrant when appealing from the decision of the local board on physical grounds must now state the grounds of his appeal. This will enable the advisory board to proceed at once to examine for the conditions claimed, and if these are verified and found to be disqualifying, it will be unnecessary to proceed farther with the examination. In this way an immense amount of time and labor will be saved. Because those who had real ailments stated them, it is not to be inferred that the statements made in the appeal blanks are to be accepted as true. No statement is to be accepted as true unless and until it is verified. The fact that 60 per cent. of those who appealed on physical grounds were unable to substantiate their claims is sufficient proof of the necessity of verification.

*Cases in Which the Local Board Was Sustained.*—We now come to an analysis of the 420 cases of this group in which the decision of the local board was affirmed, and the man, therefore, sent to camp. What became of these men, and how many of them were sent back on account of their physical condition? This is like getting the end-results of one's operations. I have been able to get returns of these men from the camp, and find that out of 420, twelve were sent home as physically unfit. Of this number, one was discharged on account of a discharge from the ear; my records show that he had a chronic discharge from the ear, and he was exempted on that account by the appeal board. How he got into camp I do not know, but certainly not from any fault of ours.

One was discharged on account of defective vision; my records show that his vision as determined by a very competent oculist was: Right, 20/40; Left, 20/40. As the regulations allowed 20/40 and 20/100 then, and allow 20/100 and 20/100 now, it is evident that this man's vision was well within the requirements, and if anything was "put over," it was in camp and not here.

One was sent back because he wet the bed at night; whether or not he did it on purpose, I do not know.

One was discharged because of "inaptitude," whatever that means—certainly not a very definite reason, but perhaps a very good one after trying the fellow out, though one not likely to be discovered on physical examination.

One was sent back without any cause being given. My records show that he was Jewish and had a mild degree of flatfoot, such as is usual in Jews of his class, and also slight varicose veins; whether or not these conditions were the cause of his discharge, I do not know.

One was discharged on account of hemorrhoids; he had some small, slightly protruding hemorrhoids, which I was sure were not bad enough to interfere with training, and a few days lay-up in the hospital at most would have restored him to health.

One was discharged on account of underweight; he weighed 110½ at the time of the examination, the minimum for his height being 112. His chest measure was 1½ inches greater than was required for his height, and he was physically sound. He tried every way possible to get exempted, including influence and pull, and appeared time and again to have his case reopened. I was always convinced that he deliberately reduced his weight, as his general condition was very good.

One was discharged because of gonorrheal arthritis; he had gonorrhea at the time of his examination, and as many of these men had to wait several weeks after they were accepted before being sent to camp, it is very probable that he developed arthritis sufficiently to disable him by the time he reached camp.

One was discharged on account of his right leg being a little short; this was due to an injury when he was a child. There was no disturbance of function, and he was strong and active, doing hard work. It was evidently thought that he would not be able to stand the strain.

One was sent back on account of secondary syphilis, and finally, two were discharged on account of hernia. No hernia was discovered in either of these men by the local board or by our board. Their statement on the first examination slip denied hernia, and neither of them claimed hernia in their grounds of appeal; one claimed trouble with the wrist from an old injury which amounted to nothing, and the other claimed rheumatism. It would seem, therefore, that these hernias must have developed or, at least, made their appearance, after they began training in the camp.

From this rejected list, then, we may certainly eliminate the man with the discharge from the ear, whom we had already exempted; the man with the 20/40 vision, who was well within the requirements; the man who wet the bed; the man who developed gonorrheal arthritis after he was examined; the man who showed up in camp with secondary syphilis; the man who showed an inaptitude for the work, and the one for whose discharge no cause was given. This leaves only five, the man with hemorrhoids, the one with a shortened leg, the one 1½ pounds underweight, and the two who developed hernia in camp. I know no way of telling whether or when a man put under the strain of military training will develop a hernia; but we do know that practically all hernias developing during the draft age are due to congenital defects, and that a bulging may appear in a preformed sac at an opportune time and almost unannounced. We might have exempted the man with the gonorrhea, had we known he was going to develop arthritis. We perhaps should have exempted the man with the slightly shortened right leg; but the regulations say that in every case of doubt the government should be given the benefit of the doubt and the man sent to camp. I still think the man who was 1½ pounds underweight should not have been returned on that account; and should he come up again in the next draft with nothing more the matter with him, I should be much disposed to return him to camp.

In view of the fact that in all cases of doubt the instruction is to send the man to camp, where he can be tried out, the foregoing appears to be a very good record for the appeal board.

## CONCLUSIONS

From the experience of this appeal board, it is perfectly obvious that advisory medical boards should have certain specialties represented on them. Based on the frequency with which the advice of the specialists was desired, I would mention, first, the eye and ear man, and next, the neurologist. When I was in Washington working on the matter of the advisory medical boards, the personnel of what was termed "a normal advisory board" was thus made up: (1) a surgeon; (2) an internist; (3) an oculist and aurist; (4) a neurologist, and (5) a laboratory man, the latter term being used to include the roentgenologist.

In large cities where the specialties are more closely drawn, the number may be increased. For instance, there may be an oculist and an aurist, a heart and lung specialist, etc. While the addition of these extra men is permissible, experience shows that the normal board of five as outlined covers the ground thoroughly, and a small board of five is much more effective than a large and unwieldy board. Of course, there is no objection to duplicating the man when the work is heavy, thus having two or more oculists, internists, etc., so that one man need not be overworked, provided the group of five be retained as constituting a normal board. In sparsely settled communities, where the specialties are not represented, a board naturally must be made up of the best men available. There seems to be a tendency in some places to make these advisory boards too large, thus detracting from the real efficiency of the work.

As the great majority of the men composing these boards are inexperienced in this particular kind of work, and as many new questions will come to them for solution, it would be very advantageous if there were some one of experience in the Provost-Marshal General's office to whom they could turn for advice. Strange as it may seem there is not a physician attached to that office.

It is hoped that with the help of the advisory medical boards, there will be fewer physically unfit men sent to the camps, to be returned. This is not only a great financial loss to the government, but also a material loss to the individual, who breaks up his family and business relations only to find that he is not wanted in the Army. It is expected that there will be some returns, for there will be borderline cases, cases in which there is doubt, and the instructions are that the government must have the benefit of the doubt, as there is still another chance for the man to be weeded out under circumstances more favorable for determining his fitness or unfitness for service. It is desirable, however, to have the doubtful cases as few as possible.

25 East Washington Street.

## Therapeutics

### SIMPLE CATARRHAL JAUNDICE

This condition is due to a blocking, from more or less inflammation and swelling, of the common bile duct. While this duct alone may be involved, it is generally secondary to inflammation of the duodenum. This irritation and inflammation of the duodenum may itself be secondary to a simple gastritis, and the whole condition may be a sequence of serious maldigestion or infection and irritation from some deteriorated or toxin-bearing food. The ingestion of too much alcohol or of too much simple irritant, as mustard or rich sauces, or of some irritant drug or an irritant poison may cause secondarily the condition of simple catarrhal jaundice. In a person who has had this condition once, or is predisposed to abdominal congestions, chilling of the abdomen, either from a sudden change in temperature, or from exposure of an insufficiently clothed abdomen to cold air, may cause duodenal congestion and catarrhal jaundice.

This kind of jaundice is most likely to occur in the season of the year in which there are sudden changes to lower temperature, especially in the fall and in the early spring following warm periods. Whatever may be the exciting cause, cold frequently plays a contributing part in the development of the disease.

A true epidemic form of this disease has been termed Weil's disease, and has been accredited to a spirochete known as *Spirochaeta icterohemorrhagiae.* This is ushered in with a high fever, lasting one or two weeks, with a gradual decline in the second week, and is attended with considerable prostration. Albumin has been found in the urine, and the spleen has been enlarged. Whether the simple catarrhal jaundice so frequently seen is a sporadic form of such an infection has not been determined. Until they have been proved to be related, it would seem well not to consider simple catarrhal jaundice as the disease described by Weil.

Simple catarrhal jaundice generally develops insidiously; rarely shows any increase of temperature, and if there is a fever it is very low, and often the temperature is subnormal; there is considerable prostration; slow pulse; entire loss of appetite; some nausea; often vomiting; and there is likely to be constipation, although there may be diarrhea. The head feels dull, or there is real headache. The tongue is heavily coated, either brown or yellow. The breath is very bad, and there is a bad taste in the mouth. There is soon bile in the urine, and there may be traces of albumin. Jaundice may be present when the patient is first seen, if the digestive symptoms are sufficient to cause the patient to seek a physician early. Soon the stools are clay colored, and the skin is dry and irritated sufficiently to cause itching. The perspiration generally stains the clothing. There is much mental depression, and inability to do mental work, but generally not much abdominal pain. The jaundice usually lasts two, three or even four weeks; if it lasts much longer than four weeks, some other cause for the jaundice than a simple inflammation must be sought.

The more at rest the patient is, the quicker will the jaundice generally subside. In the beginning a dose of calomel, in amount considered sufficient, should be given, followed by a saline. A gram of bismuth subcarbonate and a gram of sodium bicarbonate may be given every three hours during the day for two or three days, and then three times a day, before meals, for a few more days. The bowels must be moved daily by some simple saline or laxative water. If there is much epigastric tenderness and soreness, or if there is nausea, milk of magnesia in teaspoonful doses every three or four hours, in hot water, is advisable. The patient should be given plenty of water to drink. Hot water is also advisable.

For the first twenty-four hours, nothing but water may be given, unless food is especially desired. On the following day the nourishment should be bouillon or hot broths, tea, toast, thin oatmeal gruel, or some other simple thin cereal. Malted milk may be given, and in another day or two a poached egg or two, if they are well tolerated. All fats and milk, except possibly skimmed milk, should be avoided in catarrhal jaundice. It is a mistake to consider milk a good food in this condition. No liquid should be given cold, and no cold food should be given; anything cold taken into the stomach in this condition is probably disadvantageous. As soon as the sodium bicarbonate in combination with the bismuth subcarbonate is given less frequently, an alkali should be given, as potassium citrate, 2 gm., in wintergreen water, 10 c.c., three times a day, after the main nourishments.

As stated above, the more at rest the patient is (in other words, the more he lies down) the better. There is less abdominal congestion, and the circulation in the congested region is improved. As an aid to resorption of the exudate in these swollen parts, abdominal warmth is advisable, and an electric heating pad or hot water bottle kept on the abdomen for hours at a time is good treatment. When the patient is up and about, the abdomen should be kept extra warm by flannel or absorbent cotton.

To relieve internal congestion and to increase the secretion of the skin and stop itching, it is advisable to have a daily hot bath. It is of advantage especially in removing the irritating crystals that occur on certain parts of the body from the perspiration in this condition.

As the patient improves, the diet can be enlarged with oranges, baked potatoes, rice and more meat, still withholding the fats, except that foods with cooked milk, as custards, may be well digested.

If the jaundice lasts more than ten days or two weeks, ammonium chlorid in half-gram doses, three times a day, after meals, may be given. Ammonium chlorid apparently increases the secretion of the mucous membranes. Probably it increases the secretion of the bile ducts as it does that of the bronchial tubes. It may be a valuable treatment in this condition, when the improvement is slow. The following prescription may be utilized:

| | gm. or c.c. |
|---|---|
| ℞ Ammonium chlorid.......... | 10 |
| Syrup of citric acid........ | 25 |
| Water ................up to | 100 |

Mix and label: A teaspoonful, in water, three times a day, after meals.

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## VACCINATION AGAINST SMALLPOX

### THE KIND OF VACCINE TO USE AND HOW TO USE IT

The United States Public Health Service in Public Health Reports for November, 1917, advises the following procedure in order to secure the best results from vaccination and to prevent possible complications.

### I. THE VACCINE

The freshest possible vaccine should be obtained. All vaccine packages, pending use, should be kept in a metal box in actual contact with ice.

### II. THE VACCINATION

Vaccination should never be performed by cross scratching or scarification, but by one of the methods described below. If a prompt "take" is very necessary, as in case of direct exposure to smallpox or if the first attempt has been unsuccessful, three or four applications of the virus should be made, but the insertions should be at least an inch apart. Whichever method is used, a control area may be first treated similarly, but without the virus, in order to estimate the amount of pressure necessary for insertion and in order to demonstrate a possible early immune reaction in previously vaccinated individuals.

*Preparation.*—The skin of the upper arm, in the region of the depression formed by the insertion of the deltoid muscle, should be thoroughly cleansed with soap and water if not seen to be clean, and in any case with alcohol or ether on sterile gauze.

After evaporation of the alcohol or ether, a drop of the virus should be placed on the cleansed skin. To expel the virus from a capillary tube, the tube should be pushed through the small rubber bulb which accompanies it, wiped with alcohol, and one end broken off with sterile gauze; the other end may be broken inside the rubber bulb. The hole in the latter should be closed with the finger as the bulb is compressed to expel the virus.

The under surface of the arm is grasped with the vaccinator's left hand so as to stretch the skin where the virus has been placed. The skin is kept thus stretched throughout the process.

*Methods.*—(*a*) The Method of Incision, or Linear Abrasion: By means of a sterilized needle or other suitable instrument, held in the right hand, a scratch, not deep enough to draw blood, is made through the drop of virus, one-quarter inch long and parallel with the humerus. The virus is then gently rubbed in with the side of the needle or other smooth, sterile instrument. Some blood-tinged serum may ooze through the abrasion as the virus is rubbed in, but this should not be sufficient to wash the virus out of the wound.

(*b*) The Drill Method: A sterile drill, such as is used for the von Pirquet cutaneous tuberculin test, shaped like a very small screw driver with a moderately sharp end not more than 2 mm. wide, is held between the thumb and middle finger, and with a twisting motion and moderately firm pressure, a small circular abrasion, the diameter of the drill, is made through the drop of virus; this should draw no blood.

(*c*) The Multiple Puncture Method: A sterile needle is held nearly parallel with the skin, and the point pressed through the drop of virus so as to make about six oblique pricks or shallow punctures, through the epidermis to the cutis, but not deep enough to draw blood. The punctures should be confined to an area not more than one-eighth inch in diameter.

With Methods *a* and *b* it is advisable to expose the arm after vaccination to the open air, but not to direct sunlight, for fifteen minutes before the clothing is allowed to touch it. With Method *c* the virus may be wiped off immediately.

### III. THE VACCINATION WOUND

1. The original vaccination wound should be made as small as possible, and all injury to the vaccinated arm should be guarded against. Any covering which is tight, or more than temporary, tends to macerate the tissues during the "take." This is to be avoided. No shield or other dressing should be applied at the time of vaccination. Customary bathing and daily washing of the skin may be continued, so long as the crust does not break. The application of moisture to the vaccinated area should not be enough to soften the crust.

If an early reaction of immunity is to be watched for, the patient should report on the first, second, fifth and seventh days after vaccination. Otherwise, the patient should report on the ninth day, or sooner if the vesicle, pustule or crust breaks. Every effort should be made to prevent such rupture. However, should the vesicle, pustule or crust break, and the wound thus become open, daily moist dressings with some active antiseptic, such as mercuric chlorid or dilute iodin (one part tincture of iodin in nine parts of water) should be applied. Under no circumstances should any dressing be allowed to remain on a vaccination wound longer than twenty-four hours, and no dressing should be applied so long as the natural protection is intact.

On account of possible fouling by perspiration and to lessen the chance of exposure to street dust, primary vaccination should be performed preferably in cool weather. In order to encourage proper surgical treatment, no charge should be made for the after-care of a vaccination, or for revaccination in case the first attempt should prove unsuccessful.

Although apparently trivial, vaccination is an operation which demands skill in performance and care in after-treatment in order to avoid the rare, but serious, complications. For the prevention of these complications vaccination (*a*) should be performed with strictly aseptic technic, (*b*) should cover the smallest possible area for each insertion, and (*c*) should be treated without any covering which permits maceration.

A child should be vaccinated by the time it has reached the age of 6 months, and the operation should be repeated at about 6 years of age and whenever an epidemic of smallpox is present.

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SATURDAY, JANUARY 19, 1918

## THE TAX ON OLEOMARGARINS

The world war has served in the most unexpected ways to awaken this nation to the true meaning of food problems and to the magnitude of many heretofore undervalued factors in the rationing of the American people. The growing scarcity of milk has dawned on us along with a profounder realization of the indispensability of a certain quota of milk in the daily diet of children. In addition to what may be termed a physiologic requirement in the case of the adolescent, culinary customs have created a further demand for milk, which plays a part in modern cookery in almost innumerable ways. Without milk in the kitchen, the American housewife would be confronted with unanticipated difficulties in the technic of food preparation. For this reason the dairyman is urged to speed up the production of milk; the housewife, on the other hand, is warned to be conservative in the use of a food commodity on which our children should have first claim.

The use of butter, which has unquestionably grown in popularity in this country in recent years until the per capita consumption approximates nearly an ounce a day, is closely bound up with the problems of milk supply. It requires many quarts of milk to produce a pound of butter, and so long as skim milk, which is the chief by-product in the manufacture of butter, remains so greatly undervalued in human dietary practice, it may truly be said that butter making diverts enormous quantities of milk into channels in which all of its nutrients except the fats are lost for human consumption. The need of fats in the dietary is beyond dispute. To deprive any nation of a reasonable quota of edible fats is to institute a national calamity of the direst sort. No one will gainsay that butter has won a deserved place of excellence in the dietary of man. The inexorable law of supply and demand has increased the price of butter to a point at which its cost is almost prohibitive for the poorer classes; and incidentally the high price serves to divert more milk than ever before into the churning room. Guided by the experience of other countries, as well as by the common sense of which science is merely an organized expression, American housewives have long since learned that there is no monopoly of usefulness pertaining to any one of a considerable number of fats of both vegetable and animal origin. Technology furnished successful means of varying the texture of naturally occurring fats so that desired or supposedly advantageous degrees of hardness or softness could be secured. The history of these endeavors — the story of the technical production of butter substitutes and so-called artificial butters, oleomargarins, hydrogenated fats, etc.—need not be reviewed here. It includes chapters of bitter controversies that have lost their early significance through the demonstration, repeatedly verified, that these newer types of fats are alike digestible and wholesome, and that today they reach the markets in excellent sanitary condition. The sale of many edible fat mixtures has, however, been so greatly hampered by legal restrictions that the public has had little opportunity or inducement to become acquainted with the newer food possibilities.

The national and international situation as regards edible fats and butter in particular has forced attention to the hitherto depreciated products until candor compels an honest investigation of the merits and effects of the legislation at present in force. The modern oleomargarin laws date from 1886, when oleo oils, lard and cottonseed oils alone competed to any extent for recognition as butter substitutes. At present this list is augmented by increased production of peanut oil, copra and coconut oils, soy bean oil, maize oil and highly refined cottonseed oil. These lend themselves to a great variety of combinations and transformations to produce edible fats. The government imposes a large tax on dealers and manufacturers of oleomargarin, with large fines for failure to comply with the legal restrictions. Colored oleomargarin pays a tax of 10 cents a pound; the uncolored fat pays one-quarter cent. Butter is colored to imitate the golden yellow shade of the summer variety at all times of the year, without any interference by an almost prohibitory tax on a much desired food.

The New York *Times,* commenting on the obvious unfairness of the present situation, stated editorially not long ago:

> The only imaginable reason why even the white oleomargarin that next to nobody will buy is taxed and can be sold only under an elaborate system of licenses, and why, if it be colored exactly as is all except a very little of the very best butter, and so made largely salable, the licensing system is still further elaborated and the tax many times multiplied—the reason for all that is because the dairymen want it to be so. They have never been able to deny that oleomargarin is as wholesome and nutritious as their own product. . . . Whether made of beef fat or of any of several pure vegetable oils, there is nothing to be said against oleomargarin as a food and much in its favor. Even to the imagination it ought to appeal more effectively than butter, for it is of far cleaner origin, and there is no suspicion, as in the case of butter, that it sometimes carries the germs of disease.

In spite of all the restrictions placed on the sale of oleomargarin, the statistics of its manufacture show an increased demand for the product during the past year, represented by an output of nearly 235,000,000 pounds. Is it not high time to ask whether indifference to the needs of the general public shall continue to be maintained by a special class? If the legitimate substitutes for butter were allowed to come into the general use for which they are qualified, not only would a reduction of living expenses become possible thereby, but also the price of milk and cream ought to be decreased below the rapidly approaching prohibitive point.

It is doubtless true that the fats of milk carry a desirable amount of growth-promoting vitamin which the oleo oils manifest only in lesser degree, and which the vegetable fats seem to lack entirely. No one asserts that butter and cream should be excluded from the ration. All that can be asked in fairness is a repeal of the odious discriminatory taxes that tend to prevent the other fats from competing with butter on fair terms. If the necessities of war succeed in doing this, they will merely right a wrong that has long offended fair minded students of nutrition.

## APPROPRIATIONS FOR CITY HEALTH DEPARTMENTS

Two years ago, Dr. William C. Woodward,[1] health officer of the District of Columbia, said:

> In order to make facts pertaining to health contribute most largely to human happiness, two things are necessary: first, to establish such facts and to correlate them, so that we may understand their full significance and the underlying principles. Second, to weave those facts into the lives of the people.

Public hygiene, so far as it can be contrasted with the hygiene of the individual, is that which is practiced by the government for its citizens. It consists, as one writer has expressed it, chiefly in efforts by the government to maintain a wholesome environment in which to live, including good outdoor air, clean streets, pure water, good sewers, quarantine and legal regulations concerning houses, schools, prisons, hospitals and other public institutions, foods sold in markets, and conditions of employment. It is chiefly useful in preventing acute or infectious maladies, accidents and occupational diseases.

At the present time, if never before, preventive medicine makes its appeal not merely on the ground of human happiness, but quite as well because of the pressing need of conserving human efficiency. The world needs all the human forces that can be mobilized. There is a growing recognition that public hygiene pays — that it can accomplish results of obvious importance. It has become the duty of the government not merely to teach the community, but also to enforce sanitary laws. If men cannot be made healthy by compulsion, they can at least be made to conform to such rules of conduct as to permit their neighbors to be healthy. Public health is not something that grows and brings forth fruits without special attention from any one. We must come to understand that the benefits of hygiene cannot be gathered without cost. We recall an instance in which a railroad was forced by a community to construct a viaduct involving an interest charge of $2,000 a year to prevent one needless death; yet the aldermen of the same community were spending only $150 to prevent fifty deaths.[2]

What efforts are being made to purchase public health? Surgeon Preble[3] of the U. S. Public Health Service has lately summarized the expenditures of 330 cities in the central and eastern United States for public health work. It appears from his statistics that the average per capita expenditure varies fairly directly with the size of the community. Yet the average salary of the health officers of sixteen cities having a population between 100,000 and 300,000 is less than $2,500 a year. The annual average per capita expenditure for the 330 communities cited by Preble is 27.2 cents, varying from 9 to 39 cents. If we accept as generally agreed that the expenditure of about 50 cents per capita is necessary for satisfactory public health activities, the average city in the group just referred to is expending only slightly more than half the amount that is considered reasonable for the control of health hazards. This is manifested by the results achieved. For the average expenditure of 27.2 cents, Preble found an average sanitary rating of only 66.7, out of a possible 100 per cent. The larger cities, with an average expenditure of 39 cents annually, get an average sanitary rating of 80.8 per cent. Hence he justly adds that under efficient management it might seem reasonable to expect that an expenditure of about 50 cents per capita annually would raise the sanitary rating of the group to a point above 90 and result in a marked reduction of sickness and a saving of lives, a worthy return on the investment. Perhaps broader public education in the science and accomplishments of preventive medicine and hygiene will help to make even smaller communities begin to realize that their health officials are too poorly paid — and consequently their health activities too poorly organized and administered. We propose to revert repeatedly to the contention that the sanitary status of a larger community in which menaces are varied is likely to remain low as long as the appropriations for its health department remain low so that efficiency cannot be purchased. Surely the chief of a public health establishment is as worthy of his hire as a chief of police or a fire department head.

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[1] Woodward, W. C.: Ways and Means of Bringing Matters of Public Health to Social Usefulness, Proc. Second Pan-American Scient. Cong., Section VIII, 1917, **9**, 526.

[2] Rankin, W. S.: The Potential Influence of Vital Statistics on the Conservation of Human Life, Proc. Second Pan-American Scient. Cong., 1917, **9**, Part 1, p. 346.

[3] Preble, Paul: Appropriations for City Health Departments, Pub. Health Rep., 1917, **32**, 2072.

## HEAT AS AN INDUSTRIAL HEALTH HAZARD

The speeding up of a large number of industries has been one of the most immediate effects of the world war, no less than the establishment of new lines of manufacture or the revival of less familiar ones. As a result, attention has been directed to new or hitherto rarer forms of menace to the worker. Dangers from poisoning have arisen in places where they were scarcely known before.[1] Occupational diseases have forced themselves into public prominence because of the greater numbers of workmen involved in certain factories. The possibility of accidents in industrial plants has become somewhat magnified by the conditions under which we are living.

There are, however, other menaces to human welfare and human efficiency which creep into industrial life in a variety of insidious ways so that their presence is not so readily appreciated. The harm that they do betrays itself not in sudden collapse of the individual, in his permanent withdrawal from the industry or even in his temporary exclusion from the working plant, but rather in a deterioration of his output, a decline in capacity to work, and an increase in the sick list. For these reasons the problems of industrial fatigue are being subjected to careful consideration both abroad and more recently in this country. Helpful studies have already been made among thousands of munition workers in Great Britain, and some of the conclusions have been reviewed in The Journal.[2] Long hours of work, in addition to unhygienic conditions of living, have played a part in the unfavorable results reported from certain groups of workers. Factors of this sort are not the exclusive peculiarity of any single industry: they are common to many industrial plants.

There is an unexpectedly large number of occupations in which unfavorable conditions of heat and humidity bring health hazards that are either compulsory because of the nature of the industry or arise because too little attention is paid to them. Hard work in a hot and sultry atmosphere may for a time become the lot of almost any workman. But more specifically exposure to excessive heat is especially common in stokers and firemen, smelters, puddlers, blast and electric furnace men, steel mill and foundry workers, blacksmiths, glass blowers, kiln and pottery men, bakers, cooks, miners, tunnel workers and maltsters; whereas heat combined with humidity is especially trying to workers in breweries, laundries, kitchens, hothouses, tanneries, canneries and sugar refineries. The mere rehearsal of these groups shows how formidable the less obvious heat hazards may be. Surgeon Watkins[3] of the U. S. Public Health Service, speaking before the American Public Health Association in Washington last October, remarked that unusual conditions of temperature and humidity played only a minor rôle among health hazards in industrial plants until steam was substituted for water power. Since that time, he added, exposure to atmospheric conditions of high temperature and unusual humidity, coincident with the marvelous growth of industry and the invention and introduction of new machinery and various manufacturing processes, has given rise to one of the most common and serious problems of industrial hygiene.

Exposure to dry heat for a short period is sometimes borne without serious effects in temperature as high as 150 F., provided the air is kept in motion; and a temperature of 212 F. may be borne by puddlers and electric furnace men, for a very brief period, without serious injury. The limits of physiologic toleration are not easily learned; and the factors of safety are doubtless frequently tried to their utmost. Radiant heat, particularly as it applies to men engaged in handling molten metal, generally exercises its effect on the parts of the body exposed to it. There may be dermatitis, inflammatory reactions of the conjunctiva, or even more serious eye effects perhaps induced by partial desiccation of the tissues. There are numerous acute symptoms, such as colic and muscular cramps, produced by exposure to heat; but the more chronic effects that result in what may be described as a lowering of the general physical tone of the worker are those likely to be underestimated because their onset is slow and insidious. Kober[4] points out that the "colds" so common among workers exposed to excessive heat are due to "the pernicious habit of the employees in passing from an overheated atmosphere to the outer air during the cold months." As he remarks, any abrupt change of temperature is liable to cause congestion of internal organs with its sequence of catarrhal and neuralgic conditions.

In discussing the mitigation of heat hazard, Watkins has pointed out that lack of forethought is responsible for much discomfort if not actual disease. The temperature is frequently high in working locations because of faulty arrangement of machinery or improper housing of the outfit. Many of us can doubtless recall instances in which the working zones of those employed at boilers or furnaces is unduly restricted, or a clerical force is subjected to the fatiguing annoyance of heat because of poorly planned building arrangements. These are instances of remediable conditions too often overlooked by architects and factory builders. The protection of workers when the character of their operations necessitates more direct exposure to high temperatures involves a large variety of devices adapted to the individual cases, but in any event always worthy of careful consideration and provision. Radiant heat can be mitigated in numerous ways — by screens, air blasts, insulating devices, etc.; but when these fail to accomplish all that is desired, attempts should be made to increase the heat loss from the body by movement of the air, by reduction in clothing worn, and by water drinking.

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[1] Trinitrotoluene (T. N. T.) Poisoning Among Munition Workers, editorial, The Journal A. M. A., Dec. 15, 1917, p. 2041. Hamilton, Alice: Industrial Poisoning in Aircraft Manufacture, ibid., p. 2037.

[2] The Health of Munition Workers in Relation to Their Working Output, editorial, The Journal A. M. A., Jan. 20, 1917, p. 203; The Danger to Munition Workers from Trinitrotoluene, Oct. 20, 1917, p. 1353; Women in the Munition Factories, Social Medicine, Economics and Miscellany, Feb. 3, 1917, p. 394; Trinitrotoluene Poisoning, Therapeutics, Feb. 10, 1917, p. 459; London Letter, Jan. 15, 1916, p. 205; Feb. 19, 1916, p. 587; March 11, 1916, p. 827; April 22, 1916, p. 1319; Aug. 12, 1916, p. 523; Jan. 27, 1917, p. 298; June 2, 1917, p. 222; Aug. 18, 1917, p. 579; Nov. 24, 1917, p. 1811.

[3] Watkins, J. A.: Mitigation of the Heart Hazard in Industries, Pub. Health Rep., 1917, **32**, 2111.

[4] Kober, G. M., and Hanson, W. C.: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., 1916, p. 435.

As the rate of heat loss is proportional to the square root of the velocity of the air current, the current of air in all hot working zones should at least be perceptible. Air moving at 1½ feet a second is imperceptible, while a rate of 3½ feet a second causes a perceptible draft. The degree to which clothes obstruct the loss of heat from the body is rarely appreciated. A man clothed and exposed to a temperature of 64.4 F., says Watkins, will lose about 79 calories an hour; under the same conditions, but naked, he will lose 124 calories. In the hot and humid kitchen of a railway dining car, or in a laundry in midsummer, such factors can be taken into account. But when abnormal conditions of temperature are due to radiant heat, workers are actually forced to wear additional clothing to avoid injury to the skin. Under such conditions, in which exposure cannot be prevented, the sole mitigation lies in the reduction of the length of exposure. It is necessary, Watkins concludes, to increase the force in a given location, and to allow men to work in short spells. In this way, he says, the short duration of the exposure, combined with the greater period for recuperation afforded by the long rest intervals, keeps the mechanism of the body at its highest efficiency, and permits it to endure to the best of its capabilities the stress to which it is subjected during working intervals.

**Infant Mortality Among Negroes.**—The high infant mortality in the Columbus Hill District, New York City, largely populated by negroes, has long been a subject of concern to the health department, and in the summer of 1916 intensive efforts were made to see if this high death rate among infants could be reduced. The department of health now publishes comparative statistics of the death rate in 1915 before special efforts were directed to this district and for 1916, when an active campaign for the betterment of conditions surrounding infancy was being carried on. The statistics show that, in 1915, the death rate from congenital causes was 125.52 per thousand births; in 1916, 43.95. In 1915 the death rate from respiratory causes was 79.5 per thousand births; in 1916, 47.62. From diarrheal diseases, in 1915 it was 71.12; in 1916, 47.62. From infectious diseases, in 1915, it was 37.06; in 1916, 43.95. In 1915 the death rate from all causes was 314; in 1916, 168.5. In 1916 the infant mortality rate for negroes was 193.3; the infant mortality rate for the city as a whole was 93.1, and for the white population, 90.7. For the first nine months of 1917 these figures have been decreased, the rates being 175.6 for negro infants, 91.5 for all infants, and 89.71 for white infants.

# Current Comment

## ARSPHENAMINE

No, this is not a new chemical; it is simply the name adopted by the Federal Trade Commission for the hydrochlorid of 3-diamino-4-dihydroxy-1-arsenobenzene — in other words, salvarsan.[1] As our readers already have been informed,[2] three firms have been licensed to manufacture and sell arsphenamine; but, while each manufacturer may have his own trade name on the label, the official name must be the prominent one on all packages. Hence, physicians should at once make it a point to learn and use the name "arsphenamine" in place of salvarsan. At first sight, arsphenamine looks formidable. In reality, it is just as easy to familiarize oneself with the word "arsphenamine" as it was to learn to use the terms "salvarsan," "arsenobenzol" or any other of the trade names.

## PROTECTIVE MEASURES AGAINST SECONDARY CONTACT INFECTIONS IN INFECTIOUS DISEASES

Last week[3] we directed attention to the newer methods described by Weaver against the transfer from patients to nurses, orderlies, physicians and others, of the germs of infectious diseases that involve especially the upper respiratory tract. These methods, which include isolation, the wearing of a simple protective face mask, and cleanliness of hands, are aimed, not only against infections of the persons mentioned, but also against these persons becoming carriers of the germs of these infectious diseases. In the case of some of the diseases, the danger to life is not always, or even as a rule, due to the developments of the primary infection itself, as now understood, but rather to complicating secondary infections with streptococci, pneumococci and other bacteria. This is true especially of scarlet fever and measles. In scarlet fever it concerns almost exclusively infections with streptococci. In measles, however, secondary infections with the bacilli of the influenza group and also with streptococci and pneumococci are relatively common. In view of the paramount importance of these secondary infections in the attacks of scarlet fever and measles, the principal effect of the pure virus of each of these diseases seems to be to open the door — so to speak — to the secondary invaders. Now that we know that streptococci and other bacteria may grow in virulence in the susceptible animal, it becomes our positive duty to prevent, by isolation and other protective measures, the transfer of the virulent material from patient to patient. We can understand from what we know of the dissemination of throat and mouth bacteria in coughing, by soiling the hands and in other ways, the great danger of such transfer when patients lie side by side in the same room. Perhaps the sad instances of several deaths of children in the same family from scarlet fever or from measles, sometimes spoken of as family susceptibility, often result from the passage from child to child of especially virulent streptococci and other secondary invaders. These considerations apply with especial force to hospitals for contagious diseases, military camps and all places where patients with acute infectious diseases are grouped together. This is a point to which too little attention has been paid. The measles patient must be protected against the pneumococci and other secondary invaders in other measles patients nearby; the scarlet fever patient must be protected against the virulent streptococci that infect patients with scarlet fever. To effect this protection it is essential, in addition to the methods already mentioned, to secure a much more complete individual isolation than is now practiced or regarded as necessary. The convalescent patient should not be permitted to mingle indiscriminately with other patients perhaps already infected with serious complications.

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[1] The Journal A. M. A., Dec. 22, 1917, p. 2115.

[2] The Journal A. M. A., Dec. 8, 1917, p. 1989.

[3] The Use of the Face Mask and Other Precautions Against Pneumonia and Other Diseases Spread by Nasopharyngeal Secretions, Current Comment, The Journal A. M. A., Jan. 12, 1918, p. 96.

## ALCOHOL AND STERILITY

Sterility in the male is frequently charged to genital diseases. Although the habitual use of alcohol in excessive amounts has long been held responsible for alterations in the reproductive functions, it is usually to cirrhosis or fatty infiltration of the liver and to sclerotic conditions that attention is popularly directed in illustration of the baneful effects of alcoholism. It is being realized, however, that alcohol alone probably does not suffice to produce cirrhosis of the liver. This drug is only one of a number of contributory factors. It is difficult, if not impossible, to produce cirrhosis experimentally in animals by the ingestion of alcohol. But there is increasing evidence of the harm that alcohol can do to the generative organs. Earlier we made reference[1] to Stockard's now widely quoted experiments demonstrating that the germ cells of males can be so injured by allowing the subjects to inhale the fumes of alcohol that they give rise to defective offspring, although mated with vigorous untreated females. The offspring of those so treated when reaching maturity are usually nervous and slightly undersized. These effects are apparently conveyed through the descendants for at least three generations. Such evidence establishes at least the probability of the transmission of serious ill effects to human offspring through alcoholic indulgence of the male parent. Stockard[2] has stated that guinea-pigs given alcohol by inhalation over a period of more than a year and a half were still good breeders, and when killed showed no signs of changes in the testicles. This is somewhat contrary to what many necropsy reports on habitual drinkers leads one to expect. It has been stated on presumably good statistical evidence from histologic study that chronic alcoholism constantly causes retrogressive changes in the testicles independent of senility or chronic diseases, even to the point of complete loss of the seminal epithelium. Weichselbaum and Kyrle[3] further maintain that the most marked changes occur in the testicles in alcoholism with cirrhosis. Lately Arlitt and Wells[4] of the Sprague Memorial Institute, Chicago, have furnished conclusive experimental evidence of the almost inevitable marked degenerative alterations in the testicles of animals to which alcohol is daily administered. They state that the changes affect the steps of spermatogenesis in inverse order to their occurrence, so that for some time before sterility and complete aspermia result, the animal is producing spermatozoa with all possible degrees of abnormality and deficiency. The possible relation of this abnormal spermatogenesis, as Arlitt and Wells state, to the production of defective offspring is obvious. No other tissue was found to be noticeably affected by the alcohol. The experimental observations of the Chicago pathologists thus harmonize with the necropsy findings in human alcoholics.

## BARB WIRE ENTANGLEMENTS AND ANTIVIVISECTIONISTS

The barb wire entanglement is a nasty obstruction. Any one who has attempted to climb through or over a barb wire fence knows how exasperating the trivial points of the wire may become. They never stop any one permanently, but they do hinder and delay. Now the analogy may not be an exceptionally good one, but one of the hindrances to the advance of scientific medicine has been the barb wire entanglement opposition of the petty pusillanimites who flutter around the outskirts of great movements of all kinds, hindering, obstructing, delaying, yet never actually stopping anything worth while. When it was announced that the Red Cross, whose motives are as pure as any human motive ever could be, intended to devote $100,000 for medical research with a view to alleviating the sufferings and disease of our soldiers, a lot of these narrow, one-idea minds, utterly ignorant of everything but their own particular conception of what really counts in life, set up a cry that animals were to be sacrificed and submitted to torture, and, by the living gods, their dollar was not to be spent for such a tainted purpose. Ten of them, and we shall not quote their names because to deprive them of notoriety is the worst punishment that can be meted out to them, have even filed suit in New York to prevent this expenditure. Commenting on the episode the Chicago *Herald* says:

> The ancient misunderstanding of animal vivisection has been raised to hamper the work of the Red Cross. The hoary misconception was so bandied about that thirty-eight medical officers attached to General Pershing's staff have taken the trouble to sign a statement intended to clear up the situation. One hundred thousand dollars, it appears, is to be invested in medical research.
>
> Objection is made because animals are used. A few rabbits, guinea-pigs and white rats are treated by the experimenters. The animals are first anesthetized. They suffer no pain. As a result of the medical research made by such means since the war, the death rate among wounded and sick soldiers has been greatly reduced. The pain suffered has been minimized. The antivivisectionists thus have to choose between guinea-

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[1] Alcohol and Racial Degeneration, editorial, The Journal A. M. A., Dec. 21, 1912, p. 2261.

[2] Stockard, C. R.: Arch. Int. Med., October, 1912, p. 374; Arch. f. Entwcklngsmechn. d. Organ., 1912-1913, **35**, 3. Stockard, C R., and Papanicolaon, G.: Am. Naturalist, 1916, **1**, 65.

[3] Weichselbaum, A., and Kyrle, J.: Sitzungsb. Akad. Wien, 1912, **121**, 51.

[4] Arlitt, Ada H., and Wells, H. C.: The Effect of Alcohol on the Reproductive Tissues, Jour. Exper. Med., 1917, **26**, 769.

pigs and soldiers. Are they willing to see their sons and brothers suffer vainly because they oppose the use of animals in medical investigation?

Moreover, a reasonable affection for animals supports so-called vivisection. From the time of Louis Pasteur down, research has freed both the lower animals and the human race from the toll of disease. In truth, Pasteur's discoveries of ways of combating anthrax and hydrophobia directly decreased the ravages of these infections among sheep and dogs. The chief advance of the art of healing the suffering has been made possible by that variety of medical research which must utilize rats and guinea-pigs. The progress of mankind toward health must move in that direction.

The *Herald* pleads that the progress of the work should not be confused by awakening this obsolete error. "None who daily eat the meat of cattle, sheep or hogs and who stand back while good men offer their lives for freedom," it says, "have the right to throw stones." Isn't there some way to give back their money and cancel the memberships?

# Medical Mobilization and the War

## MAJOR FRANK BILLINGS ASSIGNED TO PROVOST MARSHAL GENERAL'S OFFICE

Major Frank Billings, M. R. C., who was appointed medical adviser to the governor of the state of Illinois, in the creation of the medical advisory boards, and who has been acting in this capacity, is now relieved from this duty and assigned to the Provost Marshal General's Office, Washington, D. C. It is understood that Major Billings' work in Washington will be that of adviser to the Provost Marshal, in connection with the medical problems under the Selective Service Law. Major Billings will report in Washington, February 1.

## REVISION OF REGULATIONS FOR PHYSICAL EXAMINATION IN THE ARMY

On the recommendation of the Surgeon-General of the Army, a board has been appointed to fix more definitely than at present the standards by which is to be determined the physical fitness of registrants for duty under the Selective Service Law and of applicants for enlistment. The work of the board will constitute the revision of so much of the regulations issued under the Selective Service Law and of the Manual for Recruiting Officers as is related to physical examination. By this revision it is hoped to make as nearly uniform as may be practicable, the methods followed and the standards adopted by the examining physicians associated with local boards and with medical advisory boards, and to harmonize these standards with the methods and standards of officers on recruiting duty. The board consists of: Col. George E. Bushnell, U. S. Army, retired; Lieut.-Cols. Thomas L. Rhoade and Philip W. Huntington, M. C.; Majors Pearce Bailey, Joseph C. Bloodgood, Elliot C. Brackett, William H. Logan, Warfield R. Longcope, Walter R. Parker and Charles W. Richardson, M. R. C.; Contract Surg. Henry H. Morton, U. S. Army; alternate, Contract Surg. William A. Pusey, U. S. Army. The report of the board will probably be issued at an early date.

## MEDICAL OFFICERS IN FRANCE APPROVE APPROPRIATION FOR RESEARCH

The Red Cross War Council recently requested specific advice from General Pershing's medical staff in France as to the desirability and value of appropriating $100,000 for medical research. The reply, which was signed by many well known medical officers, appears below. The signers include: Col. F. A. Winter, Major J. A. Blake, Major R. P. Strong, Capt. Kenneth R. Taylor, Major Alexander Lambert, Lieut.-Col. J. F. Silfer, Col. M. W. Ireland, Major William J. Esler, Lieut. E. T. Crossan, Lieut. E. Deval Kathraine Foot, Lieut. Philip M. Stimson, Major Roger I. Lee, Major Homer F. Swift, Major H. E. Robertson, Capt. John P. Peters, Junior Capt. Benjamin Jablons, Lieut. Herbert M. Bergamini, Dr. Erillou, of the Institut Pasteur; Lieut.-Col. T. W. Richards, Lieut. K. Bulkely, George C. Ross, Robert G. Le Monte, Major G. L. Gibson, Lieut. B. G. Cashman, Charles B. Maits, Frederick M. Jacob, Major G. E. deSchweintz, Major Harris P. Mosher, Capt. William L. Moss, Lieut. William H. Morris, Capt. McCall Keating, Lieut. James U. Worcester, Lieut. George M. Smith, Major Burt R. Shurly, Major Frank B. Walker, Capt. C. B. Coulter, Capt. Lester M. Hubby and Lieut. Hugh Chaplin.

### THE MESSAGE

"The Medical Department of the United States Army is in full accord with all the Red Cross is doing in this regard. It is cooperating and assisting in every way in research matters and is counting upon your help in this regard. It has asked the Red Cross to help it study the many problems of preventive medicine and of medical and surgical diseases against which the Army Medical Corps must struggle.

"The research committee assists the Red Cross in the management of its funds and its experiments and controls the type and kind of experimentation. The research committee controls fully its research work against which the anti-vivisectionists are protesting. English medical authorities are vigorously cooperating with the Red Cross in research work.

"We feel that any one endeavoring to stop the Red Cross from assisting in its humanitarian and humane desire to prevent American soldiers from being diseased and protecting them by solving the peculiar new problems of disease, with which the army is confronted, is in reality giving aid and comfort to the enemy.

"Research work so far undertaken includes studies of anesthesia, shellshock and trench fever, which last will be the main line of investigation this winter. We are also investigating trench nephritis and foot-wound infections, including gas gangrene and tetanus. The animals used are principally guinea-pigs, rabbits and white rats. If operations causing pain to animals are performed, anesthesia is used. Actually, very few animals have been used for this work."

## AN INTENSE INVESTIGATION NEEDED

The following story is from the current issue of the *Army and Navy Register:*

### MYSTERY OF AN ABANDONED CAMP

The War Department was surprised this week to learn from the municipal authorities of Mineola, L. I., in the vicinity of Camp Mills, where was encamped the "rainbow division," under the command of Major General William A. Mann, that the camp had been abandoned by the troops when they went to Europe without taking with them the tents and cots used by the command while at that place. Photographs of the ruin (for such it was) were submitted to the department, showing that the rows of some 3,000 tents in a waste of snow several feet deep had been left to the sport of the elements. The tentage, where any of it was standing, was revealed in tatters, and the entire outfit is plainly a total loss to the government, estimated at about $300,000. There will be an investigation, of course, to fix the responsibility for this costly oversight. Some one in authority overlooked the fact that the tents had not been taken down and stored. The division evidently moved out and proceeded to its station in France without any thought being bestowed on what was to become of the tents the troops had occupied. The incident is inexplicable, considering all the circumstances, and the military authorities are puzzled to know how such forgetfulness could have occurred, especially at a time when there is a shortage of tentage and when a conservation of equipment is the order of the day. The untracked state of the snow at the camp, as shown in the photographs submitted, gave evidence that not even a caretaker had been left on the reservation, and the effect of the wind and storm was apparent enough in the sorry spectacle.

Here would be a fine opportunity for some medical officer to arise and ask if this is the kind of superior management he must appeal to when making a sanitary recommendation. To the slogans "Save the food," "Save the coal" and "Save the meat" we suggest be added, "Save the tents."

And the night shall be filled with music,[1]
And the troops who here spent the day
Shall [NOT] fold their tents like the Arabs,
And as silently steal away.

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[1] (Sad lament of taxpayers).

## ATTACKS ON VENEREAL DISEASES

Surgeon-General Blue of the U. S. Public Health Service, Jan. 2, 1918, sent to all state health officers in the United States a telegram and a letter urging the importance of the sanitary problem of the control of the venereal diseases, with a plan of control. It is said that venereal infections should be made reportable and quarantinable, and that means of diagnosis and cure should be provided and a campaign of publicity launched. Cooperation in a forceful enforcement of the plan of control was requested. The plan is as follows:

1. Epidemiology.
   (*a*) Peculiar to the human species.
   (*b*) Chronic diseases.
   (*c*) Spread by contact—not necessarily sex contact—chronic carriers.
   (*d*) Very prevalent in all classes of society.
   (*e*) Most prevalent in classes of low inhibition.
2. Control.
   (*a*) Depends upon the control of infected persons.
   (*b*) Control of infected persons depends upon knowledge of their whereabouts.
   This may be determined by:
      (1) Morbidity reports by serial number (in the case of private practitioners), name to be disclosed when infectious persons cease treatment. Case then followed up by health department which enforces quarantine act.
      (2) Morbidity reports from venereal clinic and hospital.
      (3) Legal enactment necessary to secure morbidity reports.
      (4) Enact and enforce ordinance requiring pharmacists to keep record (open at all times to health department) of sales of drugs for the prevention and treatment of gonorrhea and syphilis.
   (*c*) Object of this control is to prevent contact between infected and noninfected persons.
   (*d*) May be obtained by:
      (1) Quarantine of infected persons.
      (2) Cure of infected persons.
      (3) Education of general public to avoid direct and indirect contact with persons infected or presumably infected.
3. Quarantine of infected persons.
   (*a*) Those who desire cure and can afford treatment.
      (1) These are instructed by their physicians and theoretically are thus quarantined.
   (*b*) Those who desire cure and can not afford treatment.
      (1) Means should be provided for the free treatment of this group.
         (*a*) Accurate diagnosis.
         (*b*) Dispensary relief.
         (*c*) Hospital relief.
   (*c*) Those who are careless or wilful in the distribution of these infections through promiscuity.
      (1) These for the most part are the ignorant or the criminal classes. Careful physical examination of all persons entering jails or other public institutions, those found infected to be isolated either in a special hospital or under a probation officer who enforces dispensary relief.
4. Cure of infected persons.
   (*a*) Establishment of venereal clinics by health authorities.
      (1) Federal, in zones in close contiguity to cantonments.
      (2) State, in situations where local authorities refuse or fail to establish clinic.
      (3) City, particularly those cities in which commercialized or clandestine prostitution flourishes for the patronage of soldiers but are beyond the authority of the Secretary of War.
      (4) Country, in thickly settled rural communities.
   (*b*) By the creation of new or the utilization of existing hospital facilities.
      (1) For the treatment of those who volunteer for treatment.
      (2) For the obligatory treatment of persons under control of the courts.
   (*c*) By legal enactment.
      (1) Declaring the venereal infections to be quarantinable.
      (2) By substituting confinement to hospital for confinement to jail in the case of those convicted by courts and having venereal infections.
      (3) By substituting remanding to a probation officer for the imposition of fines.
      (4) To carry out 2 and 3 it is necessary that all persons arrested be examined by the city physician or other authorized person.
      (5) By arrest of acknowledged and clandestine prostitutes by police-women.
5. Public education.
   (*a*) Relieve problem of all moral and social issues and place campaign solely on basis of control of communicable disease.
   (*b*) Propaganda of wisely conducted publicity.
      (1) Through public meetings addressed by forceful speakers.
      (2) Through public prints.
      (3) By placarding public toilets, placards to emphasize danger of venereal diseases and to recommend prompt treatment either by competent physician or at the free veneral clinic.
      (4) By follow-up work by social workers.
      (5) By the education of infected persons.
         (*a*) By physicians in private practice.
         (*b*) By venereal clinic and hospital.

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Jan. 4, 1918

1. Annual admission rate per 1,000 all troops in U. S. (Disease only) (Except Aviation Section, Signal Corps) ........ 1,374.4
   Noneffective rate per 1,000 on day of report ............ 41.7
2. National Guard Camps—
   Admission rate per 1,000 all divisions (disease only) ...... 1,368.7
   Noneffective rate per 1,000 on day of report .............. 47.9
   Divisions showing admission rate for diseases higher than average: Camps Wheeler, Kearny, Cody, Beauregard, Logan, Bowie and Doniphan.
   Divisions showing noneffective rates higher than average: Camps Beauregard, Wheeler, Kearny, Cody, Doniphan, Bowie and Shelby.
3. National Army Camps—
   Annual admission rate per 1,000 all divisions (disease only)..1,554.8
   Noneffective rate per 1,000 on day of report (all divisions).. 43.4
   Divisions showing admission rate for disease higher than average: Camps Travis, Pike, Funston, Dodge and Lee.
   Divisions showing noneffective rate higher than average: Camps Pike, Funston, Lee, Travis, Dodge, Jackson, Zachary Taylor and Lewis.
4. Venereal Diseases—
   Annual admission rate Regulars in United States............ 84.8
   Annual admission rate National Guard (Divisions in U. S.)... 54.5
   Annual admission rate National Army (Divisions in U. S.).. 64.4
   National Guard Divisions having rate above average: Camps Logan, Wadsworth, Doniphan, Sevier and McClellan.
   National Army Divisions having rate above average: Camps Pike, Dodge, Jackson, Grant and Meade.
5. Number of cases of pneumonia .............................. 623
   Highest number in any one Division (90th) .............. 72
   Number of cases of meningitis .......................... 97
   Highest number in any one Division (39th) .............. 26

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING Jan. 4, 1918

| Division | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffective per 1,000 on day of report |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 27th, Wadsworth... | 10 | ... | ... | 38 | .. | .. | 33 | 1 | .. | 2 | 35.2 |
| 28th, Hancock...... | 1 | ... | ... | 24 | .. | .. | 5 | 1 | .. | 3 | 22.7 |
| 29th, McClellan..... | 3 | ... | ... | 28 | .. | .. | 48 | 4 | 3 | 4 | 34.2 |
| 30th, Sevier......... | 25 | ... | ... | 31 | .. | .. | 8 | .. | .. | 8 | 31.5 |
| 31st, Wheeler....... | 37 | ... | ... | 8 | .. | .. | 3 | 2 | .. | 16 | 69.7 |
| 32d, MacArthur.... | 12 | ... | ... | 21 | .. | .. | 19 | .. | 13 | 4 | 47.4 |
| 33d, Logan........ | 6 | 1 | 1 | 79 | .. | .. | 94 | .. | .. | 2 | 38.1 |
| 34th, Cody.......... | 30 | ... | ... | 24 | .. | .. | 16 | 2 | 2 | 13 | 64.9 |
| 35th, Doniphan..... | 9 | ... | ... | 31 | .. | .. | 63 | .. | .. | 11 | 64.4 |
| 36th, Bowie.......... | 23 | ... | ... | 25 | .. | .. | 1 | 2 | .. | 13 | 58.6 |
| 37th, Sheridan...... | 5 | ... | ... | 17 | .. | .. | 6 | 1 | .. | 1 | 17.6 |
| 38th, Shelby......... | 7 | ... | ... | 27 | .. | .. | 8 | .. | .. | 11 | 53.8 |
| 39th, Beauregard... | 35 | 7 | 7 | 20 | .. | .. | 8 | 26 | .. | 21 | 86.8 |
| 40th, Kearny........ | 58 | ... | ... | 14 | .. | .. | 83 | .. | 44 | 7 | 63.8 |
| 76th, Devens........ | 2 | ... | ... | 13 | .. | .. | 38 | .. | 1 | 1 | 29.6 |
| 77th, Upton.......... | 12 | ... | ... | 9 | .. | .. | 2 | 1 | .. | 6 | 23.5 |
| 78th, Dix............ | 2 | ... | ... | 22 | .. | .. | 10 | .. | .. | 0 | 35.3 |
| 79th, Meade......... | 7 | ... | ... | 54 | .. | .. | 53 | 1 | 4 | 1 | 28.6 |
| 80th, Lee............ | 59 | ... | ... | 19 | .. | 1 | 111 | 6 | .. | 26 | 63.5 |
| 81st, Jackson....... | 17 | ... | 1 | 33 | .. | .. | 40 | 15 | .. | 18 | 51.1 |
| 82d, Gordon........ | 9 | ... | ... | 23 | .. | .. | 200 | 11 | .. | 10 | 39.4 |
| 83d, Sherman...... | 5 | ... | ... | 16 | .. | .. | 122 | 2 | 6 | 2 | 32.7 |
| 84th, Taylor......... | 21 | ... | ... | 25 | .. | .. | 33 | 2 | .. | 10 | 50.3 |
| 85th, Custer......... | 3 | ... | ... | 26 | .. | .. | 43 | .. | .. | 1 | 24.2 |
| 86th, Grant.......... | 6 | ... | ... | 40 | .. | .. | 97 | .. | 2 | 1 | 25.6 |
| 87th, Pike........... | 66 | ... | ... | 154 | .. | .. | 260 | 4 | 26 | 49 | 68.5 |
| 88th, Dodge......... | 10 | ... | ... | 50 | .. | .. | 77 | 1 | 3 | 4 | 56.5 |
| 89th, Funston...... | 7 | ... | ... | 6 | .. | .. | 157 | 4 | 8 | 11 | 65.5 |
| 90th, Travis........ | 72 | ... | 2 | 25 | .. | .. | 46 | 1 | .. | 22 | 61.8 |
| 91st, Lewis.......... | 6 | ... | ... | 31 | .. | .. | ... | 1 | 29 | 5 | 45.3 |

7. ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

|  | Regulars, U. S. Army, in U. S. only, 1916* | Regulars in U. S., Week Ending Jan. 4, 1918 | National Guard, All Camps, Week Ending Jan. 4, 1918 | National Army, All Camps, Week Ending Jan. 4, 1918 |
|---|---|---|---|---|
| Pneumonia................ | 2.59 | 18.8 | 33.9 | 35.8 |
| Dysentery................ | 3.97 | 2.5 | 0.1 | 0.0 |
| Malaria.................. | 12.52 | 0.8 | 1.1 | 0.3 |
| Venereal................. | 91.23 | 84.8 | 54.5 | 64.4 |
| Paratyphoid.............. | 0.31 | 0.0 | 0.0 | 0.0 |
| Typhoid.................. | 0.21 | 0.0 | 0.0 | 0.1 |
| Measles.................. | 20.28 | 84.6 | 55.6 | 156.7 |
| Meningitis............... | 0.29 | 1.6 | 5.4 | 5.7 |
| Scarlet fever............ | 0.59 | 4.0 | 8.7 | 9.3 |

* Enlisted men only, both white and colored.

## PHYSICAL CAUSES FOR REJECTION OF REGISTRANTS

The Provost Marshal General, in his report of the operation of the selective service, says:

Rumors here and there in the public press stated that the camp surgeons had discovered, among the men accepted by the local boards, some with glass eyes, some with cork legs, and some with other obvious disqualifications. If such men were found, no disparagement is involved for the local board surgeons; for it is safe to assert that such grossly defective persons came from the contingent of about 20,000 men who had never appeared before the local boards, but had been gathered up by the adjutants general and sent direct to the camps. There is no ground for supposing that the local board surgeons were either incompetent or careless to that extent. The spirit of their practice was to make all intendments in favor of the government; but nothing permits us to suppose that they would or did send to camp any men with cork legs or glass eyes.

### PERCENTAGES OF REJECTIONS

Doubtless the local boards varied extremely in the strictness of their examinations. But so also, it seems, did the camp surgeons. The table shows that the percentage of rejections at camp varied between 0.72 per cent. and 11.87 per cent.; and as the physical condition of the men from the different regions cannot entirely account for this, it must be attributable in part to differences of strictness in the examinations by the camp surgeons:

| Specific Camp Showing for Physical Rejections | States Contributing to Camp | Number Arrived | Number Rejected | Per Cent. Rejected |
|---|---|---|---|---|
| Camp Custer.... | Michigan, Wisconsin................ | 17,487 | 1,660 | 9.49 |
| Camp Devens.... | Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont.... | 36 082 | 4,281 | 11.87 |
| Camp Dix........ | Delaware, New Jersey, New York.. | 19,804 | 1,573 | 7.94 |
| Camp Dodge. ... | Illinois, Iowa, Minnesota, North Dakota........................... | 20,505 | 690 | 3.36 |
| Camp Gordon... | Alabama, Georgia, Tennessee...... | 19,935 | 1,556 | 7.80 |
| Camp Grant..... | Illinois, Wisconsin................. | 26,658 | 1,148 | 4.30 |
| Camp Jackson... | Florida, North Carolina, South Carolina......................... | 17,754 | 1,975 | 11.12 |
| Camp Lee........ | Pennsylvania, Virginia, West Virginia............................ | 36,938 | 920 | 2.49 |
| Camp Lewis..... | California, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming.................... | 46,313 | 5,095 | 11.00 |
| Camp Meade..... | District of Columbia, Maryland, Pennsylvania, Tennessee......... | 35,971 | 2,245 | 6.24 |
| Camp Pike....... | Alabama, Arkansas, Louisiana, Mississippi....................... | 24,389 | 1,819 | 7.46 |
| Camp Riley...... | Arizona, Colorado, Kansas, Missouri, Nebraska, New Mexico, South Dakota.................. | 38,975 | 281 | 0.72 |
| Camp Sherman.. | Ohio, Pennsylvania................ | 9,850 | 1,012 | 10.27 |
| Camp Taylor.... | Illinois, Indiana, Kentucky........ | 27,903 | 2,143 | 7.68 |
| Camp Travis... | Oklahoma, Texas.................. | 32,716 | 993 | 3.03 |
| Camp Upton..... | New York.......................... | 31,423 | 2.318 | 7.38 |
| Totals........ | ..................................... | 442,733 | 29,709 | |

But were the Surgeon-General's rules for physical examination, as set forth in the directions to the local boards, stricter than necessary for securing efficient fighting men? On this point the civilian surgeons have expressed variant opinions. A large majority consider that the physical requirements are not too exacting. But a considerable number deem the requirements too strict in many respects, notably as to the weight and height relation, teeth, eyes and feet, and contend that the regulations as strictly applied tend to exclude many capable and efficient men. For example, one board cited a case of exclusion for flatfoot of a man who had for many consecutive seasons endured the hardships of a guide's vocation in the Canadian forests; and the prevalence of flatfoot among sturdy negroes of the South was frequently commented on.

### FEW ATTEMPTS AT DECEPTION

It is gratifying to report that falsification was attempted to only a slight and negligible extent. Here and there a board reports a locality as showing 50 per cent. of attempted falsification; but these instances were sporadic, and represent only some local obliquity of morals.

Of the various grounds for rejection, which were the most common? It must be left to the future to study accurately the valuable mass of data now latent in the records. Time has sufficed only to examine a small group of the records of rejections; 10,000 men were represented, spread over eight camps. The specific source of defect showing the largest percentage was eyes; and the next largest, teeth. The figures for the principal causes of rejection are as follows:

| Causes for Physical Rejections | Number | Per Cent. |
|---|---|---|
| Total number of cases of physical rejections considered | 10,258 | |
| Alcoholism and drug habit............................ | 78 | 0.77 |
| Physical undevelopment ............................ | 416 | 4.05 |
| Teeth ............................................ | 871 | 8.50 |
| Blood vessels ...................................... | 191 | 1.86 |
| Bones ............................................ | 304 | 2.96 |
| Digestive system .................................. | 82 | 0.80 |
| Ear ............................................... | 609 | 5.94 |
| Eye ............................................... | 2,224 | 21.68 |
| Joints ............................................ | 346 | 3.37 |
| Muscles .......................................... | 66 | 0.64 |
| Respiratory ...................................... | 161 | 1.56 |
| Skin ............................................. | 118 | 1.15 |
| Flatfoot ......................................... | 375 | 3 65 |
| Genito-urinary (nonvenereal) ....................... | 142 | 1.39 |
| Genito-urinary (venereal) ......................... | 438 | 4.27 |
| Heart disease .................................... | 602 | 5.87 |
| Hernia ........................................... | 766 | 7.47 |
| Mentally deficient ................................ | 465 | 4.53 |
| Nervous disorder (general and local)................ | 387 | 3.77 |
| Tuberculosis ...................................... | 551 | 5.37 |
| Underweight ...................................... | 163 | 1.59 |
| Ill defined or not specified.......................... | 93 | 0.91 |
| Not stated ........................................ | 809 | 7.89 |

## NEWS OF BASE HOSPITALS

**Base Hospital No. 13, Presbyterian Hospital, Chicago,** has been mobilized and left during the past week for Fort McPherson, Ga., for training preparatory to service. The medical personnel of the hospital includes: Lieut.-Col. Chandler P. Robbins, M. C., U. S. Army, commanding officer; Major Dean D. Lewis, director; medical staff: Capts. R. C. Brown, Lewis G. Pollock; Lieuts. L. C. Gatewood, Charles F. Pickering, G. O. Solem, William A. Taylor and Donald P. Abbott; surgical staff: Capts. V. C. David, A. H. Montgomery and Warren P. Sights; Lieuts. Angus L. Cameron, Andy M. Cass, McMicken Hanchett, Wilmer D. McGrath, E. M. Miller and William T. Robinson; laboratory: Lieuts. Thomas D. Allen, W. E. Gatewood; registrar: Capt. Basil C. Harvey; roentgen ray: Capt. Arthur R. Metz; dentist: Lieut. Walter M. Morgan; chaplain: Capt. Edward N. Ware.

## NEWS OF THE CANTONMENTS

### Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Jan. 12, 1918.

Announcement is made of the marriage of Lieut. Charles McGivern, M. C., assigned to ammunition train, to Mrs. Lois Martin of Philadelphia.

Wednesday, January 9, the medical officers of the Twenty-Eighth Division were given a written test covering a two and one-half months' course of training.

Lieut. Charles M. Griffith, M. R. C., from Tennessee, attached to the One Hundred and Ninth Infantry, has been promoted recently to the rank of captain.

### Thirty-First Division, Camp Wheeler, Macon, Ga.

Jan. 12, 1918.

#### INFECTIOUS DISEASES

Pneumonia is still the most feared disease of this camp. Now that there is no more measles, it appears that the weather influences the rate. A few days of damp weather are followed by more cases, while there are fewer in dry cold weather. Two or three cases a day seem an average, but bad weather causes a rise to six or eight, or even more.

Meningitis has appeared in Macon with ten cases during December and January, and four deaths recently. It did not come from this camp.

Mumps are causing a high sick report, running from 50 to 100 new cases a day. The disease is not considered serious.

Empyema is a serious complication of pneumonia. About 7 per cent. develop empyema, and of these many die. Those who recover are practically all disabled permanently.

The pneumonia convalescents that were sent to General Hospital No. 6, at Fort McPherson, are beginning to return for duty, after a stay of about twenty-four days.

#### PROMOTIONS IN NATIONAL GUARD

The lieutenants of the National Guard that have completed one year's service will be examined for promotion in the near future. The examining board will consist of Lieut.-Col.

Louis C. Duncan, M. C., U. S. Army, Major James A. Livingston, M. C., N. G. Medical Reserve Corps officers are not included in the examination.

### LECTURES ON VICE CONTROL

Major Turck addressed a meeting of the Macon Ministerial Association at the Y. M. C. A. Building in Macon on Thursday. The subject was vice control in the interest of the soldier. Very effective work has been done in Macon by the new city administration, and the conditions as to prostitution have been much improved.

### BASE HOSPITAL NOTES

During the rain storm last evening the convalescent tents were blown down, but not before patients had been removed to the adjacent wards. Under the direction of the commanding officer all government property save the tents themselves were put under shelter. Much damage was done to the framing of the tents, and the commanding officer is considering replacing them with frame shacks. No patients were injured, nor does the experience seem to have done them any harm.

There has been a slight increase in the number of patients under treatment in the hospital during the week, the census showing 1,273 yesterday, this being due to the increase in the number of mumps cases being admitted.

A routine examination of the division for meningitis carriers is being systematically done. With the small force of officers on duty there, the laboratory force is kept exceedingly busy.

Major Herbert P. Cole, Lieutenant Cook, Lieutenant Donnelly and Lieutenant Wumkes have been ordered to Fort Riley, Kan., to join Evacuation Hospital No. 12 for service overseas.

The installation of beaver board ceiling and sheathing is progressing rapidly. It adds greatly both to the comfort and appearance of the wards.

### NOTES OF ONE HUNDRED AND SIXTH SANITARY TRAIN

Capt. Fred Boyd, commanding Ambulance Company No. 124, has returned from leave of absence and taken up his duties.

Capt. Richard C. Rush is still on detached service at Camp Gordon with the selectmen to come to this division.

Major Lorin A. Greene, commanding Field Hospital No. 121, has been on sick report for the past week.

It is with regret that seven of our oldest and most competent men were transferred as part of the personnel of General Hospital No. 6, Fort McPherson, Ga. Our immediate loss is surely the gain to them.

## Eightieth Division, Camp Lee, Petersburg, Va.

Jan. 12, 1918.

### COURSE OF INSTRUCTIONS

During the month of December the training of the enlisted personnel of the Medical Department has been delayed by bad weather, mud, rain and much snow and cold in the "Sunny South." Instruction that could be given indoors has progressed steadily. The regular meetings of the medical officers have been held. Three interesting lectures have been given by Capt. James T. Rugh, M. R. C., on the care of the feet and other minor orthopedic defects. Capt. Jerome L. F. Toujan, one of the French officers attached to the division, gave an interesting lecture on the work of the regimental detachments with infantry during an attack and while remaining in trenches under fire. This lecture was instructive and much appreciated by the medical officers.

### HEALTH OF CAMP LEE

During December an additional number of cases of mumps and measles developed, largely confined to the Three Hundred and Seventeenth and Three Hundred and Eighteenth Infantry who come from rural districts of Virginia. Up to January 7, there have developed in Camp Lee 1,440 cases of mumps, 823 of measles, 122 of pneumonia and nineteen of meningitis, one case of diphtheria, one of smallpox and two cases of chickenpox. There have been nineteen deaths from bronchopneumonia following measles, a number of these having general septic conditions, empyema, peritonitis and pericarditis, and sixteen from other types of pneumonia. There have been six deaths from meningitis.

### THREE HUNDRED AND FIFTH SANITARY TRAIN

The training of officers and enlisted men has suffered on account of the lack of sufficient enlisted men to fill out the companies. The work in several companies will have to be gone over a second time when the companies are filled. The men, however, have been instructed in litter work, bearer work, both on the field and in the trenches. The recent epidemic of mumps and measles has furnished an excellent opportunity for the men to learn something of nursing, as fifty men from the field hospital were detailed to the base hospital to act as wardmasters. They have already had three weeks' experience at this work. The opening of two convalescent camps for mumps and measles cases has required further assistance, and the men from the ambulance companies have also recently had an opportunity to learn something of hospital routine and wardmaster work.

### LABORATORY WORK

The bacteriologists have been hard worked these days examining cultures for carriers in a dozen different companies, differentiating types of pneumonia, examining cooks to detect possible typhoid carriers and other routine work. Lieuts. F. W. Humphries, E. J. Asnis and George R. Moffitt, M. R. C., are the bacteriologists attached to the base hospital.

### BASE HOSPITAL

Early in December before measles made work severe, the nurses gave a dance at the club rooms of the Y. M. C. A. at the camp. Miss Beecroft received the nurses and officers who attended, and the dance was most enjoyable. Music was furnished by the Three Hundred and Twentieth Regimental Band.

The work of the hospital has increased both in the medical, surgical and special services, due largely to bronchitis, tonsillitis with a number of severe septic infections, as well as the frank cases of pneumonia and bronchopneumonia following measles.

### PERSONAL NOTES

Lieut. Grover B. Gill, M. R. C., was quite ill recently from hemorrhage following tonsillectomy.——Lieut. William J. Robbins, M. R. C., is recovering from a fracture of the neck of the femur.——Lieuts. Dwight W. Rivers and Nicholas B. Cannady, M. R. C., are convalescent from mumps.——Lieut. Bennet A. Burks, M. R. C., had an attack of German measles last week. We know nothing else German about him.——Major Ferdinand Schmitter, M. C., recently took his examination for promotion.——Lieut. Benjamin J. Slater, M. R. C., was recently ordered to the Army Medical School for training for the regular medical corps.

## Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Jan. 7, 1918.

### BOARD OF REJECTIONS

A board has convened for the purpose of recommending the discharge of drafted and enlisted men on surgeon's certificate of disability. The members of the board are Major Junius McHenry, Capts. Charles Barton and John J. Moren, medical officers at the base hospital.

Under authority from the War Department, three officers from the Quartermaster's Department have been detailed to take not more than four trips a week, for four weeks, to West Point and Elizabethtown, Ky., in connection with the preparations for the artillery target range. This field is located near Salt River about 20 miles from Camp Taylor, and preparations are being made to house men on the grounds during their period of attendance at the artillery school.

### BASE HOSPITAL

Owing to the cold weather, officers and nurses of the base hospital were subject to many inconveniences, mostly from insufficient heat and shortage in supply of water, owing to frozen pipes. The patients, however, did not suffer, as by dint of much hard work the officers and nurses were able to keep the patients comfortable.

Rev. Paul Bagby has been appointed hospital secretary, and in the future will devote all his time to looking after the sick and those who are recuperating. He hopes to have a building erected for convalescents and those who are recuperating in order that they may be entertained and have an opportunity to see their friends in pleasant surroundings. The Army Y. M. C. A. has already done much for those who are ill at Camp Zachary Taylor. Literature and stationary have been distributed, and occasionally flowers have been bought. Nothing seems to be appreciated by the men more than flowers.

A comparison of the sick report for this month with that of last shows that there was some increase in the percentage. Pneumonia has caused the largest number, with the record showing forty-three cases in the base hospital. It has caused twenty deaths since the camp opened. The pneumonia has been principally of the secondary bronchopneumonia type following measles.

The health report shows 928 in the base hospital—159 in quarters; eight deaths have occurred from pneumonia, one from empyema and one from pericarditis.

### STREETS NAMED

Camp Zachary Taylor took on the appearance of a real city last week when the plans for naming every street were completed. The three main thoroughfares are to be named Kentucky, Indiana and Illinois avenues. Other thoroughfares are to bear the names of former presidents, counties of the three states, and generals of the American Revolution. Signs will be posted at the beginning and end of each avenue and street. The military police will regulate the traffic at busy corners throughout the camp.

A new building at the camp was thrown open by appropriate ceremonies last week. It is officially known as the Hostess House. It is situated very close to the end loop of the care line, and across the road from the base hospital. It is especially designed to give aid to women visitors at the camp who are in distress, or to give any assistance desired by women who come there to see relatives and friends. The staff of the "house of welcome" has been named, and the activities are in operation. The work is conducted directly from New York through division managers, and cooperates with the Young Women's Christian Association. They have been established at twenty-two camps and cantonments, and houses are in process of erection or authorized at fourteen other camps.

Waste of water in the camp will be stopped, under a general order just issued. All officers must see that faucets are kept turned off when not in use. All alcohol and intoxicating drinks brought into camp are confiscated and turned over to the camp quartermaster, who corresponds directly with the chief of ordinance in regard to its disposal.

### OVERSIZE MEN AT THE CAMP

Lieut.-Col. Van Duyne, division quartermaster, has found the men at Camp Zachary Taylor are larger than the average soldiers. The demand for large sizes in uniforms has left a surplus of smaller sizes on hand. The largest shoes issued in the Army are No. 12, but one man is here who needs a No. 14, and it became necessary to issue orders to the manufacturers to fit this man. Some men were too fat for outfits; but regular exercise and drilling has trained them down so that the largest sizes in uniforms fit them.

### ARMY LEVELS SOCIAL BARRIERS

That all Americans are equal has certainly been demonstrated in National Army camps. Laborers walk side by side with employers, graduates from famous universities drill side by side with the man who cannot read or write, and sons of rich men are in the ranks with men much less fortunate from a monetary standpoint.

One captain in the Three Hundred and Twenty-Seventh Artillery recently stated that he would save up his pay so he could purchase an automobile. His orderly, who overheard his remark, said, "Sir, I would be more than glad to write home and have them send one of my cars here for your use." The foreign officers here have been loud in their praise of the spirit of the American soldier, here and abroad, and of their willingness to learn.

### MISSTATEMENT REGARDING TYPHOID FEVER

The following letter from Division Surgeon J. H. Allen, Lieutenant-Colonel, M. C., has been received by your correspondent, and it is a pleasure to reproduce it. Our original notes stated there were two cases of typhoid fever, and the error crept into the completed copy.

> I notice in the issue of The Journal of Dec. 27, 1917, the statement that Camp Zachary Taylor has twenty-three cases of typhoid fever. This is an error, and one that puts us in a very bad light on this question. At the time when these data were obtained there were only two cases of typhoid fever in Camp Zachary Taylor. Since the organization of this division there have been only five cases of typhoid fever all together, and one of these was a doubtful case, as at no time was a positive blood or stool culture obtained. We have at present only one case carried as typhoid fever, and this is a convalescent one that was admitted early in November. Will you not kindly correct the statement as soon as possible?

## Eighty-Seventh Division, Camp Pike, Little Rock, Ark.

Jan. 12, 1918.

### NEW ASSIGNMENTS

There has been a general reassignment within the commissioned personnel of this division since the beginning of the year. The following transfers have been made: Lieut. W. E. Whalen of Utah has been relieved from Field Hospital Company No. 345 and assigned as commanding officer of Ambulance Company No. 345; Lieuts. J. W. McGuire and F. N. Bjerken from the Regimental Infirmary, Three Hundred and Forty-Sixth Infantry, to Field Hospital Company No. 345; Capt. S. W. McCool from Regimental Infirmary, Three Hundred and Forty-Fifth Infantry, to Field Hospital Company No. 347; Capt. J. B. Slack from Field Hospital Company No. 348 as commanding officer, to Ambulance Company No. 348 in the same capacity; Lieut J. W. Powers from Field Hospital Company No. 345 to Field Hospital Company No. 348. The following have been relieved from Field Hospital Company No. 345 and assigned as commanding officers of the following field hospitals: Lieut. John N. Thorpe to Field Hospital Company No. 346, Lieut. R. P. Yeagle to Field Hospital Company No. 347, Lieut. H. J. Huene to Field Hospital Company No. 348. Capt. Nolan Stewart of Ambulance Company No. 345 has been promoted to a majority and made director of Ambulance Companies 312, Sanitary Train. Capt. W. S. Carstopher, who has been in command of Field Hospital Company No. 347, has been transferred to Machine Gun Battalion No. 336; Lieut. C. P. Rutledge, from Field Hospital Company No. 347 to Regimental Infirmary, Three Hundred and Forty-Sixth Infantry; Lieut. David Seinkowitz, from Field Hospital Company No. 348 to Regimental Infirmary, Three Hundred and Forty-Sixth Infantry; Capt. Thomas McCabe, from command of Ambulance Company No. 348 to Infirmary No. 3, One Hundred and Sixty-Second Depot Brigade; Lieut. DeLamar Turner, from Field Hospital Company No. 348 to Regimental Infirmary Three Hundred and Forty-Sixth Infantry.

### COURSE IN FRACTURES

An officer has been designated from each ambulance and field hospital company to take a four weeks' course in fractures at Chicago. The following officers have taken up this course: Capts. J. B. Steele and C. H. Lerrigo; Lieuts. J. N. Thorpe, Emerson Megrail, W. F. Jillson, D. Bradley and H. N. Ingram.

### NEW ARRIVAL

Capt. Howard Fletcher has arrived at Camp Pike, and has assumed duties at the base hospital.

### QUARANTINE

It has been announced that about February 1 the quarantine maintained against Camp Pike will probably be lifted. This, it is hoped, will enable the various sanitary units at this point to make up their full complement. At present the Sanitary Corps is about half full. The sections, however, that require special training are not waiting for the full number. A highly intensive course of training is being carried on in the field hospital section under the direction of Major R. H. Davies. This includes all features possible, but especial emphasis is being laid on the most practical side of the work, care of the sick and wounded, tent pitching, transportation problems and general sanitary regulations in camp and on the march. A special effort is being made to develop an *esprit de corps* among the officers and men and to produce in an appreciable degree a soldierly bearing that will command respect both at home and abroad.

### COOPERATION WITH LOCAL BOARDS

Because of the very inadequate character of the medical examinations conducted by the local boards in this section, as evidenced by the poor physical specimens sent to Camp Pike, it has been decided to detail a certain number of medical officers to visit the various local boards for the purpose of demonstrating the proper method of conducting a physical examination. The assignment will appeal to southern members of the Medical Reserve Corps, but to those who have had some experience in mustering in National Guard units, the rose is not entirely without its thorns.

### FOOT INSPECTION

An order recently received by the division surgeon's office was to report "at once" on the inspection of a series of 5,000 pairs of feet, noting the condition of the feet and the fitting of the shoes.

### CONVALESCENT CAMP

The convalescent camp in the Three Hundred and Twelfth Sanitary Train is taking care of all work along this line in this division, and contains over 300 cases at the present time, classified as meningitis carriers, measles convalescents, and those in quarantine because of exposure to smallpox. The smallpox group consists of over 125 colored troops who have been in quarantine nearly sixty days, new cases having broken out from time to time and the period of quarantine being extended twenty-one days automatically with each new case. The problem of handling as large a number of men as this, and of this particular type, for so long a period is quite a strenuous one. The measles convalescents present a great many medical problems, as a certain percentage develop pneumonia after reaching the convalescent barracks. A large number of cases of otitis media has developed among these patients. The convalescent camp is at present occupying a row of five barrack buildings in the area between the Third Officers' Training Camp and the Three Hundred and Twelfth Sanitary Train.

### EXTRACANTONMENT ZONE

Col. Robert M. Thornburgh, division surgeon, has detailed three medical officers from this camp to assist in the examination of hotels, restaurants, barber shops, manicuring parlors, etc., in Little Rock. Mucous patches have been found in the throats of a number of female employees in some of the leading hotels in that city. The sanitary conditions of some of these places has also been so bad as to necessitate the forbidding of soldiers to enter them.

### HEALTH CONDITIONS

Health conditions at Camp Pike are apparently gradually improving. There is still a large number of cases of measles, although trifling in comparison with conditions a month or two back. Meningitis seems to be well under control and very few new cases are developing. Smallpox is apparently well under control, there being no new cases for the last ten day period. The typical "barracks cough," which swelled into a grand chorus at "reveille" and "retreat," a few months back, is rarely heard at present. The present physical condition of the nearly 35,000 troops stationed here appears excellent when inspected at drill or on parade. The majority appear thoroughly fit physically for the arduous duties awaiting them.

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## Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

Jan. 16, 1918.

Those camps whose men have been drawn from centers of urban population have had a very low noneffective rate compared with the camps whose men have come from country and farming districts. The latter is the case in this camp, and as a result we have had to contend with epidemics of the usual diseases of childhood among these men, who have never before been exposed to them.

For a while, it was meningitis; this has now been controlled. There has been no case reported since December 30, and there were but twenty-eight cases during December, with four deaths. The disease is endemic in several of the states from which the men of this division were drawn.

Measles ran along coincidently with meningitis, with a number of bronchopneumonias and empyemas as complications, there being twenty-four deaths from these causes. We had 924 cases of measles. The epidemic has about run its course, and very few new cases are coming in now.

On the other hand, German measles has just begun, there being ninety-seven cases from December 18 to 31, and new cases are being admitted daily. The same is true of mumps, there having been 227 cases during December, and the incidence has been increasing daily during January.

There were twelve cases of scarlet fever during December, and forty-one cases of lobar pneumonia, with twenty-seven deaths.

An interesting work is being carried on among the men of the regiment. Volunteers are being vaccinated with a meningococcus vaccine composed of a number of strains of heat-killed meningococci. Blood is taken from the vein for agglutination tests before the initial dose is given, and the blood is also subsequently tested after each dose, three doses in all being given. This work has not yet progressed far enough to warrant judgment of the results of the vaccination or publication of the facts noted in connection with it.

### VETERINARY SERVICE

Major Bemis, V. C., has been ordered to leave the office of the division surgeon of the Eighty-Ninth Division and proceed to another camp to organize a veterinary hospital for immediate service overseas. The work of the veterinary corps with the armies of the Allies in returning sick and wounded horses to duty has been exceptionally noteworthy in this war. Major Bemis was formerly surgeon in the Veterinary College at the Iowa Agricultural College at Ames.

### ROBBERY AND MURDER

The work of the entire camp has been upset by the brutal murder of four civilians and severe wounding of a fifth by Capt. Lewis J. Whisler of the Three Hundred and Fifty-Fourth Infantry Regiment of this division. Whisler held up the Bank of Funston, which is located in a small frame shack on the amusement zone of the camp, between 7:15 and 9 p. m., on the night of January 11. It was bitter cold, 20 degrees below zero, the coldest night in six years, and the robbery was evidently carefully planned as regards weather, time and other details. At the point of a pistol, the robber tied up the five men found in the bank, robbed it and was leaving, when he overheard one of his victims remark that he recognized him. This caused him to return, and with the sharp blade of a new ax, which he had brought with him, he killed four of his victims and thought he had killed the fifth. He nearly succeeded, and had it not been for the prompt use of heart stimulants given him by the two surgeons when the crime was discovered, it is doubtful whether the sole survivor would still be alive. He made a statement to the surgeon on regaining consciousness that the captain had done it. The skulls of the other four men were badly fractured, and in each of the four cases the entire head and face were horribly mutilated and discolored. The murderer committed suicide within eighteen hours after his crime, using an Enfield rifle, for the net thrown around the camp made escape impossible. Medical officers were detailed to make finger prints of every officer in the division and no man was allowed to leave camp. The murderer left a note that cleared matters up, and bloody clothes were found in his room. This murder cannot help but suggest to the mind of the medical officer the advisability of putting candidates for officers' training camp through a rigorous mental test and of obtaining a history of a man's past and antecedents. This captain is said to have been very erratic; he was difficult to get along with, having had one officer court-martialled and attempting to have two others; he was divorced, and in debt. The amount of money he secured is not yet known, nor has any of it but $35 been recovered. It is stated by Major Smith to be between $40,000 and $60,000.

### SPECIAL DUTY

Capts. C. E. Jenkins, O. L. Garlinghouse, W. B. Heagerty and F. M. Manson of the Medical Reserve Corps left the division, January 14, on special duty. They are to make an itinerary of local boards of the states from which the drafted men of this division are drawn. They are to assist the local boards in organizing the examination of recruits and aid them in avoiding the sending of men unfit for service to this camp by recounting to them in a tactful and cooperative manner some of their common experiences with the drafted men sent to camp during the past three months.

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## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Camp Meade*, Annapolis Junction, Md., base hospital, Lieut. IVY A. PELZMAN.

*To Camp Greene*, Charlotte, N. C., *Camp Wadsworth*, Spartanburg, S. C., *Camp Gordon*, Atlanta, and *Camp Hancock*, Augusta, Ga., to make special sanitary inspections at these camps, and on completion *to Wilmington, N. C.*, to investigate and report on the desirability of that locality for the establishment of a convalescent hospital, and on completion *to his proper station*, Lieut.-Col. CHARLES F. MORSE.

*To Camp Greene*, Charlotte, N. C., for duty, Lieut. LEROY T. HOWARD.

*To Fort Riley*, as commanding officer of Evacuation Hospital No. 11, Lieut.-Col. ARTHUR W. MORSE.

*To Camp Greene*, Charlotte, N. C., for duty, Lieut. WILLIS P. BAKER.

*To Fort Oglethorpe*, to investigate the training facilities at that post, and on completion *to his proper station*, Lieut.-Col. CHARLES F. CRAIG and Col. FREDERICK P. RUSSELL.

*To Camp Dodge*, Des Moines, Ia., *Camp Grant*, Rockford, Ill., *Camp Sherman*, Chillicothe, Ohio, *Camp Meade*, Annapolis Junction, Md., *Camp Dix*, Wrightstown, N. J., *Camp Upton*, L. I., N. Y., to investigate the conditions, and to supervise the organization and construction of the Sanitary Personnel of the 92d Division at these camps, and on completion *to his proper station*, Major PERRY L. BOYER.

*To Washington, D. C.*, and report to the Surgeon-General for duty in his office, Major EDWARD D. KREMERS.

*To Camp Logan*, Houston, Tex., for duty, Lieut. FRED G. BENTON.

*To Camp Fremont*, Palo Alto, Calif., for duty, Lieut. ALBERT B. PAVY.

*To Camp McClellan*, Anniston, A[illegible] for duty, Lieut. WILLIAM H. DANIELS.

*To Camp Logan*, Houston, Texas, base hospital, Lieut. CHARLES C. AYROS.

*Ta New York City*, for duty in connection with the work of developing special hospitals, and on completion *to his proper station*, Major EDGAR KING.

*To Washington, D. C.*, for the purpose of organizing Stationary Laboratory No. 2, Major CLARENCE L. COLE.

*To Camp Dix*, Wrightstown, N. J., for duty, Lieut. VAL E. MILTENBERGER.

*To Camp Wadsworth*, Spartanburg, S. C., for duty as divisional psychiatrist, Lieut. BARRY J. WORTHING.

## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*Ta Camp McClellan*, Anniston, Ala., base hospital, from Chicago, Lieut. W. THEODORE LANGLEY, Camp Hill.

*To Canal Zone*, Panama Canal Dept., for duty, Capt. HENRY GOLDTHWAITE, Mobile.

*To Fort Oglethorpe*, for instruction, Lieuts. HIRAM O. BARKER, Cardif; HENRY G. WADDELL, Dadeville; JAMES L. NORTHINGTON, Hamilton.

*To Hoboken, N. J.*, for [illegible] from Army Medical School, Lieut. JOHN D. DICKSON, B[illegible].

*To his home* and honorably discharged on account of being physically disqualified for active service, Capt. EUGENE Y. MALONE, Samson.

### Arizona

*To Fort Oglethorpe*, as commanding officer of Convalescent Camp No. 1, from Fort Oglethorpe, Lieut. ROGER V. PARLETT, Whiteriver.

### Arkansas

*To Camp Jackson*, Columbia, S. C., base hospital, from Camp Jackson, Lieut. GEORGE E. BOOTH, Lake Village.

*To Fort Oglethorpe*, as commanding officer of Convalescent Camp No. 2, from Fort Oglethorpe, Lieut. MARSHALL ALLEN, Okean.

*To his home* and honorably discharged, Lieut. WILLIAM F. AKIN, Branch.

### California

*To Camp Bowie*, Fort Worth, Texas, base hospital, from Presidio, Capt. GEORGE A. FIELDING, Sawtelle; from Camp Meade, Lieut. THOMAS R. PETCH, Eureka.

*To Camp Fremont*, Palo Alto, Calif., for duty, Lieut. RUSSELL W. PRINCE, Los Angeles.

*To Camp Kearny*, Linda Vista, Calif., base hospital, Lieut. HERBERT P. NOTTAGE, Alameda; from Camp Lewis, Lieut. GABRIEL J. J. VISCHI, San Francisco.

*To Camp Lewis*, American Lake, Wash., Aviation Section, Signal Corps, for temporary duty, from Camp Lewis, Capt. WILLIAM H. ROBERTS, Pasadena.

*To Rockefeller Institute, New York*, for instruction, Lieut. ALBERT J. SCHOOL, Jr., Los Angeles.

*To the Presidio*, San Francisco, Calif., for duty, Capt. LEONARD W. ATKINSON, Napa.

*To San Antonio*, Texas, Kelly Field, for duty, from Houston, Capt. LORENZO F. LUCKIE, Los Angeles; to make special examination of the command for tuberculosis, from Camp Travis, Capt. HENRY ABRAHAM, San Francisco.

*To his home* and honorably discharged on account of being physically disqualified for active service, Capt. RICHARD S. ANTHONY, Los Gatos.

### Colorado

*To San Antonio*, Texas, Kelly Field, to make special examination of the command for tuberculosis, from Camp Travis, Capt. ALEXIUS M. FORSTER, Colorado Springs; Lieut. BENJAMIN W. CARLSON, Denver.

### Connecticut

*To Camp Cody*, Deming, N. M., base hospital, from Presidio, Capt. CHARLES H. SPRAGUE, Bridgeport.

*To Camp Dodge*, Des Moines, Iowa, base hospital, from Army Medical School, Lieut. WILLIAM M. STAHL, Danbury.

*To Camp Lee*, Petersburg, Va., Veterinary Hospitals, from Hoboken, Capt. NELSON L. DEMING, Litchfield.

*To Camp Sevier*, Greenville, S. C., Aviation Sec., S. C., for duty, Capt. WILLIAM H. GRAY, Mystic.

*To Fort Oglethorpe*, for instruction, Lieut. JOHN G. SAGARINE, Hartford.

### Delaware

*To Camp Wheeler*, Macon, Ga., for duty, from Camp Wheeler, Lieut. HERMAN S. MILLER, Wilmington.

### District of Columbia

*To Camp Cody*, Deming, N. M., and to such other points as may be necessary to make special inspections, and on completion *to his proper station*, Capt. SCOTT D. BRECKENRIDGE, Washington.

*To Camp Pike*, Little Rock, Ark., base hospital, from Presidio, Lieut. HENRY A. JOHNSON, Washington.

*To Fort Riley*, for instruction, from Fort Keogh, Capt. HARRY L. SCHURMEIER, Washington.

### Florida

*To Camp Joseph E. Johnston*, Jacksonville, Fla., for duty, from Camp Greene, Capt. HARRY A. PEYTON, Jacksonville; for duty, Lieut. EDGAR P. HOWELL, Micanopy.

*To Camp Lewis*, American Lake, Wash., base hospital, from Presidio, Capt. JAMES D. PASCO, Jacksonville.

*To Fort Oglethorpe*, as commanding officer, Convalescent Camp No. 1, from Fort Oglethorpe, Lieut. THOMAS E. PARRISH, Dania; for instruction, Lieut. EDGAR W. NORTHCUTT, Fort Barancas; for instruction in tuberculosis examination, Lieut. HARVEY C. BYRD, Tribly.

*To his home* and honorably discharged, Lieut. ALPHOUS C. KOON, Jacksonville.

### Georgia

*To Camp Devens*, Ayer, Mass., base hospital, from New York City, Capt. JOHN M. SIGMAN, Macon.

*To Fort Oglethorpe*, base hospital, from Fort Oglethorpe, Lieut. JOHN A. WHITE, Albany; for instruction, Lieuts. CLARENCE G. COX, Ellijay; PAUL F. LANE, Waycross; from duty as a private at Camp Wheeler, Lieut. LEONARD W. WILLIS, Bainbridge.

*To Lakewood*, N. J., for duty, Lieut. ORLANDO S. WOOD, Washington.

### Idaho

*To Fort Screven, Ga.*, as a member of board for examination of command for tuberculosis, and on completion *to Fort Moultrie, S. C.*, for the same duty, and on completion *to Fort Caswell, N. C.*, for the same duty, from Camp Wheeler, Lieut. CLYDE E. WATSON, Nampa.

### Illinois

*To Army Medical School*, Washington, D. C., for instruction, Lieut. PATRICK [illegible]. GRIFFIN, Chicago.

*To Boston, Mass.*, Harvard Medical School, for instruction in orthopedic surgery, Lieut. HERMAN C. SCHUMM, Chicago.

*To Camp American University*, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. BENJAMIN W. PROVOST, Peru.

*To Camp Bowie*, Fort Worth, Texas, base hospital, from Presidio, Lieut. THOMAS B. KELLY, Du Quoin.

*To Camp Custer*, Battle Creek, Mich., base hospital, from Chicago, Major SAMUEL C. PLUMMER, Chicago.

*To Camp Dodge*, Des Moines, Iowa, base hospital, Capt. C. PRESCOTT BENNETT, Washington; for orthopedic service at the camp and in the base hospital, Capt. FREDERICK C. TEST, Chicago.

*To Camp Doniphan*, Fort Sill, Okla., base hospital, Major STANTON A. FRIEDBERG, Chicago.

*To Camp Grant*, Rockford, Ill., base hospital, from Fort Riley, Lieut. CARL F. LEWIS, [illegible]erseyville.

*To Camp Hancock* Augusta, Ga., base hospital, from Chicago, Lieut. FRED L. GLASSOCK, Chicago.

*To Camp Kearny*, Linda Vista, Calif., base hospital, from Presidio, Lieuts. IRVING PERRILL, FREDERICK J. RILEY, Chicago.

*To Camp Lewis*, American Lake, Wash., base hospital, from Presidio, Lieuts. IRA J. MAGEE, RALPH W. PETERSEN, Chicago.

*To Camp Logan*, Houston, Texas, as divisional psychiatrist, from Camp Logan, Lieut. THOMAS J. RIACH; Kankakee base hospital, from Camp Logan, Lieut HARLEY A. ZINSER, Washington.

*To Camp MacArthur*, Waco, Texas, for temporary duty in conducting examinations in his specialty, Capt. MICHAEL L. GALLAGHER, Chicago. As divisional psychiatrist, from Camp MacArthur, Lieut. WILLIAM H. HOLMES, Chicago; base hospital, from Presidio, Lieut. RAYMOND E. HILLMER, La Grange.

*Ta Camp Meade*, Annapolis Junction, Md., base hospital, from Army Medical School, Lieut. THOMAS R. MAXWELL, New Berlin.

*To Camp Pike*, Little Rock, Ark., base hospital, from Presidio, Lieut. CECIL J. JOHNSTON, Canton.

*To Camp Wadsworth*, Spartanburg, S. C., for duty, from Camp Wadsworth, Lieut. MONROE ETHERTON, Carbondale.

*To Camp Wheeler*, Macon, Ga., base hospital, Capt. HARRY S. LESTER, Streator; from Camp Wheeler, Lieut. EDWARD BUCKMAN, Chicago; for duty, from Fort Oglethorpe, Lieut. EMORY S. HALL, McLeansboro.

*To Fort Morgan, Ala.*, as a member of board for examination of command for tuberculosis, and on completion *to Fart Farrancas, Fla.*, for the same duty, and on completion *to Fort Dade, Fla.*, for the same duty, and on completion *to Key West Barracks, Fla.*, for the same duty, from Camp Wheeler, Lieut. EDWARD G. SEPPLE, Chicago.

*To Fort Oglethorpe*, as commanding officer of Convalescent Camp No. 2, from Fort Oglethorpe, Lieuts. HARRY S. SEIWELL, Alton; GOTTLEIB A. LURIE, Chicago; GEORGE W. CUSICK, Chicago Heights; LAY G. BURROUGHS, Collensville.

*To Fort Riley*, for instruction, Lieuts. GEORGE A. CONREY, PETER G. KITTERMAN, STEPHEN F. KUBALA, JOHN W. O'SHEA, PAUL S. TRARLEY, Chicago; CHARLES A. ROBERTS, Durand; IRA D. KELSHEIMER, Paxton.

*Ta New York City*, for instruction in military roentgenology, Capt. ARTHUR R. METZ, Lieut. CHARLES L. MOIR, Chicago.

*To Philadelphia, Pa.*, University of Pennsylvania, for instruction, Capt. FRANK W. BRODERICK, Sterling.

*To San Antonio, Texas*, Kelly Field, to make special examination of the command for tuberculosis, from Camp Travis, Lieut. SAMUEL M. MARCUS, Chicago.

*To San Francisco, Calif.*, Aviation Section, Signal Corps, University of California, from Presidio, Lieut. FRANK A. STOCKDALE, Coal City.

*To Washington, D. C.*, in the Enlisted Personnel Section, from Army Medical School, Lieut. HARRY T. SWANSON, Chicago.

*To his home* and to the inactive list, Major WILLIAM H. WILDER, Chicago.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Capt. HENRY C. MACY, Chicago; Lieut. ROBERT G. BOND, Harrisburg.

*To his home* and honorably discharged, Lieut. VINCENT F. KELLER, Chicago.

### Indiana

*To Camp Bowie,* Fort Worth, Texas, base hospital, from Presidio, Lieuts. JAMES B. SHOEMAKER, Miami; MICHAEL ROBINSON, Muncie.

*To Camp Cody,* Deming, N. M., base hospital, from St. Louis, Lieut. GEORGE W. BOWMAN, Indianapolis.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Presidio, Capt. CHARLES E. COTTINGHAM, Indianapolis.

*To Camp MacArthur,* Waco, Texas, base hospital, from Presidio, Lieut. BEN WEBSTER, Kingsbury; for duty, Lieut. EDWARD A. WEIR, Terre Haute.

*To Camp Pike,* Little Rock, Ark., base hospital, from Presidio, Lieut. ORA L. McCOY, Romney.

*To Camp Sheridan,* Montgomery, Ala., base hospital, Lieuts. ELDO H. CLAUSER, Muncie; MORRIS H. C. JOHNSON, Vincennes.

*To Camp Taylor,* Louisville, Ky., for duty, from Camp Taylor, Lieut. HERMAN W. SMELSER, Comersville.

*To Fort Leavenworth, Kan.,* department laboratory, from Presidio, Lieut. NAPOLEON LaBONTE, Indianapolis.

*To Fort Oglethorpe,* for instruction, Capt. JAMES H. WALKER, Jeffersonville; Lieuts. RUSSELL A. GILMORE, Michigan City; JAMES F. HATFIELD, Walton; as commanding officer, Convalescent Camp No. 1, from Fort Oglethorpe, Lieut. HARRY C. SHARP, West Baden.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, from Camp Logan, Lieut. WARREN D. CALVIN, Fort Wayne.

### Iowa

*To Camp Cody,* Deming, N. M., base hospital, from Fort Riley, Lieut. FREDERICK H. LAMB, Davenport.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Capt. ALBERT E. CONRAD, Decorah.

*To Camp MacArthur,* Waco, Texas, for duty, Capt. THOMAS L. LONG, Woodward.

*To Dallas, Texas,* Aviation School, Love Field, for duty, from Fort Riley, Capt. WILLIAM T. DALY, Cresco.

*To Fort Oglethorpe,* as commanding officer of Convalescent Camp No. 2, from Fort Oglethorpe, Capt. VALENTINE J. MEYER, Defiance.

*To Fort Riley,* for instruction, Lieut. ARTHUR L. DRUET, Larchwood.

*To San Antonio, Texas,* Kelly Field, for duty, Capt. ELMER R. PARK, Sioux City; Lieut. JESSE C. ROSS, Des Moines.

*To his home* and honorably discharged, Lieut. WILLIAM H. BETTS, Madrid; on account of being physically disqualified for active service, Lieut. DEAN W. HARMAN, Readlyn.

### Kansas

*To Fort Riley,* for instruction, Lieuts. FRANK W. SHELTON, Independence; GEORGE W. MATTESON, Wichita.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, from Camp MacArthur, Lieut. THOMAS E. CRUMP, Parsons.

### Kentucky

*To Camp Devens,* Ayer, Mass., base hospital, from New York City, Lieut. ASHTON M. BALDWIN, Louisville.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. SAMUEL E. STANLEY, Louisville.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Presidio, Lieut. JOHN L. HAYDEN, Salem.

*To Camp MacArthur,* Waco, Texas, base hospital, from Presidio, Lieut. MARION W. PAGE, Sedalia.

*To Fort Oglethorpe,* for duty, Lieut. HIRAM C. BEVINE, Thomas; for instruction, Lieut. WILLIAM M. COX, Corbin.

### Louisiana

*To Fort Oglethorpe,* for instruction, Lieuts. WILLIAM E. REID, Glenmore; ISAAC N. ADAMS, Selma; from duty as a private at Camp Beauregard, Lieut. JOHN SIGNORELLI, New Orleans.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieut. HAROLD G. F. EDWARDS, Abeville.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Lieut. WALTON L. BEAN, Andalusia.

*To his home* and to the inactive list, Lieut. PAUL B. LANDRY, Port Allen.

### Maine

*To Camp Lee,* Petersburg, Va., as divisional psychiatrist, from Camp Lee, Lieut. DUDLEY C. KALLOCH, Portland.

*To Camp MacArthur,* Waco, Texas, base hospital, from Presidio, Lieut. PRESTON W. WHITTAKER, Unitz.

*To Camp Upton,* L. I., N. Y., base hospital, Capt. HEDLEY V. TWEEDLE, Brakeport.

*To his home* and honorably discharged, Capt. EDWARD L. SOLLIMA, Portland.

### Maryland

*To Boston, Mass.,* for instruction, and on completion *to his proper station,* from Camp Dix, Lieut. HORACE B. TITLOW, Baltimore.

*To Camp Bowie,* Fort Worth, Texas, base hospital, from Army Medical School, Lieut. ROBERT S. CUNNINGHAM, Baltimore; from Fort Oglethorpe, Lieut. HOWARD L. WHEELER, Baltimore.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. HAVANNESS K. PELTEKIAN, Baltimore.

*To Camp Lee,* Petersburg, Va., base hospital, from Chicago, Lieut. WILLIAM R. GERAGHTY, Baltimore.

*To Camp MacArthur,* Waco, Texas, base hospital, from Presidio, Lieut. WILLIAM S. TILLETT, Baltimore.

*To Camp McClellan,* Anniston, Ala., for duty, Lieut. JOSEPH E. GATELY, Baltimore.

*To Camp Meade,* Annapolis Junction, Md., for temporary duty, in conducting examinations in his specialty, Lieut. HARRY M. STEIN, Baltimore.

*To Fort Oglethorpe,* for instruction, Lieut. JOHN B. MAKIN, Baltimore.

*To San Antonio, Texas,* Kelly Field, to make special examination of the command for tuberculosis, from Camp Travis, Capt. CHARLES W. RAUSCHENBACH, Baltimore.

*To Washington, D. C.,* for duty, from Fort Myer, Lieut. IRA C. TYNDALL, Berlin; Gas Defense Service, American University, from Chickamauga Park, Lieut. JOSEPH W. KETZKY, Baltimore.

### Massachusetts

*To Boston, Mass.,* Harvard Medical School, for orthopedic instruction, Major ROBERT W. LOVETT, Boston. Northwestern Department, for temporary duty, and on completion *to his home* and to the inactive list of the Medical Reserve Corps, Major HAROLD C. ERNST, Boston. Coast defense of Boston, Capts. BENJAMIN W. GLEASON, Athol; HENRY W. ELIOT, Belchertown; Lieut. EUGENE M. DOLLOFF, East Lynn; Aviation Section, Signal Corps, for duty, Lieut. HAROLD L. BANCOCK, Boston; Harvard Medical School, Lieut. HARRIS R. POWERS, Boston.

*To Camp Cody,* Deming, N. M., base hospital, Lieut. WILLIAM H. MERRILL, Lawrence; from Presidio, Lieut. AIME N. FREGEAU, Fitchburg.

*To Camp Devens,* Ayer, Mass., base hospital, from Camp Wheeler, Lieut. EDMOND A. ROGERS, Boston; from New York City, Lieuts. OSCAR F. FOX, Jr., JAMES H. GETTINGS, Boston.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., as member of board for examination of command for tuberculosis, from Camp Wheeler, Lieut. CHARLES E. PERRY, Haydenville; to examine the troops for mental and nervous diseases, from New York City, Lieut. JAMES A. GOULD, Westboro.

*To Camp Kearny,* Linda Vista, Calif., to examine the command in his specialty, from Presidio, Capt. SIDNEY M. BUNKER, Boston.

*To Camp Meade,* Annapolis Junction, Md., for duty, from New York City, Lieut. WILLARD W. LEMAIRE, Worcester.

*To Camp Wheeler,* Macon, Ga., base hospital, Lieut. FRANKLIN A. STEVENS, Boston; from Army Medical School, Lieut. DAVID L. BELDING, Boston.

*To Fort Oglethorpe,* for conferring with the commandant thereof regarding the establishment of a course of training in military orthopedic surgery, and on completion *to his proper station,* Major ELLIOTT G. BRACKETT, Boston; Capt. ALEXANDER S. BEGG, Boston. For instruction, from Fort Banks, Capt. GEORGE H. BURKE, Springfield. As commanding officer, Convalescent Camp No. 1, from Fort Oglethorpe, Lieut. WILLIAM T. RUMAGE, Boston. For instruction, Lieuts. ROBERT B. HUNT, Boston; WILLIAM R. BYRNE, Framingham; LOUIS D. BARNES, Lanesborough; FRANK W. A. MITCHELL, Lynn; WILLIAM K. TURNER, New Bedford; EDWIN E. SMITH, Quincy; HARRY R. COBURN, Tewkesbury; GEORGE T. LITTLE, Uxbridge; WHITMAN K. COFFIN, Westmedford; RICHARD M. ASH, West Quincy.

*To Hoboken, N. J.,* veterinary hospital, from Fort Slocum, Capt. GORDON B. UNDERWOOD, Gardner.

*To Washington, D. C.,* for instruction, and on completion *to Otisville, N. Y.,* in connection with the Medical Department of the Army, from Camp Devens, Major ARTHUR H. CROSBIE, Boston.

### Michigan

*To Camp Cody,* Deming, N. M., base hospital, from Presidio, Lieut. ALLEN C. TIFFANY, Mackinaw.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Presidio, Lieut. JOHN H. McEVAN, Detroit.

*To Camp MacArthur,* Waco, Texas, base hospital, from Presidio, Lieut. VINCENT S. MANCUSO, Detroit.

*To Camp Pike,* Little Rock, Ark., base hospital, from Presidio, Lieut. JOHN L. MEDDAUGH, Rollin.

*To Fort Oglethorpe,* for instruction, Capt. JOHN McCORMICK, Jackson. As commanding officer of Evacuation Ambulance Co. No. 4, from Fort Oglethorpe, Lieut. CLARENCE V. SMITH, Detroit.

*To Fort Riley,* for instruction, CHARLES D. COLLINS, Ironwood.

*To Fort Screven, Ga.,* as a member of board for examination of command for tuberculosis, and on completion *to Fort Moultrie, S. C.,* for the same duty, and on completion *to Fort Caswell, N. C.,* for the same duty, from Camp Wheeler, Lieut. WILLIAM A. O'BRIEN, Detroit.

*To San Antonio, Texas,* Kelly Field, for duty, Lieuts. ANGUS P. SUTHERLAND, Detroit; CORNELIUS J. ADDISON, Grand Haven.

*To his home* and honorably discharged, Capt. SHELDON B. YOUNG, Caseville.

*To his home* and to the inactive list, Lieut. CHARLES F. KUHN, Detroit.

### Minnesota

*To Boston, Mass.,* Harvard Medical School, for instruction, Lieut. OTTO L. WINTER, St. Paul.

*To Camp Cody,* Deming, N. M., base hospital, from Presidio, Capt. JAMES D. WALKER, Wykoff.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Presidio, Lieut. WILLIAM W. MOIR, Minneapolis.

*To Fort Leavenworth, Kan.,* department laboratory, from Fort Snelling, Lieut. PAUL A. SCHULE, Fort Snelling.

*To Fort Riley*, base hospital, from Chicago, Capt. EARL H. MARCUM, Bennidgi; for instruction, Lieut. WALTER W. KAUTH, Minneiska.

*To his home* and honorably discharged, Lieut. ANTON G. SANDERSON, Minnesota.

### Mississippi

*To Camp Joseph E. Johnston*, Jacksonville, Fla., for duty, from Vicksburg, Miss., Capt. JOHN S. EWING, Vicksburg; from Fort Oglethorpe, Lieut. BURRIS E. BURCHFIELD, Ruleville.

*To Camp MacArthur*, Waco, Texas, for duty, Capt. ZACHARIAH J. SCOTT, Winona.

*To Fort Myer, Va.*, for duty, from Washington, D. C., Lieut. CHARLES E. LEHMBERG, Artesia.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Lieut. WILLIAM S. CRANFORD, Laurel.

### Missouri

*To Albany, N. Y.*, for duty, from Camp Wheeler, Lieut. MARTIN H. POST, St. Louis.

*To Army Medical School*, Washington, D. C., for duty, Capt. DON R. JOSEPH, St. Louis.

*To Camp Beauregard*, Alexandria, La., base hospital, Capt. FAYETTE C. EWING, St. Louis.

*To Camp Cody*, Deming, N. M., base hospital, from Presidio, Lieut. ARTHUR J. SMITH, Booneville.

*To Camp Custer*, Battle Creek, Mich., base hospital, from Fort Riley, Lieut. BUELL F. MENEFEE, Montgomery.

*To Camp Dodge*, Des Moines, Iowa, base hospital, from Philadelphia, Lieut. ELLIOTT K. DIXON, St. Louis.

*To Camp Kearny*, Linda Vista, Calif., base hospital, from Presidio, Lieut. CAMERON A. ROSE, Kansas City.

*To Camp Shelby*, Hattiesburg, Miss., Seventy-Sixth Field Artillery, from Fort Oglethorpe, Lieut. JOHN M. PERRY, Princeton.

*To Fort Myer, Va.*, for duty, from Boston, Mass., Lieut. LEE H. WINEMILLER, Farley.

*To Fort Riley*, for instruction, Lieuts. LLOYD R. BONTWELL, Kirkwood; JOHN A. KONZELMAN, St. Louis.

*To Newport News, Va.*, for duty, from Fort Oglethorpe, Lieut. LUTHER H. WALLEN, Summerville.

*To Philadelphia, Pa.*, University of Pennsylvania, Neurological School, from Boston, Lieut. CARL B. HUDSON, Montgomery City.

*To St. Louis, Mo.*, Washington University, for instruction, from Camp Custer, Lieut. JAMES B. BIGGS, Bowling Green.

*To Washington, D. C.*, for duty in the Enlisted Personnel Section, from Army Medical School, Lieut. CHARLES R. OZIAS, Kansas City.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Lieuts. MOSES H. TOPPING, Flat River; ROY E. MYERS, Newtonia.

### Montana

*To Lakewood, N. J.*, for temporary duty, from Fort Oglethorpe, Lieut. THEODORE W. O'BRIEN, Butte.

*To Fort Riley*, for instruction, Lieut. WILLOUGHBY G. DYE, Great Falls.

### Nebraska

*To Camp Cody*, Deming, N. M., base hospital, from Rockefeller Institute, Lieut. GEORGE W. EARLE, Oakdale.

*To Camp Pike*, Little Rock, Ark., base hospital, from Presidio, Lieut. WILBER K. RILEY, Omaha.

*To Fort Riley*, base hospital, Lieut. CHARLES W. WAY, Wahoo; for instruction, Lieut. JAMES S. BELL, York.

### Nevada

*To his home* and honorably discharged, Lieut. BARRETT D. RICE, Sparks.

### New Hampshire

*To Fort Oglethorpe*, Convalescent Depot, from Fort Oglethorpe, Lieut. THERON H. HUCKINS, Tilton.

### New Jersey

*To Camp Joseph E. Johnston*, Jacksonville, Fla., for duty, from Fort Oglethorpe, Capts. ALFRED C. SHEPPARD, Bridgeton; GEORGE B. GALE, Newark; as member of board for examination of command for tuberculosis, from Camp Wheeler, Lieut. HARVEY M. EWING, Montclair.

*To Camp Kearny*, Linda Vista, Calif., base hospital, from Presidio, Lieut. JOHN PELLARIN, West Hoboken.

*To Camp Meade*, Annapolis Junction, Md., base hospital, from New York City, Lieut. CHARLES P. LINGLE, Arlington.

*To Camp Sevier*, Greenville, S. C., base hospital, from Chicago, Lieut. STEPHEN T. QUINN, Elizabeth.

*To Camp Shelby*, Hattiesburg, Miss., base hospital, from Chicago, Lieut. EDWIN H. RIGGINS, Orange.

*To Fort Oglethorpe*, for instruction, Capt. LEONARD F. HATCH, Vineland; Lieuts. CARNINE R. MARONE, Elizabeth; EARL A. GRIGGS, Haskell; JOHN A. BOTTI, Jersey City. As commanding officer, Convalescent Camp No. 1, from Fort Oglethorpe, Lieuts. WILLIAM H. SMITH, CHARLES N. HARPER, Trenton.

*To Lakewood, N. J.*, for duty, from Hoboken, N. J., Lieut. CHARLES F. BECKER, Camden.

### New Mexico

*To Fort Crockett, Texas*, as a member of board for examination of command for tuberculosis, and on completion *to Jackson Barracks, La.*, for duty, from Columbus, N. M., Lieut. ORIN J. WHITCOMB, Raton.

*To Fort Oglethorpe*, as commanding officer of Convalescent Camp No. 1, from Fort Oglethorpe, Capt. OLIVER RUGH HAYMAKER, Roswell.

*To Fort Riley*, for duty, from Camp Funston, Lieut. JAMES H. SANFORD, Socorro.

### New York

*To Army Medical School*, Washington, D. C., for duty, from Fort Oglethorpe, Lieuts. HERBERT F. JACKSON, WALTER M. KRAUS, CHARLES H. NAMMACK, CHARLES PHILLIPS, New York City.

*To Baltimore, Md.*, Gas Defense Service, for duty, from Camp Doniphan, Capt. FRANK G. YOUNG, New York City.

*To Camp American University*, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. LONEAR M. VINCENT, New York City.

*To Camp Beauregard*, Alexandria, La., for special sanitary inspection relating particularly to meningitis, and on completion *to his proper station*, from Camp Jackson, Major GEORGE DRAPPER, New York City.

*To Camp Bowie*, Fort Worth, Texas, base hospital, from Presidio, Lieuts. STEPHEN J. N. REED, Fultonville; HARRY C. SAUNDERS, New York City.

*To Camp Devens*, Ayer, Mass., Veterinary Hospital, from Fort Slocum, Lieut. ABRAHAM GINSBURG, New York City.

*To Camp Dix*, Wrightstown, N. J., base hospital, from Camp Upton, Capt. HENRY C. DREW, Brooklyn.

*To Camp Gordon*, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. HARRY GOLDMAN, Long Island City.

*To Camp Greene*, Charlotte, N. C., for temporary duty, Capt. CHARLES H. BALDWIN, Utica. Base hospital, from Army Medical School, Lieut. NOLAN E. LEAKE, New York City.

*To Camp Kearny*, Linda Vista, Calif., base hospital, from Presidio, Lieut. ANTONY J. GRACE, Batavia.

*To Camp Joseph E. Johnston*, Jacksonville, Fla., as a member of board for examination of command for tuberculosis, from Camp Wheeler, Capt. FRANK McLEAN, New York City. For duty from Fort Oglethorpe, Lieut. EDWIN C. GILBERT, Bridgehampton. To examine the troops for mental and nervous diseases, from Washington, D. C., Lieut. ROBERT BOGAN, Brooklyn.

*To Camp Lee*, Petersburg, Va., Veterinary Hospitals, from Hoboken, Lieut. PETER J. BARONE, Buffalo.

*To Camp Lewis*, American Lake, Wash., base hospital, from Presidio, Lieuts. MARTIN J. COONSY, Brooklyn; ANTHONY W. M. MARINE, Brooklyn.

*To Camp MacArthur*, Waco, Texas, base hospital, from Presidio, Lieut. HALL G. VAN VLACK, Forestville.

*To Camp Meade*, Annapolis Jct., Md., base hospital, from New York City, Lieut. HARRY R. ROERSTER, New York City.

*To Camp Pike*, Little Rock, Ark., base hospital, from Presidio, Lieut. ROBERT W. PETTIT, New York City.

*To Camp Sevier*, Greenville, S. C., for duty, Capt. RALPH GRACE, New York City.

*To Camp Sheridan*, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. LEE B. MATHEWS, Brooklyn.

*To Camp Taylor*, Louisville, Ky., for duty, from Camp Sherman, Lieut. PERRY J. MANHEIMS, New York City.

*To Camp Wheeler*, Macon, Ga., base hospital, from Camp Wheeler, Capts. EDWIN L. DRAPER, CLINTON B. HAWN, Albany.

*To Fort McPherson, Ga.*, for duty, Capt. WILLIAM L. McFARLAND, New York City.

*To Fort Morgan, Ala.*, as a member of board for examination of command for tuberculosis, and upon completion *to Fort Barrancas, Fla.*, for the same duty, and on completion *to Fort Dade, Fla.*, for the same duty, from Camp Wheeler, Capt. STANMORE L. CASH, New York City; Lieut. MAXWELL K. WILLOUGHBY, Auburn.

*To Fort Oglethorpe*, for instruction, Capts. MILEY B. WESSON, Delmar; JEREMIAH A. ALLIS, New York City; Lieuts. SEYMOUR G. CLARK, JOSEPH D. ROSENTHAL, EDWARD A. SALTZMAN, Brooklyn; CHARLES J. BRONE, JULIUS Y. COHEN, FRANK G. WALZ, Buffalo; EPHRAIM M. BLUESTONE, FREDERICK CHRISTOPHER, JULIUS BINOUS, WILLIAM BUTLER RYAN, Jr., CLARENCE S. TOSHACH, New York City. As commanding officer of Convalescent Camp No. 1, from Fort Oglethorpe, Lieut. WILLIAM W. CARLETON, Waterloo. Base hospital, from Fort Oglethorpe, Lieut. BREWSTER C. DOUST, Syracuse.

*To Fort Riley*, for instruction, Lieut. DAVID M. HATANSON, New York City.

*To Fort Screven, Ga.*, as a member of board for examination of command for tuberculosis, and on completion *to Fort Moultrie, S. C.*, for the same duty, and on complethion *to Fort Caswell, N. C.*, for the same duty, from Camp Wheeler, Capt. JOSEPH O. O'BRIEN, Albany.

*To Lakewood, N. J.*, for duty, from Hoboken, N. J., Lieut. WILLIAM J. ORDWAY, New York City.

*To Newport News*, for duty, from Fort Oglethorpe, Lieut. HENDRIK VAN R. STAM, New York City.

*To New York City*, for duty, from Rockefeller Institute, Capt. JAMES F. NAGLE, New York City; for instruction in orthopedic surgery, from Allentown, Lieut. ROBERT E. O'ROURKE, New York City.

*To San Antonio, Texas*, Kelly Field, to examine command for tuberculosis, from Camp Travis, Lieut. PATRICK J. HIRST, Middle Grove.

*To Washington, D. C.*, for consultation with the Surgeon-General of the Army, and on completion *to his proper station*, Major LINSLEY R. WILLIAMS, Albany; for duty in the Surgeon-General's Office, Majors HAVEN EMERSON, JOHN C. A. GERSTER, New York City; for duty, from Hoboken, Capt. FRED M. MEADER, New York City.

*To the inactive list*, Major EDWARD R. DENCH, New York City; Capt. NELSON K. FROMM, Albany.

*Honorably discharged* on account of being physically disqualified for active service, Capt. MALCOLM E. HOUSE, Cuba; Lieut. GEORGE R. STEVENSON, Penn Yan.

## North Carolina

*To Camp Meade,* Annapolis Jct., Md., base hospital, from New York City, Lieut. JOSEPH W. HOOPER, Wilmington.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Presidio, Lieut. WILBUR G. JENKINS, Raleigh.

*To Fort Oglethorpe,* Third Division Trains, from Fort Oglethorpe, Lieut. RALPH S. STEVENS, Raleigh.

*To Newport News, Va.,* for examination of command for tuberculosis, from Army Medical School, Capt. THOMPSON FRAZER, Asheville.

*To New York City,* for instruction, and on completion *to Fort Oglethorpe,* for instruction, Major MARSHALL H. FLETCHER, Asheville.

*To Rockefeller Institute, N. Y.,* for instruction in laboratory work, Lieut. MILTON T. BARGERTON, Jr., Oak Ridge.

## Ohio

*To Camp Beauregard,* Alexandria, La., base hospital, from Chicago, Lieut. SAMUEL ZIELONKA, Cincinnati.

*To Camp Bowie,* Fort Worth, Texas, base hospital, from Presidio, Lieut. PAUL A. MURR, Galion.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Presidio, Lieut. EDWARD McD. CASS, Utica.

*To Camp Lee,* Petersburg, Va., base hospital, from Fort Oglethorpe, Lieut. HAROLD K. MOUSER, Marion.

*To Camp Lewis,* American Lake, Wash., base hospital, from Presidio, Lieuts. CHARLES G. LaROCCO, Cleveland; CHARLES F. MORRIS, Youngstown.

*To Camp MacArthur,* Waco, Texas, for duty, Capt. JOHN C. MILLER, Payne; base hospital, from Presidio, Lieut. DAVID A. TUCKER, Jr., Cincinnati.

*To Camp Meade,* Annapolis Jct., Md., base hospital, from New York City, Lieut. WILLIAM N. TAYLOR, Columbus.

*To Camp Pike,* Little Rock, Ark., base hospital, from Presidio, Lieut. RUSSELL E. LIGHTNER, Kingston.

*To Camp Sevier,* Greenville, S. C., for duty, Capt. JOSEPH A. LINK, Springfield.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Army Medical School, Leut. CHARLES A, STAMMEL, Jr., Cincinnati.

*To Camp Taylor,* Louisville, Ky., base hospital, from Chicago, Capt. CHARLES N. PAUL, Lieut. CHARLES E. KIELY, Cincinnati.

*To Camp Wadsworth,* Spartanburg, S. C., base hospital, from Army Medical School, Lieut. CLAUDE D. HAMILTON, Canton.

*To Fairfield, Ohio,* Wilbur Wright Field, for duty, from Fort Oglethorpe, Lieut. WILLOUGHBY D. BISHOP, Hollansburg.

*To Fort Des Moines, Ia.,* for duty, from Camp Dodge, Lieut. JOSEPH M. ULRICH, Akron.

*To Fort Oglethorpe,* for instruction, Lieuts. LEROY B. SHERRY, Cleveland; HAROLD K. FRUTH, Fosteria; JOHN G. MARTIN, New Concord.

*To Newport News, Va.,* for duty from Fort Oglethorpe, Lieut. CHARLES J. ROACH, Zanesville.

*To Sam Antonio, Texas,* Kelly Field, for duty, Lieut. WALTER H. HATFIELD, Cincinnati.

## Oklahoma

*To Camp Joseph E. Johnston,* Jacksonville, Fla., base hospital, from Fort Riley, Lieut. SIMS D. BEVILL, Poteau.

*To Camp Logan,* Houston, Texas, base hospital, from Chicago, Lieut. FRED L. PATTERSON, Fargo.

*To Camp Travis,* Fort Sam Houston, Texas, base hospital, from Army Medical School, Lieut. THOMAS A. HARTGRAVES, Soper.

*To Fort Oglethorpe,* to organize and command Hospital Train No. 34, from Fort Oglethorpe, Lieut. WILLIAM G. BAIRD, Oak Hill.

*To Fort Riley,* for instruction, Lieuts. WILLIAM B. HARNED, Chattanooga; GARNETT A. KILPATRICK, Wilburton.

*To Fort Sill, Okla.,* for duty, Lieuts. ESTER L. JONES, Ingersoll; DANIEL W. HUMPHREYS, Owasso.

*To Presidio,* San Francisco, Calif., for duty, from Presidio, Lieut. DAVID A. GREGORY, Ardmore.

*To San Antonio, Texas,* Kelly Field, for duty, Lieuts. ORANGE W. STARR, Drumwright; LISBY L. WADE, Ryan.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, from Camp Beauregard, Lieut. CLAUDE E. PUTNAM, Eakly.

*To his home* and honorably discharged, Lieut. JOSEPH P. POWELL, Vici.

## Oregon

*To Camp Lewis,* American Lake, Wash., base hospital, from Presidio, Lieut. FRANK E. SMITH, Portland.

*To Portland, Ore.,* Spruce Production Division, Aviation Section, Signal Corps, for duty, Lieut. ELMER E. ANDERSON, Portland.

## Pennsylvania

*To Camp Bowie,* Fort Worth, Texas, base hospital, from Chicago, Lieut. THOMAS P. MARTIN, Mayfield.

*To Camp Cody,* Deming, N. M., as Divisional Psychiatrist, from Camp Cody, Capt. HORACE PHILLIPS, Philadelphia. Base hospital, from Presidio, Lieut. JOHN D. PERKINS, Jr., Philadelphia.

*To Camp Devens,* Ayer, Mass., base hospital, from New York City, Lieut. JACOB R. BROBST, Bloomsburg.

*To Camp Doniphan,* Fort Sill, Okla., base hospital, from Chicago, Lieut. DENNIS R. MURDOCK, Greensburg.

*To Camp Hancock,* Augusta, Ga., base hospital, on completion of course at Presbyterian Hospital, Chicago, Lieut. ERNEST E. DOWNTON, Starruca.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, Lieuts. HARRY J. STOCKBERGER, Claridge; WILLIAM E. ANDREW, Pen Argyle; WALTER B. RILE, Philadelphia.

*To Camp Lee,* Petersburg, Va., base hospital, from Chicago, Capt LOUIS J. C. BAILEY, Greensburg; on completion of course at Neurological School, Presbyterian Hospital, Chicago, Capt. DAVID O. THOMAS, New Kensington. Veterinary Hospitals, from Hoboken, Capt. WILLIAM J. MONAGHAN, Girardville.

*To Camp MacArthur,* Waco, Texas, base hospital, from Chicago, Lieut. WILLIAM J. POTTS, Greensburg.

*To Camp Meade,* Annapolis Jct., Md., base hospital, from New York City, Capt. WARREN WALKER, Philadelphia; Lieut. DAVID S. GRIM, Reading; for duty, from New York City, Lieut. HARRY T. STOCKTON, Marcus Hook.

*To Camp Pike,* Little Rock, Ark., base hospital, from Presidio, Lieut. EARLE McC. McLEAN, Eldred.

*To Camp Travis,* Fort Sam Houston, Texas, base hospital, from Camp Gorden, Lieut. WILLIAM B. SKELTON, Meadville.

*To Camp Wheeler,* Macon, Ga., base hospital, from Camp Gordon, Lieut. LAWRENCE C. MOORE, Chatham; from Camp Wheeler, Lieut. JACOB J. RUTBERG, Philadelphia.

*To Fairfield, Ohio,* Wilbur Wright Field, for duty, from Fort Oglethorpe, Lieut. HERBERT COOPER, Philadelphia.

*To Fort McPherson, Ga.,* for duty, Capt. HARRY C. WESTERVELT, Pittsburgh.

*To Fort Oglethorpe,* as commanding officer of Convalescent Camp No. 2, from Fort Oglethorpe, Lieut. PHILIP L. HATCH, Coudersport. For instruction, Lieuts. CHARLES O. W. BARTINE, Germantown, Philadelphia; LOUIS J. GOLDBLATT, McKeesport; MAURICE T. SLOANE, Mont Alto; CLAUDE L. BRADFORD, HOWARD S. MYERS, Pittsburgh; JAMES G. MATTERNES, Sinking Spring; WILLIAM W. WOODWARD, West Chester; from Philadelphia, Lieut. SETH A. BRUMM, Philadelphia.

*To Fort Porter, N. Y.,* for duty, Capt. WILLIAM T. VAN PELT, Philadelphia.

*To Hobôken, N. J.,* for temporary duty, from New York City, Capt. Capt. JOHN F. McCLOSKEY, Philadelphia.

*To Lakewood, N. J.,* for duty, from Hoboken, Major JACK C. GITTINGS, Philadelphia; from Fort Oglethorpe, Lieut. CARLOS P. HOLCOMB, Athens.

*To Newport News, Va.,* for duty, Capt. WILLIAM S. RUCH, Carlisle.

*To New York City,* for instruction in military roentgenology, from Camp Shelby, Lieut. CHARLES H. KIRK, Homer City.

*To Philadelphia, Pa.,* for temporary duty, and on completion *to Fort Oglethorpe,* for instruction, Lieut. CHARLES FRANCIS MACKEL, Philadelphia.

*To Richmond, Norfolk, Va., Charleston, Columbia, S. C., Savannah, Atlanta, Ga., Montgomery, Birmingham, Ala., Meridian, Miss., New Orleans, La., Jackson, Miss., Shreveport, La., Hot Springs, Little Rock, Ark., Huntington, Parkersburg, Wheeling, W. Va.,* for duty in connection with the Medical Department of the Army, and on completion *to his proper station,* Major HENRY D. JUMP, Philadelphia.

*Honorably discharged,* Lieut. SAMUEL McCLARY, 3rd, Philadelphia.

*To his home* and honorably discharged from the Medical Reserve Corps, on account of being physically disqualified for active service, Lieut. SAMUEL A. LEINBACH, Quakertown.

## South Carolina

*To Fort Oglethorpe,* as commanding officer of Convalescent Camp No. 2, from Fort Oglethorpe, Lieut. JULIUS D. EADDY, Lake City.

## South Dakota

*To Camp McClellan,* Anniston, Ala., base hospital, from Army Medical School, Lieut. GUSTAV A. LANDMANN, Scotland.

*To Fort Oglethorpe,* for instruction, Lieut. E. C. SOLDIRD, Stapleton.

*To Fort Riley,* for instruction, Lieuts. ALEXANDER O. FRASER, Belle Fourche; ROBERT J. QUINN, Burke.

## Tennessee

*To Camp Devens,* Ayer, Mass., base hospital, from New York City, Lieut. BENJAMIN C. ARNOLD, Jackson.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., to examine the troops for mental and nervous diseases, from New York City, Lieut. GEORGE A. HATCHER, Nashville.

*To Camp MacArthur,* Waco, Texas, base hospital, Lieut. G. MALCOLM HALL, Lenoir City.

*To Camp McClellan,* Anniston, Ala., base hospital, from Fort Oglethorpe, Capt. BERNARD C. McMAHON, Memphis.

*To Fort Oglethorpe,* as commanding officer Evacuation Ambulance Co., No. 3, from Fort Oglethorpe, Lieut. CHARLES C. KING, Memphis. For instruction, Lieut. ALBERT B. KINSMORE, Chattanooga.

## Texas

*To Camp MacArthur,* Waco, Texas, for duty, Capt. FRANK D. SHEPHERD, Byers; Lieuts. WIRT D. FOWLER, Liberty Hall; EDWARD J. BURNETT, San Antonio.

*To Fort Logan H. Roots, Ark.,* for duty, from Army Medical School. Capt. EDWARD F. COOKE, Houston.

*To Fort Oglethorpe,* as commanding officer of Convalescent Camp No. 1, from Fort Oglethorpe, Lieut. WALLACE B. GUINN, Tivoli. For instruction, Lieut. WILLIAM J. McCREIGHT, Anson.

*To Fort Riley,* for instruction, Lieut. WALTER L. JACKSON, Dallas.

*To Lakewood, N. J.,* for temporary duty, from Fort Oglethorpe, Lieut. HARRIS D. WHITTINGTON, Eastland.

*To Philadelphia, Pa.,* for instruction, from Fort Oglethorpe, Lieut. JOHN E. QUAY, Waco.

*To San Antonio, Texas,* Kelly Field, to make special examination of the command for tuberculosis, from Camp Travis, Capt. CHARLES McC. HENDRICKS, El Paso. Aviation Section Signal Corps, Kelly

Field. for duty, Lieuts. JOHN M. HOOPER, Archer City; CHARLES B. JONES, Quanah.

*To Washington, D. C.*, for duty, from New York City, Lieut. QUINCY B. LEE, Wichita Falls.

*Honorably discharged*, Lieut. PAUL GALLAGHER, El Paso.

### Utah

*To Fort Riley*, for instruction, Lieut. JAMES M. GRAHAM, Fruita.

### Vermont

*To Camp Shelby*, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. DENNIS J. SHEEHAN, Lyndonville.

### Virginia

*To Fort Oglethorpe*, as commanding officer of Convalescent Camp No. 1, from Fort Oglethorpe, Lieut. JAMES L. HAMNER, Ammon. For instruction, Lieuts. WILLIAM H. RENINE, Clinchburg; STEPHEN R. DONEHOE, Jr., Norfolk; RAYMOND C. HOOKER, ROBERT E. WHITEHEAD, Richmond; JOHN C. BOYD, Roanoke; THOMAS H. MASSEY, Warm Springs.

*To Philadelphia, Pa.*, University of Pennsylvania, for instruction, from Camp Greene, Major LOMAX GWATHMEY, Norfolk.

*To his home* and honorably discharged, Capt. STANLEY H. GRAVES, Norfolk.

### Washington

*To Camp Lewis*, American Lake, Wash., as divisional psychiatrist, from Camp Lewis, Capt. ROBERT P. SMITH, Seattle. For duty, Lieuts. WILLIAM G. PARKER, Cashmere; WILLIAM A. MONROE, ROY A. MOREE, Tacoma.

*To Fort Mason, Calif.*, for duty, from Presidio, Capt. ALBERT LESSING, Seattle.

*To Fort Oglethorpe*, for duty with the convalescent depot, from Fort Oglethorpe, Lieut. ARTHUR R. GOULD, Kent.

*To Fort Riley*, base hospital, from Chicago, Lieut. GEORGE W. SWIFT, Seattle.

*To Houston, Texas*, Ellington Field, for duty, from Lake Charles, La., Capt. ROBERT A. ALLEN, Tacoma.

*To his home* and honorably discharged, Lieut. ERNEST L. WOODRUFF, Seattle.

### West Virginia

*To Camp Lewis*, American Lake, Wash., base hospital, from Presidio, Lieut. CHARLES G. WILLIAM, Kingston.

*To Camp McClellan*, Anniston, Ala., for duty, Lieuts. STANLEY W. BARBER, Carperton; JOHN B. CORBIN, Wolf Summit.

*To Canal Zone*, for assignment to duty, from Fort Oglethorpe, Lieut. ESLEY T. LAKE, Nuss.

*To Fort Oglethorpe*, for instruction, Lieuts. WILLIAM H. TRIPLETT. Matowan; LATIMER P. JONES, Pennsboro.

*To Los Angeles, Calif.*, Aviation Section, Signal Corps, from San Francisco. Lieut. HARRY R. PARKER, Williamson.

*To Newport News, Va.*, for duty, Lieuts. HENRY G. HAMMOND, Ackman; RAYMOND L. FOCER, Collins; HOWARD E. SUMMERS, Huntington; ALEXANDER H. S. ROUSE, Kabletown; DAVID AYSHIRE, Madison; ROBERT W. SAYRE, New Haven; ISRAEL LEVERDORF, Weirton; RUSSELL A. SALTON, Williamson.

### Wisconsin

*To Camp Custer*, Battle Creek, Mich., base hospital, Capt. ALBERT A. MAURER, La Crosse.

*To Camp Grant*, Rockford, Ill., from Camp Bowie, Lieut. FRANK O. BRUNCKHORST, Kewanee; from New York City, Lieut. ELIAS BIBBY, Milwaukee.

*To Camp Joseph E. Johnston*, Jacksonville, Fla., to examine the troops for mental and nervous diseases, from New York City, Lieut. WILLIAM J. FLEMING, Wauwatosa.

*To Camp MacArthur*, Waco, Texas, base hospital, from Presidio, Lieut. IVAN B. PIPPAN, Excelsior.

*To Camp Pike*, Little Rock, Ark., base hospital, from Presidio, Lieut. WILMOT P. MILLER, Milwaukee.

*To Camp Sheridan*, Montgomery, Ala., base hospital, from Army Medical School, Lieut. RALPH T. GILCHRIST, Milwaukee.

*To Camp Travis*, Fort Sam Houston, Texas, base hospital, Lieut. FOREST C. KRAMER, Milwaukee.

*To Fort Riley*, for instruction, Capt. RODERIC S. ELLIOTT, Milwaukee; Lieut. WILILAM J. THOMSON, Portage.

*To Lexington, Ky.*, to observe the treatment of trachoma, and on completion *to his proper station*, Major NELSON M. BLACK, Milwaukee.

*To San Antonio, Texas*, Kelly Field, for duty, Lieut. GEORGE W. HARRISON, Ashland.

*Honorably discharged*, Lieut. DELPARDE W. ROBERTS, Milwaukee.

### Wyoming

*To Metuchen, N. J.*, to make sanitary inspection of the Raritan River Ordnance Depot, and on completion *to his proper station*, from Hoboken, Major FREDERICK J. PEIRCE, Cheyenne.

*Honorably discharged*, Lieut. FREDERICK W. PHIFER, Wheatland.

## CORRECTIONS

Under "Orders to Officers of the Medical Reserve Corps":

Issue of Nov. 3, 1917: *To Philadelphia*, for duty, Major CHARLES F. NASSAU, Philadelphia, instead of Major CHARLES F. HASSAN.

Issue of Dec. 22, 1917: *To Camp Funston*, Fort Riley, Kan., as member of board for examination of command for tuberculosis, from Fort Worth, Lieut. SAMUEL R. JOHNSON of St. Charles, Mo., instead of SAMUEL E. JOHNSON of Clanton, Ala.

# *Medical News*

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## ILLINOIS

**Personal.**—Dr. Frazier Cloyd, Westville, has been appointed local surgeon of the Illinois Traction System, succeeding Dr. Melvin L. Hole, Danville, resigned, to enter military service, and on duty at Fort Riley, Kan.

### Chicago

**Italian Doctor Honored.**—January 6, the Italian colony of Chicago did honor to Dr. Giovanni B. Bruno, who is now on the Italian front, by giving a dance and bazaar for the Red Cross Ambulance Fund.

**Personal.**—Dr. Edwin Oakes Jordan, head of the department of bacteriology of the University of Chicago, returned, January 12, from Fort Sill, Okla., where he has been making a study of epidemic cerebrospinal meningitis.——Health Commissioner Robertson has been elected president of the board of directors of the Municipal Tuberculosis Sanatorium, to fill the vacancy caused by the resignation of Dr. Charles P. Caldwell.——Dr. Marcus S. Oliver is under treatment in the Michael Reese Hospital, on account of a skull fracture sustained in a collision between automobiles, January 9.

**Base Hospital Officers Honored.**—A military banquet was given by the Physicians' Club of Chicago, January 15, at the Auditorium in honor of Major L. McArthur, medical director of Base Hospital Unit No. 14; Major Dean D. Lewis, medical director of Base Hospital Unit No. 13, and Major Nelson M. Percy, medical director of Base Hospital No. 11. Major McArthur responded on behalf of the Base Hospital Unit; Col. Henry I. Raymond, M. C., U. S. Army, department surgeon, Central Department, spoke on behalf of the Medical Corps of the Army; Col. J. S. Dennis, commanding the British Recruiting Mission, told of his work in France and England during the war, and Mr. Marquis Eaton, chairman of the Chicago Chapter of the American Red Cross, discussed some phases of Red Cross work.

## INDIANA

**Sentenced for Violating Harrison Law.**—Dr. Henry I. Berger, Indianapolis, was sentenced to serve a year and a day in the federal penitentiary at Atlanta for violating the Harrison Narcotic Law.

**New Officers.**—At the annual meeting of the Tippecanoe County Medical Society at Lafayette, Dr. Charles C. Driscol was elected president; Dr. Furman L. Pyke, vice president; Dr. Harry J. Laws, secretary, and Dr. Charles Hupe, treasurer.

**New Management for Hospital.**—Hope Hospital, Fort Wayne, has changed hands. The board of directors which has conducted the institution for some time voted, January 7, temporarily to sustain activities. Dr. Albert H. McBeth has taken charge of the hospital, which will be continued as a general hospital.

**Smallpox in Indianapolis.**—Fifty new cases of smallpox have been reported since January 1, in Indianapolis. Dr. H. G. Morgan, secretary of the board of health, has been instructed to prepare an ordinance empowering the board authority to quarantine districts where there are epidemics of smallpox. The plan of the board contemplates permitting vaccinated persons to pass in and out of quarantined districts.

**New Officers for State Examining Board.**—At the annual meeting of the State Board of Medical Examiners at the State House, Indianapolis, it was decided that no examination for license to practice medicine in Indiana will be given in any other language than English. It has been the custom to give the examinations in any language that the applicant wished. The following officers were elected: Dr. James M. Dinnen, Fort Wayne, president; Dr. A. B. Caine, Marion, vice president; Dr. William T. Gott, Crawfordsville, secretary, and Dr. Moses S. Canfield, Frankfort, treasurer.

**Personal.**—Major David C. Peyton, superintendent of the Indiana Reformatory, Jeffersonville, spoke before the Transportation Club, Louisville, January 8, on "Crime as a Social Problem."——Dr. Lawrence R. Miller, Winslow, was severely burned by the explosion of a coal oil stove in his office.——

Dr. Frank C. Hershey, Carmel, has been elected county health officer for a term of four years.——Dr. Frank H. Green, Rushville, has been appointed deputy coroner of Rush County, succeeding Dr. Lowell M. Green, who is in the military service.——The office of Dr. Carl B. McCord, Vedersburg, was damaged by a fire which destroyed the Burgner Building, December 28.——Dr. Clifford H. King, Wabash, fractured his right arm, December 26, while cranking his automobile.——Dr. Grace Line Homman, Laporte, has received an appointment at the Mayo Hospital, Rochester, Minn.

### MAINE

**Personal.**—The offices of Drs. George R. Campbell and Marcus P. Hambleton, Augusta, were destroyed by fire, January 4.

**New Officers.**—York County Medical Society, ninety-first quarterly meeting, held in Biddeford, January 3: president, Dr. Clarence F. Kendall, Biddeford; vice president, Dr. Ansel S. Davis, Springvale; secretary, Dr. A. Leon Jones, Old Orchard, and treasurer, Dr. Charles F. Traynor, Biddeford.——Kennebec County Medical Society, held in Augusta, December 27: president, Dr. Edward W. Boyer, Waterville; vice president, Dr. Forrest C. Tyson, Augusta; secretary, Dr. Sylvester J. Beach, Augusta, and treasurer, Stephen A. Bosworth. Resolutions were adopted to remit the dues of all members of the association on duty in the Medical Reserve Corps.

**Health Organization Changes.**—To increase the effectiveness of the state health service, in accordance with the new state health law, a reorganization of the service has been effected. According to the bulletin of the state department, the state has been divided into three health districts, each under the supervision of a full time officer who represents the health commissioner in one particular section of the state. This, it is hoped, will bring the headquarters of the state department into more intimate relationship with health problems. The three districts comprise counties in the northern, southeastern and southwestern districts. The organization further embraces five divisions or branches of work: communicable diseases, under the supervision of Dr. Albion G. Young, Augusta; sanitary engineering, directed by Prof. H. D. Evans; laboratories, directed by Dr. Herbert E. Thompson, Bangor; vital statistics, directed by Miss Inez Creighton, and public health education, in charge of Mr. William H. Greenleaf. Dr. Leverett D. Bristol, Augusta, is state commissioner of health.

### MARYLAND

**Enlarged Hospital Opened.**—The three new wards and eighteen private rooms in the Maryland General Hospital which comprise the $30,000 improvements to the institution have been opened to the public. The improvements were made with a part of the $200,000 obtained by popular subscription during the early months of last year. The additions will permit the hospital to care for about eighty more patients. The men's ward will accommodate about thirty patients, the women's ward a like number, and the children's ward about twenty.

**Campaign for Blind.**—A campaign to raise $100,000 for the Maryland Workshop for the Blind was started, January 14, in Baltimore, to take care of the increased number of blind and the blind soldiers returned from the front. With a waiting list of more than 100 blind persons eager to secure employment at the workshop, and this list on the verge of being augmented by blinded soldiers, the buildings will have to be remodeled to accommodate the newcomers. Besides, the workshop will have to be equipped with new machinery and other facilities, all of which will require a large amount of money. The campaign will be actively carried on during the remainder of the week.

**Increase in Tuberculosis.**—An increase in tuberculosis durnig the past year is reported by the health department, which has more than 4,000 patients now in its care. There were 1,694 new cases in 1915, 1,830 in 1916, and 2,211 last year, according to records of the department. The increase in the disease is due largely to the negro population, and the department is practically helpless, so far as hospital facilities are concerned. Measures for relief will have to be taken by the city, if the disease is to be checked.——Interesting comparative statistics have been issued by James Jenkins, Jr., executive secretary of the Maryland Association for the Prevention and Relief of Tuberculosis, regarding the death rate per thousand from consumption in the different large cities of the country. In this analysis Baltimore ranks highest, with a death rate of 1.90, Philadelphia following with 1.71, New York with 1.55, Boston with 1.45, Buffalo with 1.43 and Chicago with 1.33.

**Personal.**—Dr. Robert W. Johnson, Jr., who is now in Oxford, England, is assisting with the reconstruction work among the wounded soldiers at the hospital there.——Dr. William S. Thayer, Baltimore, of the Johns Hopkins Medical School, has returned to the United States after four months in Russia, as a member of a mission sent by the American Red Cross.——Dr. William M. Dabney, Ruxton, has arrived in Bordeaux, France, and has taken up his duties of diagnostician of tuberculosis. Dr. Dabney has been sent to France by the Rockefeller Foundation.——Major Arthur M. Shipley, Baltimore, M. R. C., U. S. Army, who until recently was physician-in-chief at the base hospital at Camp Meade, has been ordered to Fort Oglethorpe, Ga., and expects to leave there within a few days for France.——Dr. Chester P. Woodward, Baltimore, has been named by Health Commissioner Blake as secretary to the health department, to succeed Dr. Austin H. Wood, Baltimore, recently commissioned first lieutenant in the Medical Reserve Corps.

**Appointments to Institute of Hygiene and Public Health.**—Two important appointments to the staff of the Institute of Hygiene and Public Health, to be opened in Baltimore in in October under the direction of Dr. William H. Welch, have been announced by Dr. Welch. Dr. Carrol G. Bull of the Rockefeller Institute in New York, who is now in France demonstrating with the French armies his newly discovered cure for gangrene, has been named as associate professor of immunology and serology. Dr. Raymond Pearl, biologist of the Maine Agricultural Experiment Station, now in charge of the statistical work for the National Food Administration, has been named to take charge of the department of biometry and vital statistics. The appointments bring the staff of leading scientists for the institute now up to five. Dr. Welch was named director immediately after the announcement by the Rockefeller Foundation that the institute was to be established in connection with the Johns Hopkins University. Dr. William H. Howell, now professor of physiology at Johns Hopkins, has been appointed professor of physiologic hygiene, and Dr. William W. Ford, Baltimore, bacteriologist at Johns Hopkins, has been made associate professor of bacteriology.

### MISSOURI

**Tree Planting at State Hospital.**—Dr. Jesse L. Eaton, superintendent of State Hospital No. 4, Farmington, has inaugurated a tree planting movement which he proposes to make an annual custom at the institution. Hard maple and other trees will be planted by the landscape gardener.

**State Board Election.**—At the annual meeting of the state board of health, January 8, Dr. Wilson J. Ferguson, Sedalia, was reelected president; Dr. William A. Clark, Jefferson City, was elected vice president, to succeed Dr. T. Hurley Wilcoxen, Bowling Green, and Dr. George H. Jones, Kansas City, was reelected secretary.

**Society Dedicates Service Flag.**—At the monthly meeting of the Jackson County Medical Society, held in Kansas City, December 11, a service flag 10 by 15 feet, and bearing 151 stars, was dedicated. A gold star is to be added to the flag in honor of Dr. William T. Fitzsimons, the first physician from the United States to lose his life in the military service of his country in France.

**Personal.**—The State Prison Board has appointed Dr. Simon McNearvey, Florissant, to succeed Dr. James C. Welch, Salem, as physician to the state prison, Jefferson City.——Drs. Wade H. Miller and Walter C. Klein have been made members of the Kansas City Emergency Staff, succeeding Drs. Fred E. Dardatz and George F. Cooper, who have resigned to enter military service.——Dr. R. J. Terry, professor of anatomy, Washington University Medical School, St. Louis, suffered a fracture of the patella several weeks ago when he slipped and fell while running to catch a street car. He has improved rapidly, and is expected to be well within about two weeks.——Capt. John G. Hayden, M. R. C., Kansas City, has been desperately ill with pneumonia for some time, having been stricken while taking a course in neurologic surgery at the University of Pennsylvania. Recent reports of his condition state that he is out of danger.——Dr. C. W. Swope, formerly of Wichita, Kan., has become an associate with Dr. E. H. Skinner of Kansas City in the practice of roentgenology.——Capt. Robert E. Schlueter, president of the Missouri State Medical Association, has been ordered to Fort Oglethorpe, Ga., for active service. The first three vice presidents are holding commissions in the service and therefore Dr. Schlueter has appointed Dr. W. A. Clark of Jefferson City to act as president during his absence.——Governor Gardner has issued a drastic order to all state institutions and appointive officer to practice the strictest economy in the conduct of their institutions during 1918 and under no pretext to incur deficiencies. He says he will veto any bill appropriating money for such deficiencies.

### St. Louis

**Diphtheria.**—Dr. Martin C. Woodruff, chief diagnostician of the state health department of St. Louis, announced that diphtheria is developing in the city at the rate of 150 cases a week, and there are now 450 cases on record in the city.

**Service Flag Dedicated.**—At the annual meeting of the St. Louis Medical Society, January 5, the service flag of the society, bearing 110 stars, or approximately one seventh of the total active membership, was dedicated with appropriate exercises.

**Army Night at Society.**—At a meeting of the St. Louis Medical Society, January 12, Col. Joseph T. Clarke, M. C., U. S. Army, delivered an address on "What a Medical Reserve Officer May Expect in the Army," and Capt. Robert J. Lynch, M. R. C., spoke on "Organization of Special Army Schools." The discussion was opened by Col. Thomas U. Raymond, M. C., U. S. Army.

## MONTANA

**Hospital Notes.**—An auxiliary city contagious disease hospital has been established in Great Falls. The institution will accommodate from twenty-five to thirty patients.——The first unit of the Butte Deaconess Hospital is nearing completion, and will be ready to receive patients by March. The building is two stories in height with a basement, will accommodate forty patients, and will have cost, when completed, about $40,000.

**Election of Officers.**—Cascade County Medical Society, at Great Falls, December 19: president, Dr. Charles I. Titus; vice president, Dr. Francis E. Keenan, and secretary-treasurer, Dr. Charles F. Coter, all of Great Falls.——Western Montana Medical Association, at Missoula, December 27: president, Dr. Edward W. Spottswood; vice president, Dr. Edwin H. Freeze, and secretary, Dr. James D. Hobson, all of Missoula. Butte was selected as the next place of meeting.

## NEW YORK

**New Officers.**—At the annual meeting of the Albany County Medical Society, held in Albany, December 14, Dr. Howard E. Lomax was elected president; Dr. Charles H. Moore, vice president; Dr. Eddy S. Haswell, secretary, and Dr. Laurence R. Worrell, treasurer, all of Albany.

**Legislation on Health Insurance Urged.**—Representatives of the State Federation of Labor, at a conference held in Albany, January 8, committed themselves to a legislative program whereby they will seek to have endorsed the establishment of a state administered health insurance for wage earners. The federation is working for the creation of a bureau of sickness prevention and health promotion within the State Industrial Commission.

**Law Forbidding Birth Control Propaganda Upheld.**—In the case of Mrs. Margaret Sanger, who was convicted and served thirty days in the workhouse for disseminating information on birth control, and whose case was carried to the higher courts, the Court of Appeals has handed down a ruling that the section of the New York penal law prohibiting the dissemination of information concerning birth control is constitutional, and must be upheld by the courts.

**Personal.**—Dr. Dorr W. McLaury, Otsego County, has been appointed chief of the Bureau of Animal Industry of the state.——Dr. James E. Burns has been elected first mayor of the new city of Glen Cove.——Dr. John Archibold, Cohoes, has been appointed health officer, to serve during the absence of Dr. Clarence H. White, who is on duty in the military service.——Dr. James E. McDonald has been appointed a member of the board of health, Cohoes, succeeding Dr. Herbert R. N. Hebert, resigned to enter military service.

### New York City

**Sex Talks.**—The Jewish Board for Welfare Work in the United States Army and Navy has secured the services of Dr. Irving D. Steinhardt in the teaching of sex hygiene to the camp workers of the organization. This instruction will be in the form of lectures, the first of which was given January 11

**Assistant Medical Examiners.**—Ten physicians formerly on the coroner's staff have been appointed assistant medical examiners. These are Drs. George W. Tong, Brooklyn; Albert T. Weston, George Wuest, Brooklyn; Timothy D. Lehane, Benjamin Schwartz, William H. Nammack, Far Rockaway; John Riegelman, Thomas H. Curtin, George W. Hart, Brooklyn, and George Mord, Rosebank. The positions, except those for Richmond, carry salaries of $3,000 a year.

**Personal.**—Dr. William P. Healy, dean and professor of gynecology in Fordham University since its reorganization in 1912, has resigned in order to devote himself exclusively to private practice.——Dr. Moses Kahn, Brooklyn, has been appointed a member of the attending medical staff of St. Anthony's Hospital for Tuberculosis, Woodhaven, L. I.——Dr. Earl H. Mayne, Brooklyn, has been appointed attending surgeon to Coney Island Hospital, succeeding Dr. Arthur H. Bogart, Brooklyn, resigned.——Prof. William Warren Stifler of Columbia University has arrived in Peking to take charge of the physics department of the Union Medical College.

**Diet Squad Testing School Lunches.**—Under the direction of the Post-Graduate Hospital, the People's Institute and the New York School Lunch Committee, twenty-seven public school boys, from 9 to 12 years of age, are being made the subject of an experiment as to the value of a noon lunch containing 900 calories. The object is to demonstrate what constitutes a proper school lunch, and to make the school lunch a civic necessity. The experiment is part of a plan to start a national campaign for the better feeding of schoolchildren, since recent investigations have indicated that a considerable proportion of the undernourishment found in schoolchildren is not so much due to poverty as to lack of knowledge as to what constitutes a proper diet for a growing child.

**Columbia University Plans Diagnostic Clinic.**—The trustees of Columbia University announce that plans are being perfected for the establishment of a large diagnostic clinic for the people who do not wish to accept charity and who are unable to pay for the services of a number of experts whose special advice or examinations may be needed in order to make a diagnosis. The plans propose that this clinic shall act as a distributing center for a number of hospitals. The financial arrangement provides that every clinical worker will be paid for his work and every patient charged a proper fee commensurate with his income. In his announcement, Dr. Samuel W. Lambert states that some opposition from the rank and file of the profession is expected; the aim of the clinic, however, will be to return the patient to the family physician for treatment after the diagnosis has been made.——Columbia University also contemplates adding a fifth year to the medical curriculum, during which all candidates for licensure will work in a hospital under college discipline, and that additional provision is to be made for postgraduate and research work.

## NORTH CAROLINA

**New Officers.**—Guilford County Medical Society at Greensboro, January 3: president, Dr. May S. Miles; vice president, Dr. Edmund Harrison, and secretary-treasurer, Dr. Robert A. Schoonover (reelected), all of Greensboro.

**Sanatorium Dormitory Burns.**—Brooks Hall, one of the principal dormitories at the State Sanatorium, Raleigh, was destroyed by fire, December 17. No casualties occurred, but the superintendent of the institution, Dr. Lewis B. McBrayer, was obliged to return thirty patients to their homes. The loss was $3,500, partially covered by insurance.

## OHIO

**Land Acquired for Professional Block.**—Physicians and Dentists Building Company of Cleveland has acquired an option on land at the northwest corner of Chester Avenue, N. E., and East Thirteenth Street, on which to erect a twelve-story building, to cost $800,000, for the exclusive use of professional men.

**New Officers.**—General Practitioners' Medical Society, Columbus, December 27: president, Dr. Ralph B. Taylor; vice president, Dr. Austin Hutt, and secretary-treasurer, Dr. George W. Keil (reelected).——Columbus Academy of Medicine, December 17: president, Dr. John L. Gordon, and vice president, Dr. John Rauschkolb.

**Personal.**—Dr. Samuel W. Kelley, Cleveland, has returned after eight months' service on the western front.——Dr. Frank L. Farman, Toledo, has succeeded Dr. Nelson H. Young as assistant superintendent of the Toledo State Hospital. Dr. Young has accepted a similar position at Fort Steilacoom, Wash.——Dr. Sterling B. Taylor, Columbus, local surgeon for the Ohio Central Division of the New York Central Lines, has had his territory increased, and will also have charge of the Big Four system. Dr. Edgar M. Freese, Columbus, is his assistant.——Dr. Alvin L. Light has resigned as health commissioner of Dayton, and has been succeeded by Dr. Arthur O. Peters.

### Cincinnati

**Smallpox.**—January 3, there were twenty-four cases of smallpox segregated at the General Hospital, eighteen of the patients being negroes, most of whom came from the South during the recent exodus.

**Personal.**—Dr. Charles A. L. Reed, who was taken ill in August last, is reported to be improving, and has gone South to spend the winter.——Dr. Frank W. Harmon, superintendent of Long View Hospital for thirty-seven years, has been granted an indefinite leave of absence and full pay, on account of ill health, and has gone to California. Dr. Emerson A. North of the Cincinnati Sanatorium has been appointed acting superintendent of the institution.——Dr. Hiram B. Weiss has been appointed successor to Dr. Thomas H. Kelly as assistant to Dr. Roger S. Morris, professor of internal medicine in the University of Cincinnati, and director of that department at the General Hospital.——Drs. Clyde F. Watt, D. C. Robbins and Paul H. Rowe of the resident staff of the General Hospital have resigned to assume similar positions in other cities.——Dr. R. E. Bushing, assistant superintendent of the Athens State Hospital, has offered his services as resident physician to the Cincinnati General Hospital.

**New Charter Provisions.**—January 1, a new charter went into effect in Cincinnati which places all of the medical, scientific and nursing work in the new City Hospital under the direction of the University of Cincinnati. The charter provides that the medical director of each department shall be the professor in the corresponding department of the medical college, and that the board constituted of these directors shall nominate to the board, through the president, all members of the staff of the hospital, including the superintendent, who shall be the general executive and business manager of the hospital. This superintendent will select all of the other employees under the rules of the civil service commission of the city. The charter thus removes the hospital entirely from the sphere of politics, places all the medical, scientific and nursing work under the direction of the medical college, and secures all of the facilities of the hospital for the purposes of education and research. The plans for the hospital were made by Dr. Christian B. Holmes, dean of the medical faculty, and the whole building scheme has been worked out to conform to these plans. The new building of the medical college, located on a 12-acre lot immediately across the street from the hospital, has just been completed and occupied. This gives Cincinnati a complete medical teaching and research plant, costing over $5,000,000. The medical college is a regular department of the university, and all of its expenses are paid by it. The city will continue to pay the general operating expenses of the hospital, such as the heating and lighting, food, engineers, janitors, etc., while the university will pay all the expense of the medical, surgical, scientific and nursing service. The total expenses to the city of operating the combined medical college and hospital plant will be, not including income on endowments, approximately $700,000 a year. The same charter provides for a reorganization of the board of directors of the university, who will now be appointed, one each year, to serve for nine years. The newly elected mayor has just announced the reappointment of the former board, which has managed the affairs of the university so successfully in recent time. These gentlemen are: Judge R. B. Smith, chairman, Mr. O. J. Renner, Dr. David I. Wolfstein, Mr. Sanford Brown, Dr. Walter R. Griess, Mr. Robert W. Hochstetter, Mr. A. R. Morgan, Mr. Emil Pollak and Dr. Erwin O. Straehley. The Baldwin estate, amounting to over $800,000, will be turned over to the university this month.

## OREGON

**State Health Board Meeting.**—At the annual meeting of the Oregon State Board of Health, held in Portland, Dr. Alvane C. Seely, Roseburg, was elected president; Dr. Frank M. Brooks, Portland, vice president, and Dr. Robert E. L. Holt, Portland, secretary and state health officer.

**New Officers.**—At the annual meeting of the Coos and Curry Medical Association, held in Marshfield, the following officers were elected: president, Dr. James Richmond, Coquille; vice president, Dr. Leslie G. Johnson, Marshfield, and secretary-treasurer, Dr. Howard M. Shaw, Marshfield.

## PENNSYLVANIA

**Physician Sentenced to Prison.**—Dr. Nathan C. Kartub, East Vandergrift, confessed murderer of John Zofag, by poisoning, was sentenced, December 31, to imprisonment in the Western Penitentiary, for not less than nineteen years and ten months or more than twenty years. For conspiracy to defraud a life insurance company, he received a sentence of not less than two or more than three years, and for defrauding a life insurance company he was sentenced to pay a fine of $1,000, the penitentiary sentences running concurrently.

**Personal.**—Dr. Donald Guthrie, chief surgeon of the Robert Parker Hospital, Sayre, fell while skating, January 3, fracturing his left arm.——Lieutenant-Governor Gouverneur H. Boyer, president of the Schuylkill County Medical Association, was tendered a farewell reception at Pottsville, January 3, on the eve of leaving for military service.——Dr. Howard M. Essick, Essick Heights, was stricken with cerebral hemorrhage, January 2, and is under treatment at the Mary M. Packer Hospital.——Dr. Vere Treichler, Elizabethtown, slipped and fell, January 2, sustaining a comminuted fracture of the right arm.——Dr. Thomas E. Mendenhall, Johnstown, fractured his right arm while cranking his automobile, January 1.——Dr. William R. Deemer, Tarentum, suffered a fracture of the arm and narrowly escaped death when his automobile was struck by a freight train on the night of December 30, at a grade crossing.——The office of Dr. James R. Thompson, Pittston, was damaged in a fire which destroyed the Cash Store Block, December 31.

### Philadelphia

**Misericordia Dispensary Opened.**—The new Misericordia Hospital at Fifty-Fourth and Cedar Avenue, in charge of the Sisters of Mercy, has started its dispensary, which will be open daily from 11:30 a. m.

**Title of Pennsylvania Unit Changed.**—The base hospital unit that was organized here by the Pennsylvania Hospital, and known as Hospital Unit No. 10, is established near the Allies' fighting front in France, and has been named Base Hospital No. 16, Philadelphia, U. S. A.

**Officers Elected.**—At the fiftieth annual business meeting of the Philadelphia County Obstetrical Society, January 3, the following officers were elected: president, Dr. Barton Cooke Hirst; vice presidents, Drs. F. Hurst Maier and John W. West; secretary, Dr. Edward A. Schumann, and treasurer, Dr. William E. Rorke.

**Personal.**—Drs. Clarence W. Schaeffer, George E. H. Johnson and Maurice Ostheimer have been appointed assistant diagnosticians of the bureau of health, with salaries of $1,800 a year each; Drs. Joseph D. Lehman and Martin Nevinger have been appointed supervising medical inspectors, with salaries of $1,600 a year each.——Dr. Ellwood R. Kirby has been elected chief consulting physician of the Eastern Penitentiary.——Dr. Edward A. Schumann has been made lecturer in obstetrics at the Jefferson Medical College.——Dr. Judson Daland, who was operated on in the German Hospital recently for stone in the kidney, is reported to be doing well.

## SOUTH CAROLINA

**Personal.**—Dr. Thomas P. Whaley, Charleston, sustained painful burns when his bathrobe caught fire from a gas heater, at his home, December 28.——Dr. Robert L. Moore, Columbia, is reported to be seriously ill at the Columbia Hospital.

**New Officers.**—Newberry County Medical Society, at Newberry, December 14: president, Dr. Thomas H. Pope, Kinards; vice president, Dr. William Dunn, Newberry, and secretary-treasurer, Dr. John B. Setzler, Newberry.——Charleston Medical Society, one hundred and twenty-eighth annual meeting, at Roper Hospital, December 10: president, Dr. Robert S. Cathcart, and vice president, Dr. John M. Green.

**Child Welfare.**—The December number of the *Journal of the South Carolina Medical Association* is a child welfare number, the entire issue being devoted to that subject. There is a history of child welfare work in Columbia, an article from the National Children's Bureau on child welfare in war time, and a symposium of papers on infant mortality read at the state meeting at Spartanburg. The journal editorially recommends the creation of a bureau of child hygiene in the organization of the state board of health, such as is in existence in New York, New Jersey, Ohio and Kansas, and also the passage of a law providing for school medical inspection. Two bills formerly passed by the legislature for this purpose were vetoed by a former governor. It is believed that Governor Manning will approve such a measure.

### CANADA

**Hospital Fire.**—A woman and five children were killed in a fire which broke out in the Water Street Roman Catholic General Hospital, Ottawa, January 10, and one patient died of shock after her removal from the burning building.

**Personal.**—Dr. Andrew MacPhail, professor of medicine in McGill University, Montreal, was among those knighted in the annual distribution of New Year honors, in London.——Dr. Wilfred T. Grenfell, Labrador, delivered the principal address before the Sunday Evening Club, in Chicago, January 13.

### GENERAL

**Fraternity Meeting.**—The Alpha Kappa Kappa Medical Fraternity held a two days' session at the Adelphia Hotel, Philadelphia, January 3 and 4, at which the local chapters at the University of Pennsylvania and Jefferson Medical College acted as hosts. Thirty chapters of the fraternity were represented. The next convention will be held in Chicago in 1920.

**Compilation of Digest of Comments on the U. S. P. and N. F. Continued.**—The work of compiling the series of hygienic laboratory bulletins entitled "Digest of Comments on the Pharmacopocia of the United States of America and on the National Formulary," which was interrupted by the illness and death of Technical Assistant Martin I. Wilbert, has been resumed by Dr. A. G. DuMez, who was appointed to succeed the former, June 1, 1917. The Digest of Comments for the calendar year ended Dec. 31, 1915, has been completed and is ready for publication, and considerable progress has been made in the preparation of the abstracts for the 1916 bulletin.

### FOREIGN

**Appeal for Private Automobiles in Italy.**—The Italian Red Cross has issued an appeal to private owners of automobiles and trucks to loan all that can be spared "temporarily" to the government "during this exceptional period of febrile movement."

**Prize for Bologna Professors.**—An Italian senator recently bequeathed to the city of Bologna the sum of $100,000, the income from which is to be awarded every two years to the member of the faculty who has distinguished himself most by his teaching, his writings or his discoveries. The jury making the award includes the dean of the university, the mayor, the chief of police, president of the county board, and one other, to be appointed by the communal council.

**Prizes Awarded by the Académie de Médecine at Paris.**—This year the Académie had twenty-seven prizes to award, representing a total of nearly $18,000. One prize was given to Prof. F. Devé of Rouen for his works epitomizing many years of research on echinococcus disease. Another went to C. Flandin for his method of estimating the respiratory capacity of the blood in carbon monoxid poisoning by means of Haldane's apparatus. With this the degree of intoxication is estimated by the proportion between the poisoned hemoglobin and the total hemoglobin. It also is an index of the coefficient of vitality, that is, the ratio of the remaining respiratory capacity to the initial respiratory capacity. The Académie has received four new endowments for prizes during the year, and the wish was expressed by the secretary that such endowments should be made without restricting the award to a specified topic. Much more could be done for the progress of science if the sums available could be devoted to specially important questions and missions as need arises. Since the war began the Académie has lost seventeen members, four foreign associate members, and twenty-four national corresponding members, and no steps have been taken to date to fill their places, except the election of Soca of Montevideo and M. Couto of Rio to be foreign associate members. Dr. Cranwell of Buenos Aires has been foreign associate member for several years. The Académie voted to proceed now to fill the vacancies. The Audiffred prize, which represents an endowment providing an annual income of $4,800 at 3 per cent. for a sovereign cure for tuberculosis, naturally was not awarded. The only name not a French name on the list of recipients was A. Khoury of Beirut, Syria, who shared one of the prizes for his work on epinephrin treatment of uncontrollable vomiting in convalescents from typhoid.

## Marriages

Lieut. Harvey Columbus Hardegree, M. R. C., U. S. Army, Flushing, N. Y., L. I., on duty at Camp Devens, Ayer, Mass., to Miss Carolyn L. Malcolm of Bayside, N. Y., at Long Island City, N. Y., December 31.

Capt. Charles Albert Barron, M. R. C., U. S. Army, on duty at Camp Devens, Ayer, Mass., to Miss Edith Ryder of Chicago, at Evanston, Ill., January 3.

Lieut. Raymond G. Tuck, M. R. C., U. S. Army, Brown City, Mich., to Miss Mabel Foutz of Olney, Ill., at Camp McArthur, Waco, Texas, January 1.

Lieut. Russell Rulo Heim, M. R. C., U. S. Army, Marinette, Wis., to Miss Mamie Elizabeth Anderson of Grantsburg, Wis., December 29.

Capt. Frank Paige Todd, M. R. C., U. S. Army, Danielson, Conn., to Miss Katherine R. Cooper of Philadelphia, December 1.

Lieut. Placido Ramos Vasquez Hommel, M. R. C., U. S. Army, to Miss Maude Twining, both of Evanston, Ill, recently.

Lieut. Charles A. Yocum, M. R. C., U. S. Army, Reading, Pa., to Miss Mary B. Rahn of Douglassville, Pa., recently.

Clifford Cooper, M.D., Cooperstown, Pa., to Miss Clara Nesbit of Franklin, Pa., at Pittsburgh, January 2.

John Louis Brickwede, M.D., Akron, Ohio, to Miss Aileen Bright Benner of Arlington, Ohio, December 27.

Carrie S. Staines, M.D., to Will K. Kellogg, both of Battle Creek, Mich., at Grand Rapids, Mich., January 1.

Joseph S. Kowaleskie, M.D., to Miss Mary Willoughby, both of Shamokin, Pa., December 28.

## Deaths

**William Henry Sanders, M.D.,** state health officer of Alabama; aged 79; a Fellow of the American Medical Association; died at his home in Montgomery, January 2, after an illness of more than two years. Dr. Sanders was born in Tuscaloosa County, Ala., July 9, 1838, and took his medical course at Jefferson Medical College, Philadelphia, from which he was graduated in 1861. He served throughout the Civil War as a surgeon in the Confederate service, and after the war located in Mobile, where he remained until he became state health officer in 1897. During this time he was professor of ophthalmology, otology, rhinology and laryngology in the University of Alabama, Mobile. For nineteen years he was state health officer and chairman of the State Board of Censors, and secretary of the State Board of Medical Examiners, retiring two years ago, on account of ill health. Dr. Sanders was a man of great force of character. He was a worthy successor to Dr. Jerome Cochran, whose benevolent autocracy in health matters in the state Dr. Sanders continued throughout his long term as state health officer. He was president of the Medical Association of the State of Alabama in 1891, and frequently represented that constituent in the House of Delegates of the American Medical Association.

**Thomas Davison Crothers, M.D.,** Hartford, Conn.; aged 75; an ardent advocate of total abstinence, died, January 12, from arteriosclerosis. He was born in West Charlton, N. Y., Sept. 21, 1842, and after his preliminary education at the Fort Edward (N. Y.) Seminary, he pursued his medical studies at the Albany (N. Y.) Medical College, from which he was graduated in 1865. After four years' practice at West Galway, N. Y., he returned to Albany, and was assistant professor of practice of medicine in his alma mater. In 1875 he became assistant physician in the New York Inebriate Asylum, Binghamton. Three years later he was made superintendent of the Walnut Hill Asylum, Hartford, Conn., and after two years became president and superintendent of the Walnut Lodge Hospital, Hartford, positions which he held until his death. In 1876 he established the *American Journal of Inebriety,* and continued in editorial charge until his death. He was also the author of several monographs on inebriety and the drug habit.

**John Eaton Darby, M.D.,** Cleveland; Western Reserve University, Cleveland, 1861; aged 82; formerly a Fellow of the American Medical Association; demonstrator of anatomy in his alma mater in 1861 and 1862; a surgeon of U. S. Volunteers throughout the Civil War; surgeon of the Cleveland and Pittsburgh Railroad from 1867 to 1877, and visiting physician to the Lakeside Hospital during the same period; a member of the medical board of the Cleveland City Hospital from 1895 to 1898; professor of materia medica and therapeutics in his alma mater from 1867 to 1896, and thereafter emeritus professor; died at his home, January 4, from cerebral hemorrhage.

**Capt. John Weaver Luther, M. R. C., U. S. Army**; Palmerton, Pa.; University of Pennsylvania, Philadelphia, 1899; aged 42; a Fellow of the American Medical Association; chief surgeon for the Central Railroad of New Jersey; formerly instructor in gynecology in his alma mater; assistant gynecologist to the University Hospital and obstetrician to the Maternity Hospital; surgeon-in-chief of the Palmerton Hospital; president of the Palmerton Citizen's Co-Operative Association, and of the Lehigh Valley Medical Association, and for five years burgess of Palmerton; died in Jacksonville, Fla., December 28, from pneumonia.

**Robert Chilton Atkinson, M.D.**, St. Louis; Tulane University, New Orleans, 1867; aged 76; formerly a member of the Missouri State Medical Association; assistant superintendent of the St. Louis City Hospital; once a member of the state board of health, and its secretary for two years; a member of the St. Louis board of education; for one year coroner of St. Louis City County, and for eight years a member of the board of hygiene of the public schools; for eighteen years a member of the faculty of the Marion-Sims Medical College, and St. Louis University; a verteran of the Civil War; died at his home, December 31.

**Capt. Nelson Macpherson Ferebee, Medical Director, U. S. Navy** (retired), Oxford, N. C.; University of Maryland, Baltimore, 1871; aged 68; who was appointed assistant surgeon in the Navy in 1872, and was retired, Dec. 31, 1904, on account of incapacity resulting from an incident of service, after thirteen years and three months of sea service, and thirteen years and eight months of shore and other duties, including the establishment of a hospital and free dispensary in Sitka, Alaska; died at his home, November 25.

**Frederick Morse Wilson, M.D.**, Bridgeport, Conn.; Harvard Medical School, 1875; aged 66; a Fellow of the American Medical Association, American Ophthalmological Society and American Otological Society; a specialist on diseases of the ear, nose and throat; one of the founders of the Bridgeport Yacht Club, and president of the Bridgeport Hospital; who left for the Canal Zone, December 3, to be present at the wedding of his daughter in Colon; died in that city, December 17.

**Jehu Z. Powell, M.D.**, Logansport, Ind.; University of Michigan, Ann Arbor, 1874; aged 69; a Fellow of the American Medical Association and a specialist in diseases of the ear, nose and throat; at one time in charge of the Hospital of the National Military Home, Johnson City, Tenn.; postmaster of Logansport from 1898 to 1902, and for four years a member of the city council; died in St. Joseph's Hospital, Logansport, January 6, from intestinal disease.

**John Harrigan, M.D.**, Brooklyn; Long Island College Hospital, Brooklyn, 1874; aged 72; formerly a member of the Medical Society of the State of New York; a member and since 1903 president of the staff of St. Mary's Hospital, Brooklyn; for many years a member and vice president of the Brooklyn board of education; since 1899 a member of the board of regents of his alma mater; died at his home, December 30, from heart disease.

**Ernest Albert Cranston, M.D.**, Calais, Me.; College of Physicians and Surgeons, Boston, 1905; aged 57; a member of the Maine Medical Association; city physician of Calais, and coroner of Washington County; for twelve years a clergyman; died at his home, December 14, from pericarditis, endocarditis and cerebral thrombosis.

**William W. Vinnedge, M.D.**, Lafayette, Ind.; Medical College of Ohio, Cincinnati, 1869; aged 72; a member of the Mississippi Valley Medical Association; from 1872 to 1876 coroner of Tippecanoe County, Ind.; died at the home of his daughter in Chatham, N. J., December 28, from arteriosclerosis.

**Aimé Moors Blossom, M.D.**, Montclair, N. J.; Cleveland College of Physicians and Surgeons, 1893; for many years a practitioner of North Adams and Nantucket, Mass.; died at the home of her daughter, Montclair, N. J., November 29.

**Jephtha D. Garner, M.D.**, Maryville, Tenn.; Physio-Medical College, Cincinnati, 1865; aged 86; founder and for many years principal of the Friends' School, Maryville, and U. S. Indian agent for the Cherokee Indians in Tennessee and North Carolina; died at his farm near Maryville, December 24.

**Albert D. Lowry**, Valley Falls, Kan. (license, Kansas, 1901); aged 41; a Fellow of the American Medical Association, and once vice president of the Jefferson County Medical Society; local railway surgeon; formerly coroner of Jefferson County; died at his home, December 29, from heart disease.

**Earl Benjamin Maxwell, M.D.**, Findlay, Ohio; Boston University, 1916; aged 30; a member of the Ohio State Medical Association; health officer of Allen Township; died in St. Vincent's Hospital, Toledo, Ohio, December 25, from surgical shock following an operation for cervical adenitis.

**Moses Joseph Jackson, M.D.**, New York City; New York University, New York City, 1893; aged 68; a member of the Medical Society of the State of New York, and a fellow of the New York Academy of Medicine; coroner's physician from 1892 to 1905; died at his home, January 3.

**Benjamin Buckman, Jr., M.D.**, Butler, Ill.; Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1908; aged 41; formerly a member of the Arkansas Medical Society; died at the home of his father in Farmingdale, Ill., December 9, from paralysis and endocarditis.

**Edward Bolliver Bracy, M.D.**, Mitchell, S. D.; Eclectic Medical Institute, Cincinnati, 1869; formerly a member of the South Dakota State Medical Association, and a pioneer practitioner of Mitchell; a trustee of the Dakota Wesleyan University; died at his home, December 28.

**Christian F. Tegtmeier, M.D.**, Conshohocken, Pa.; Hahnemann Medical College, 1895; aged 54; for four years president of the Conshohocken school board, and for nearly twenty years prior to that time, school director; died at his home, December 26, from disease of the liver.

**Daniel P. Maddux, M.D.**, Chester, Pa.; Hahnemann Medical College, Philadelphia, 1883; aged 55; chief of the surgical staff of the J. Lewis Crozer Hospital; a member of the state board of medical examiners in 1903; died at his home, January 3, from pneumonia.

**Frederick Miner Wagner, Jr., M.D.**, Wampum, Pa.; Jefferson Medical College, 1906; aged 38; a Fellow of the American Medical Association; was instantly killed, January 3, when his automobile was struck by a train at a grade crossing at Newcastle, Pa.

**George Schmauch, M.D.**, Chicago; University of Königsberg, Germany, 1892; aged 51; a Fellow of the American Medical Association; died while proceeding to a professional call in one of the northwestern suburbs during the blizzard of January 13.

**Morris Hughes, M.D.**, Kennett Square, Pa.; Hahnemann Medical College, Philadelphia, 1884; aged 64; secretary of the board of health of Kennett Square, and organizer of the Homeopathic Hospital at Chester, Pa.; died at his home, January 1.

**Edwin Boardman Adams, M.D.**, Springfield, Mass.; College of Physicians and Surgeons in the City of New York, 1880; aged 66; a member of the Massachusetts Medical Society; died at his home, December 21, from pneumonia.

**Charles Perry Simons, M.D.**, Caldwell, Ohio; Medical College of Ohio, Cincinnati, 1874; aged 75; assistant surgeon of the Ninety-Eighth Ohio Volunteer Infantry throughout the Civil War; died at his home, December 19, from paresis.

**Royal Hatch, M.D.**, Wellesley, Mass.; Harvard Medical School, 1904; aged 39; a Fellow of the American Medical Association; chairman of the Wellesley board of health; died at his home, December 30, from pneumonia.

**Harry Picking Eisenhart, M.D.**, Harrisburg, Pa.; Jefferson Medical College, 1906: aged 46; a Fellow of the American Medical Association; also a graduate in pharmacy; died at his home, December 28, from pneumonia.

**Edward Homer Martin, M.D.**, Middlebury, Vt.; University of Vermont, Burlington, 1894; aged 56; a Fellow of the American Medical Association; died in the Mary Fletcher Hospital, Burlington, December 30.

**Robert A. Cunliffe, M.D.**, Milwaukee, Wis.; Northwestern University Medical School, Chicago, 1905; aged 37; formerly of Chicago; died at the home of his parents in Milwaukee, January 8, from brain tumor.

**Martin Oyen, M.D.**, East Ellsworth, Wis.; University of Minnesota, Minneapolis, 1899; aged 35; a Fellow of the American Medical Association; died at his home, December 28, from pleuropneumonia.

# The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## NOSTRUMS IN RETROSPECT

### A Review of Worthless or Unscientific Proprietary Mixtures Previously Criticized

[Forward.—The article that follows is the fourth[1] of a series written for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations which will be taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and sold indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

### [Article IV]

## CACTINA PILLETS

### By S. Q. Lapius, M.D.

This preparation may be considered briefly in view of the recent discussion in this series of articles of the pharmacology of the digitalis group and the principles of treatment in cardiovascular disease. The manufacturers maintain that cactina is wholly unlike digitalis, and that is the truth, as we shall show, but since they claim that it is useful in certain conditions of the heart in which digitalis is commonly employed by well informed clinicians it is necessary to consider its cardiac actions—or its lack of them! It is difficult to determine just what action cactina is supposed to exert on the heart. For example, one advertisement contains the following:

> "Cactina Pillets. A gentle cardiac tonic that supports and sustains the heart through its capacity to improve cardiac nutrition."

Just how the cardiac nutrition is to be improved without an improved coronary circulation is not explained. It would be interesting to know in what other way this is to be accomplished, and how an improved coronary circulation can be induced without acting on the heart or vessels. But that is what digitalis does, and you should remember that cactina is so very different from digitalis! Then again:

> "Cactina Pillets. A remedy that steadies and strengthens the heart by imparting tone to the heart muscle."

That is a pretty direct statement, but digitalis imparts tone and we must not forget that "cactina" is wholly unlike digitalis, and we are told that "cactina" is:

> "Invaluable in all functional cardiac disorders such as tachycardia, palpitation, arrhythmia, and whenever the heart's action needs regulating or support."

If these are merely functional disorders of the heart it is highly desirable to know what are the symptoms of really serious cardiac disease! Since the manufacturers give us no information concerning the mode of action of "cactina" we will turn to the literature of disinterested observers. If one attempts to discover the origin of "cactina," he will probably meet with disappointment, for various bibliographies fail to mention the name of Sultan, who is said to have isolated "cactina" from *Cactus grandiflorus.* It seems that Sultan worked with *Cactus,* or some other plant, when a student of pharmacy, and it is to be remembered that Cactina Pillets are manufactured by the Sultan Drug Company.

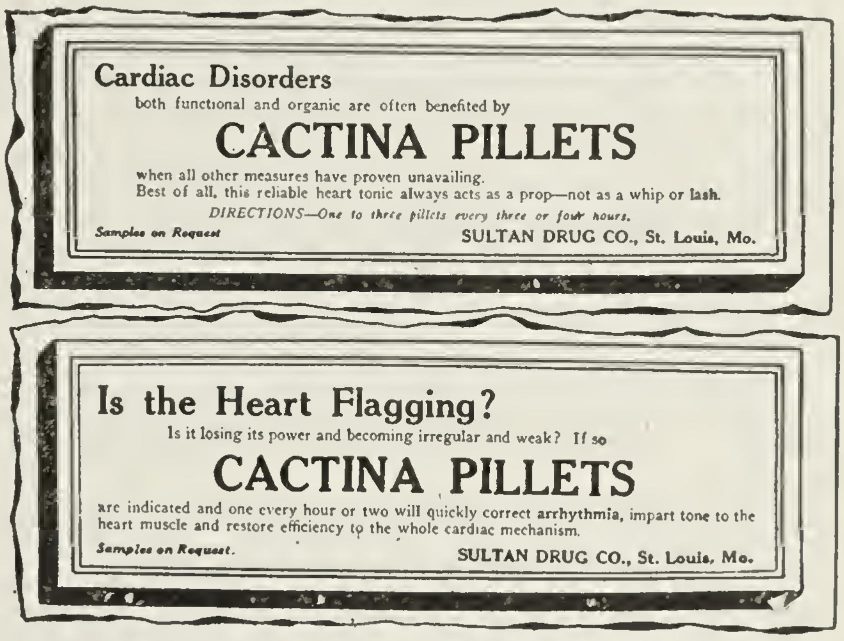
It is doubtful whether Sultan actually worked with genuine *Cactus grandiflorus,* and in fact, there is good reason for thinking that he did not, for all subsequent workers who have taken pains to secure genuine *Cactus grandiflorus* have failed to detect the presence of any active principle, except possible traces that are of no therapeutic importance whatever.

### WHAT THE COUNCIL FOUND

The Council on Pharmacy and Chemistry examined the literature relating to cactus and certain proprietary preparations, including Cactina Pillets, alleged to be made from cactus, and has reported the results of its investigation (The Journal, March 12, 1910, p. 888) and we will quote from that report.

> "The therapeutic value of this plant has been variously estimated by different observers. Experimental evidence as to its action is scanty and no complete chemical examination has ever been made.
>
> "Reputable men have testified that some of the plants of the cactus family contain very active principles, but so far experiments seem to prove that Cactus grandiflorus has neither the action of digitalis nor that of strychnin. The principal contributions, clinical and experimental, for and against the drug are set out below."

The report then proceeds to analyze the work of O. H. Myers, R. A. Hatcher, Boinet and Boy-Teissier, Sayre, Gordon Sharp, S. A. Matthews, P. W. Williams, Aulde and Ellingwood, and comes to conclusions that are set forth as follows in brief:



**Cardiac Disorders**
both functional and organic are often benefited by
**CACTINA PILLETS**
when all other measures have proven unavailing.
Best of all, this reliable heart tonic always acts as a prop—not as a whip or lash.
*DIRECTIONS—One to three pillets every three or four hours.*
*Samples on Request* SULTAN DRUG CO., St. Louis, Mo.

**Is the Heart Flagging?**
Is it losing its power and becoming irregular and weak? If so
**CACTINA PILLETS**
are indicated and one every hour or two will quickly correct arrhythmia, impart tone to the heart muscle and restore efficiency to the whole cardiac mechanism.
*Samples on Request.* SULTAN DRUG CO., St. Louis, Mo.

Typical advertisements of "Cactina Pillets" from the *Medical Record* and *New York Medical Journal,* respectively.

1. It is uncertain what part of the plant contains the active principle, if any such principle exists.
2. Part of the experimental and clinical work has been published under proprietary auspices.
3. The value of clinical evidence when unsupported by animal experimentation is much diminished by the tendency of enthusiastic and untrained observers to attribute to the drug given the effect really due to general remedial measures, psychic suggestion and so forth.

In other words, the literature does not afford a report of a single piece of careful painstaking work the results of which lend support to the claims made for Cactina Pillets as stated above, for it is obvious that if *Cactus grandiflorus* contains no active principle, no active principle can be extracted from it. Some time after the report of the Council was published, Hatcher and Bailey secured genuine *Cactus grandiflorus* directly from a competent botanist, Dr. C. A. Purpus, of Vera Cruz, Mexico, and studied it experimentally. They reported (The Journal, Jan. 7, 1911, p. 26) in part as follows:

> "We have been unable to obtain any evidence that the true Mexican *Cactus grandiflorus* possesses any pharmacologic action whatever, but on the contrary, it appears to be a singularly inert substance when administered either by the mouth or by the vein."

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[1] The previous articles of the series are "Bell-ans," The Journal, Nov. 24, 1917, p. 1815; "Anasarcin and Anedemin," The Journal, Dec. 8, 1917, p. 1992; "Pepto-Mangan," The Journal, Dec. 29, 1917, p. 2202.

When colossal doses of *Cactus grandiflorus* are given by the vein they sometimes—but not always—appear to exert an extremely feeble action on the heart; but this action is so slight that its nature could not be determined. Even the most colossal doses of *Cactus grandiflorus* administered by the mouth to cats, dogs and frogs exert no perceptible effect.

Sollmann thus satirizes the absurd claims made by the exploiters of proprietary forms of cactus: "Should the heart be too slow, cactus quickens it; if the heart is too fast, cactus slows it; should the heart be too weak, cactus strengthens it; if the heart is too strong, cactus weakens it; does the heart wobble, cactus steadies it; if the heart is normal, cactus does not meddle with it" (The Journal A. M. A., July 4, 1908, p. 52).

Will physicians continue to accept the statements of an interested nostrum vendor—who submits not a shred of evidence to support his claims, but who has a financial interest in convincing them—even when his statements are diametrically opposed to all the evidence that the Council on Pharmacy and Chemistry has been able to secure?

## *Correspondence*

### THE RED CROSS INSTITUTE FOR CRIPPLED AND DISABLED MEN

*To the Editor:*—The Red Cross Institute for Crippled and Disabled Men is organizing an institution in New York to provide the special instructional opportunities for the physically handicapped that will make the cripple productive, and the special placement facilities that will secure for him the right type of employment.

We are anxious to have referred to us by physicians, particularly in the New York district, but in exceptional cases from other sections of the country, men who would profit by such opportunities as the institute may offer. Almost every medical man will be acquainted with some men whose need is industrial rather than therapeutic: men who have reached the stage of medical finality but who will require special training or adaptation to enable them to regain the status of self-support.

The cases in which profit can be derived by reeducational work are varied in character. The most obvious are amputation cases, but others readily suggest themselves: severe rheumatism, Pott's disease, paralysis of individual members. In all such cases the benefits of the specialized industrial educator should supplement the work of the surgeon.

We shall appreciate, from members of the profession, reference of any men to whom we might possibly be helpful.

Douglas C. McMurtrie, 311 Fourth Avenue, New York.
Director, Red Cross Institute for Crippled and Disabled Men.

### URGENT NEED OF A NATIONAL LEPROSARIUM

*To the Editor:*—There is at present a case of leprosy at Biloxi, Miss., which reemphasizes the facts and arguments presented to the Senate Committee on Public Health and National Quarantine in behalf of a plea for the establishment of a national leprosarium. The Senate committee promptly recommended the establishment of such an institution and an appropriation of $250,000. The bill received favorable congressional recommendation and was approved by the President, but no further action seems to have been taken with reference to this matter, which is one of urgent importance to the country at large.

The leper at Biloxi was apprehended by the health officer of Harrison County, Dr. D. J. Williams, while at work in an oyster-opening and canning establishment. The disease was in a well advanced stage, leaving no question of doubt that the case must have been known locally for perhaps a year or more. The leper readily complied with the request of Dr. Williams that he abstain from work and confine himself as much as possible to his home. He lives with his aged mother, a brother, and one or two sisters. He is not restricted in his movements, and quite recently made a trip to New Orleans for medical consultation. As far as known, he did not consult a leprologist. His trip to New Orleans was in violation of a federal statute prohibiting interstate migration of persons afflicted with leprosy. The case is, therefore, one demanding interference on the part of the federal health authorities. The case is also clearly one most suitable for segregation in such an institution as was intended to be established by the act providing for a federal leprosarium. There are no facilities for the proper treatment of leprosy in the state of Mississippi. The powers of the state board of health are inadequate to deal with the case in a suitable manner. The manufacture of the product at which the leper was employed is one that enters extensively into interstate commerce. There are reasons for believing that there are three or four other cases of leprosy in Biloxi and vicinity. A new case, a woman, has just been reported by the local health officer to the Mississippi State Board of Health. It is understood that the authorities of the Louisiana Leper Home have considerately offered to take care of this patient, in return for the reimbursement of only the actual expenses. There are, however, reasonable objections on the part of the people of Louisiana against an increase in the number of lepers in their state by the admission of patients from other states. The question, therefore, is pertinent as to why the establishment of a federal leprosarium should have been so long delayed, in view of the fact that a sufficient appropriation has been made therefor, and why this and other isolated lepers should continue a menace to the community in which they live and to the country at large.

Frederick L. Hoffman, Newark, N. J.

## *Queries and Minor Notes*

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### THE PROVISION OF PERMIT AND BOND FOR USING AND DISPENSING ALCOHOL

*To the Editor:*—Will you please give me information concerning the bond required of physicians for the right to use pure grain alcohol, the amount of the bond, by whom to be signed, and other information necessary that I may comply with the law?

Edgar C. Denney, M.D., Milton, Ind.

*To the Editor:*—Do I understand that a doctor has no right to dispense tinctures without a permit? Most doctors in country practice are obliged to dispense from their cases tincture of digitalis and other tinctures or fluidextracts.

George D. Carnes, M.D., South Haven, Mich.

*To the Editor:*—Is it a fact that a physician is required to give bond in order to prescribe medicine containing alcohol? Will not a bond endorsed by a private citizen, which any doctor ought to be able to have done, be sufficient without having to pay a bonding company for it?

S. H. G., Chicago.

*To the Editor:*—I am enclosing a letter which bonding companies or their agents are sending to physicians. I have not seen the law covering this matter, and if you have not already given a summary of this law in The Journal, I shall appreciate having you do so.

Bernard C. Frey, M.D., Jennings, Ind.

Answer.—The foregoing questions are selected from many which have been received, showing that physicians are not fully informed as to the requirements of the new regulations on alcohol or as to how these affect physicians. A short abstract of the treasury decisions governing the execution of the regulations appeared in The Journal, Dec. 22, 1917. As noted by the letters, some of the surety companies are offering to give bond for physicians, and state that every physician and druggist is required by the United States to furnish a bond before he may lawfully use or purchase alcohol for use and resale. This is not strictly correct.

The act of Congress of Aug. 10, 1917, known as the Food Control Act, provides that no food materials shall be used in the production of alcohol for beverage purposes after Sept. 9, 1917, but that under such regulations as the President may prescribe, such materials may be used for producing alcohol for nonbeverage purposes. Under the War Revenue Act of Oct. 4, 1917, which went into effect, Dec. 1, 1917, and the subsequent regulations, druggists and physicians or others desiring to use or sell distilled spirits for medicinal or any other nonbeverage purposes are required to obtain a permit and file a bond with the government, provided, however, they desire to use or sell alcohol beyond the limitations prescribed. The matter concerns the physician on the question of supplying himself with tinctures, fluidextracts and other prescriptions containing alcohol, of prescribing these for his patients, of securing alcohol for antiseptic purposes or for bathing, and finally and especially it concerns those physicians who dispense their own medicines.

A physician need not give bond and secure a permit if he wishes merely to prescribe, as bonded druggists are permitted to fill prescriptions containing pure beverage alcohol if sufficient drugs are added to prevent the prescription's being used for beverage purposes. A physician who is not bonded, just as any layman, may purchase alcoholic medicinal preparations from a bonded druggist, provided such preparations contain ingredients sufficient in quantity and of such a nature as to render the finished product unfit for use as a beverage.

As regards the use of alcohol for topical or local applications: Bonded druggists are permitted to sell to any one quantities of alcohol up to 1 pint, provided this alcohol has been modified as provided by the regulations to prevent its use as a beverage. The container of such alcohol must bear the "poison" label. The following are the modifications that meet government approval:

1. Carbolic acid 1 part, alcohol 99 parts.
2. Formaldehyde 1 part, alcohol 250 parts.
3. Bichloride of mercury 1 part, alcohol 2,000 parts.
4. Bichloride of mercury 0.8 gram, hydrochloric acid 60 c.c., alcohol 640 c.c., water 300 c.c.
5. Bichloride of mercury 1½ grains, hydrochloric acid 2 drams, alcohol 4 ounces.
6. Formaldehyde 2 parts, glycerin 2 parts, alcohol 96 parts.
7. Carbolic acid 1 dram, tannic acid 1 dram, alcohol 1 pint, water 1 pint.
8. Alum ½ ounce, formaldehyde 2 drams, camphor 1 ounce, alcohol and water, each 1 pint.
9. Lysol 1 part, alcohol 99 parts.
10. Liquor cresolis comp. (U. S. P.), 10 c.c., alcohol 1,000 c.c.

As will be noted, the druggist who uses and sells alcohol in quantities must give bond and obtain a permit. As the physician who dispenses alcohol or alcoholic preparations places himself in the position of a druggist, he too must give bond and secure a permit. But it is clear that the physician who simply prescribes alcoholic preparations or alcohol for local use, or who uses small quantities of alcohol in his office as an antiseptic, etc., need not give bond or secure a permit, as his practice is not interfered with by the law. Therefore it is not necessary for physicians who do not dispense to give bond and secure a permit.

Hospitals, laboratories and those using large quantities of alcohol will have to secure the permit. The regulations state that application for a permit to use and sell alcohol must be accompanied by a bond in duplicate, the amount or penal sum of the bond to be equal to $3 a proof gallon on the maximum quantity of proof gallons which the applicant expects or is likely to have on hand or in transit to him at any one time. The bond may be one issued by a bonding company or a personal bond of the applicant with two sureties acceptable to the collector of internal revenue, or a personal bond supported by a deposit of Liberty bonds or other United States bonds, with face value not less than the penal sum of the bond. Bonding and surety companies are charging $5 for executing such a bond. Personal sureties must be approved by the collector of internal revenue.

To repeat, the average physician will not need to secure a permit; the physician who dispenses places himself in the position of a druggist and must have a permit.

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**Why a Birth Certificate.**—(1) To establish identity; (2) to prove legitimacy; (3) to show when the child has the right to enter school; (4) to show when the child has the right to seek employment under the child labor law; (5) to establish the right to inheritance to property; (6) to establish liability to road and military duty, as well as exemption therefrom; (7) to establish the right to vote; (8) to qualify, to hold title to and to buy or sell real estate; (9) to establish the right to hold public office; (10) to prove the age at which the marriage contract may be entered into; (11) to comply with the law of the state.—North Carolina *Health Bulletin*, August, 1917.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

Alaska: Juneau, March 5. Sec., Dr. L. P. Dawes.
California: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.
Illinois: Springfield, Feb. 6-7. Supt. F. C. Dodds, Springfield.
Iowa: Des Moines, Feb. 5-7. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
Kansas: Topeka, Feb. 12. Sec., Dr. H. A. Dykes, Lebanon.
New York: Albany, Buffalo, New York City and Syracuse, Jan. 29-Feb. 1. Sec., Dr. W. J. Denno, Education Bldg., Albany.
Vermont: Burlington, Feb. 12. Sec., Dr. W. Scott Nay, Underhill.
Wyoming: Laramie, Feb. 6-8. Sec., Dr. H. E. McCallum, Laramie.

### Arkansas November Examination

Dr. T. J. Stout, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, Nov. 13-14, 1917. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 12 candidates examined, 10 passed and 2 failed. The following colleges were represented.

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Coll. of Phys. and Surgs., Little Rock...(1910) 83.7, | (1911) | 77.6 |
| University of Arkansas ................(1905) 77; | (1907) | 75 |
| Chicago College of Medicine and Surgery | (1914) | 80.2 |
| Louisville Medical College | (1891) | 79.5 |
| University of Louisville | (1908) | 80.5 |
| University of Michigan Medical School | (1911) | 88.3 |
| Chattanooga Medical College | (1903) | 80 |
| Meharry Medical College | (1916) | 75.8 |
| FAILED | | |
| Birmingham Medical College | (1915) | * |
| College of Physicians and Surgeons, Little Rock | (1910) | 52.4 |

* No grade given.

### Connecticut November Examination

Dr. Charles A. Tuttle, secretary of the Connecticut State Medical Examining Board, reports the written examination held at New Haven, Nov. 13-14, 1917. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 29 candidates examined, 18 passed and 11 failed. The following colleges were represented:

| College | Grad. Year | Cent. Per |
|---|---|---|
| PASSED | | |
| Yale University | (1917) | 75.9, 80.4 |
| Howard University | (1917) | 75.3 |
| Bowdoin Medical School | (1917) | 75.2, 80.5 |
| College of Physicians and Surgeons, Baltimore | (1914) | 75.3 |
| University of Maryland | (1917) | 83.5 |
| Harvard University | (1916) | 81.1 |
| Tufts College Medical School | (1917) | 75.9 |
| Columbia University | (1917) | 80.7, 81.4 |
| Fordham University | (1917) | 82.2 |
| University and Bellevue Hospital Medical College | (1909) | 75.5 |
| Jefferson Medical College of Philadelphia | (1916) | 79.4 |
| University of Pennsylvania | (1910) | 75.5 |
| University of Vermont ................(1912) 75.8; | (1917) | 81.6 |
| University College of Medicine | (1904) | 75.9 |
| FAILED | | |
| Chicago College of Medicine and Surgery | (1916) | 71.8 |
| University of Maryland | (1916) | 72.6 |
| Harvard University | (1915) | 69.6 |
| Tufts College Medical School ..........(1915) 73.9; | (1917) | 71.1, 71.3 |
| Albany Medical College | (1913) | 71.2 |
| University of Pennsylvania | (1917) | 70.2 |
| University of Vermont ................(1914) 59.5; | (1917) | 72.2 |
| University of Athens | (1911) | 60.9 |

### Nevada November Examination

Dr. Simeon L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 5-7, 1917. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Kentucky School of Medicine of Louisville | (1906) | 79.7 |
| University of Pennsylvania | (1915) | 89.7 |

| College | Year Grad. | Reciprocity with |
|---|---|---|
| LICENSED THROUGH RECIPROCITY | | |
| University of Arkansas | (1913) | Arkansas |
| Georgia College of Eclectic Medicine and Surgery | (1916) | Arkansas |

| | | |
|---|---|---|
| Chicago Homeopathic Medical College | (1900) | Illinois |
| University of Illinois | (1914) | Illinois |
| University of the City of New York | (1883) | Minnesota |

### Rhode Island October Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Oct. 4-5, 1917. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Five candidates were examined, all of whom passed. The following colleges were represented:

| College PASSED | Year Grad. | Per Cent. |
|---|---|---|
| Boston University | (1916) | 87.4 |
| Harvard University | (1917) | 84.6, 88.3 |
| Tufts College Medical School | (1917) | 87.6 |
| Medical College of Virginia | (1917) | 88.4 |

## Book Notices

National Health Insurance. Third Annual Report of the Medical Research Committee, 1916-1917. Paper. Price, 6 pence net. Pp. 88. London, 1917.

This report, for the year ending Sept. 30, 1917, sets forth separately the work of the Medical Research Committee of the national health insurance organization on matters not related especially to military experience, and that relating to problems arising out of the medical side of the war. It is said, however, that in their scientific methods and results the two sets of investigations meet inseparably.

In the department of bacteriology under Col. Sir Almroth Wright, there has been a continuation of the study of the physiology and scientific treatment of wounds, particularly with reference to acidemia or diminished alkalinity of the blood in cases of gas gangrene, and antiseptics for the treatment of wounds; trench nephritis and the classification of nephritides; skin grafting; rat bite fever, and dysentery.

In the department of biochemistry and pharmacology, among the subjects have been amebic dysentery, surgical shock and allied conditions, organic compounds of antiseptic value, buffer salts of the blood, the toxicology of trinitrotoluene, and confidential inquiries into poison gases.

In the department of applied physiology under Leonard Hill, among the topics studied were canteens and dietaries of workers, principles of ventilation, poison gases, bread and other foodstuffs, trinitrotoluene poisoning, and photochemical syntheses.

Among the subjects for research taken up before the war and continued in the present report are special bacteriologic problems of tuberculosis and the pathology of its infection, tuberculin treatment and immunity, and the incidence of tuberculosis in relation to particular occupations; rickets and tetany; milk and its problems; chronic rheumatoid arthritis, diabetes and diseases of the heart, besides some pathologic researches.

In this report the results attained are taken up in some detail with reference to certain subjects, but in most instances findings or indications of results expected to be obtained by a continuation of the researches are mentioned, and the reader is referred to published details of the work elsewhere, or yet to be published. Much of the report is taken up with the organization and changes in the committee, with details of administration, etc. Acknowledgement is made of service rendered by many American scientists in the prosecution of the researches of the committee.

Medical Bacteriology. By John A. Roddy, M.D., Associate in Hygiene and Bacteriology, Jefferson Medical College. Cloth. Price, $2.50 net. Pp. 285, with 46 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

Believing that bacteriology has so expanded that a complete systematic exposition of the subject is no longer possible in a single volume, the author presents this work as a textbook for diagnosis and a laboratory guide for students, medical practitioners and pharmacists. It will be found a suitable book for the purpose for which it was prepared.

## Social Medicine, Medical Economics and Miscellany

### THE FUNCTIONS OF A MUNICIPAL SANATORIUM

### A Policy That Would Control a Group of Sputum-Positive Consumptives Not Now Reached by Any Preventive Measure *

CHARLES B. SLADE, M.D.
Attending Physician, Municipal Sanatorium, Otisville, N. Y.
New York

Until comparatively recently, the almost exclusive object of the sanatorium was the cure or arrest of pulmonary tuberculosis.

With this point of view universally accepted by tuberculosis specialists, it was logical that only the patients with incipient lesions or very early and distinctly hopeful cases were considered eligible for admission. This view, though in the process of gradual modification, has not yet been entirely eradicated from the minds of some present day leaders in this work, a fact made vividly apparent in the leading article of the October number of the *Journal of the Outdoor Life.*

It must be admitted that the arrest, temporary or permanent, of the disease in those cases still susceptible of arrest, to permit the return of the patients to normal lives, is important — so important an object of sanatorium treatment that no change should be instituted which would jeopardize that result.

It is, however, a fact, which all of those with extensive experience in this field have observed, that in a regrettably large percentage of the not well-to-do, who cannot choose the occupation to which they return, the arrest is extremely temporary. Those of us who have had considerable experience with these patients, both in city clinics and during their return trips to the sanatorium, know that this percentage is larger than we thought some years ago, just how large, the present ineffectiveness of our follow-up work will not permit us to answer. Since this condition exists, if we are fully to justify the up-keep of the sanatorium, we must develop to a higher point of efficiency its other functions that benefit the community. Two other functions of the sanatorium, of prime importance to the community, are the dissemination of *education* on the control of tuberculosis, and *segregation* of sputum-positive consumptives. The former, education, has been given much study and attention. Much has been accomplished and much still remains to be accomplished in this line. But we are not here primarily concerned with that branch of the subject.

Before discussing the primary object of my appeal, I wish to emphasize the fact that any scheme adopted for the control of tuberculosis in a city, which disassociates, or only loosely associates, the various agencies and factors employed, is doomed to failure, or at best, only partial success. This was realized in England many years ago, and the supervision of all matters governing tuberculosis was placed under the direction of one physician with the title of Tuberculosis Officer.

In most large cities of the United States there are provided hospitals for advanced cases, sanatoriums for the early or hopeful cases, and clinics, with social aid and advice, for the home cases among the poor.

These facilities are provided in fair proportion to the various needs and the purse of the communities. Laws are provided to prevent spitting in public conveyances and other places where persons congregate. Sputum-positive consumptives who are known to be careless are forced into hospitals, and it is generally felt that every practical effort is made to prevent the transmission of tubercle bacilli from the affected to the well. Yet here, as in all work, it is not so much what tools we have, but how well we use them.

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* Read before the Society of the Alumni of Bellevue Hospital, Nov. 7, 1917.

There are still a considerable number of people whose sputum is alive with tubercle bacilli, and who travel daily among uninfected susceptible persons. They know they have tuberculosis, and they are making all possible efforts to avoid being a source of infection to others; but can they prevent sneezing or suddenly coughing at times—sometimes when they are close enough to a susceptible person to cause infection? It is impossible. Many of them were told of their disease when it was incipient, and advised to go to a sanatorium. But, being burdened with responsibilities which their conscience would not permit them to drop, they worked on. These people deserve help, and the community deserves protection from them. Yet no law could force them into a detention hospital.

During the first six years that I visited the municipal sanatorium at Otisville, I examined all applicants for admission to that institution. In that time I saw many cases that fell within the category to which I have just referred. The patients were mostly worthy people. Their disease was too far advanced, in most cases, to permit admitting them to the sanatorium. Admission to a tuberculosis hospital in the city was offered and urged, but few accepted the offer. They remained, therefore, an active menace to their own families and to the community at large.

It is this gap, this link missing from the chain, which the sanatorium can fill, without impairing its other functions.

As we know, people so afflicted are a highly sensitive class. Their knowledge of conditions in a tuberculosis *hospital*, aided by a very active imagination, makes them rebel at the thought of going there to die. No amount of argument can persuade them to believe that they would ever improve in one of those hospitals. I must admit that I never really blamed them. I feel that I might act as they do, under similar circumstances.

On the other hand, they look to the sanatorium with hope, which we well know is half the battle. I am quite sure that the proverbial hopefulness of the tuberculous person is a conservative process on the part of the system, as much as is leukocytosis in septic infection.

The conditions for admission to the sanatorium at Otisville have never been so sharp and restricted as for many other sanatoriums, so that, when making the examinations, I admitted quite a number of patients fairly well advanced in the second stage and some in the third stage. In this way we were able to learn that a surprisingly large percentage of this group showed, after some months, improvement far beyond our expectation. Some even attained arrest of the disease. So striking were these results that Dr. Hermann M. Biggs, who was then my superior officer, and I decided to admit as many of this class of patients as our limited infirmary capacity would accommodate. I can also state that those of this number who did improve were always among our most grateful, well behaved and creditable sanatorium graduates.

All who have had extensive contact with persons afflicted with pulmonary tuberculosis, examining them while they were under their habitual city conditions, and again in the sanatorium, a week or so later, know how many of their worst symptoms are due to deleterious physical and mental influences in the city.

It is not possible to base the selection of sanatorium patients on pulmonary signs alone. This is so because some patients are very ill from the disease and well beyond a chance of recovery, or material benefit, from any treatment, who present very slight and indefinite physical signs. Elevations of temperature, severe cough, rapid pulse and marked digestive disorders are either, or all, sufficient to cause rejection under some requirements. Yet any, or all, of these and many other symptoms are frequently due solely to conditions involving the patient at the time of his examination. We have all seen them disappear shortly after proper regimen, air, rest, food and hope—especially hope and renewed courage—have been established. All of these they know they will receive at the sanatorium.

Two conditions are necessary to do justice to these worthy patients and the community at the same time, through the agency of the sanatorium: (1) The examiner who makes the selection must have good human and medical judgment, and (2) sanatoriums now having only from 5 to 10 per cent. of their total beds in their infirmary must have from 15 to 20 per cent. infirmary capacity.

To avoid disturbance of present sanatorium conduct, standards and general cheerfulness, increase of infirmary capacity should be in the form and position of a new and separate unit—a reception unit. This should be well away from the units now existent, and near the entrance to the sanatorium grounds. It should comprise an infirmary building of several floors, two reception shacks, one small building containing two isolation rooms, and one small pavilion for nurses and help. It would be preferable if the reception unit were placed on a lower level, and not in clear view of the present units.

The infirmary in the reception unit should have a patient capacity of not less than 10 per cent. of the entire sanatorium. Its wards should be modified shack wings, or sleeping porches which could be closed in very severe weather. It should contain isolation rooms, surgical operating room, examining rooms, sleeping quarters for two physicians and two orderlies, and a necropsy room with facilities for storing pathologic specimens. It should contain a roentgen-ray laboratory, and, finally, should be equipped for cooking and serving food for all employees and patients of the unit.

The reception shacks should have a combined capacity of about 8 per cent. of the entire sanatorium.

There should be distinct separation, in this unit, between the women and children on one side, and the men and boys on the other.

All patients admitted to the sanatorium would go directly to the reception unit. They would be seen by a physician of the resident staff when they arrived. Their temperature, pulse and general condition would be determined and noted. This physician would then assign them to one of the reception shacks, or to the infirmary, as their condition indicated. Those admitted to shacks would remain there, under close observation and instruction, for two weeks. By this time a fair estimate of their condition and physical capacity would be obtained. They would then be transferred up the hill, to the sanatorium proper, with a brief memorandum to the physician in charge of their respective unit. Those patients who were not in satisfactory condition for transfer up the hill at the end of two weeks would be retained in the reception shack or transferred to the infirmary of the reception unit, according to the judgment of the resident physician; and later, when their condition warranted, they would be transferred up the hill to their proper unit. As fast as patients in the infirmary improved sufficiently to be up and about, they would be transferred up the hill. In the event of the development of any contagious disease in a new patient (and two weeks would give ample time), this patient would be at once placed in the isolation pavilion. In this way, the likelihood of the introduction of acute contagious diseases into the sanatorium would be reduced to a minimum.

Patients once up the hill, in their proper units, would never be transferred back to the reception infirmary, except for rare and extreme reason. In case of ordinary intercurrent illness, they would be cared for in the infirmary now in the units, which would be retained.

Thus, it is seen that the movement of patients would be always up hill, in the hopeful direction toward improvement and discharge. By this arrangement all deaths would occur in the infirmary of the reception unit, and in one of the isolation rooms. Once a patient was in his proper unit, such occurrences would not be brought to his attention. It could be arranged so that one of the resident staff would have some special training and experience in the performance of necropsies. It is undoubtedly true that permits could be obtained for necropsies in some extremely interesting cases. This postmortem study and evidence could be compared with recorded physical findings with great profit. As an aid to our knowledge of tuberculosis and the education of the staff, this admits of no discussion.

Municipal sanatoriums of large cities, where the great number of patients supplies unlimited opportunity for observation and study, should, in my opinion, be so complete in the various stages of the disease and its complications, with facilities for studying it during life and at necropsy, that they would be virtually postgraduate schools, from which the entire community could draw competent and well versed experts. Every community is, in a measure, enriched according to the knowledge and experience of its physicians. And the fuller education of the sanatorium medical staff would be advanced materially by employment of the foregoing suggestions.

I do not wish to give the impression that this is the first plea I have made for the admission of patients with more advanced cases to the sanatorium. I have advocated this policy on several occasions and for several years. The chief argument raised against this suggestion has been that such patients would occupy beds which could return more good if filled by persons with incipient cases, which give more promise of cure or arrest of the disease. All I have said is in partial answer to this objection, but I will add two specific answers in addition.

1. Now, in 1917, and at many times in the years before, we have found that, in spite of the great number of cases of tuberculosis recorded in New York City, we have carried a number of vacant beds in the municipal sanatorium at Otisville for various reasons, some open to discussion, others obvious. But the fact remains that the beds are vacant.

2. It is, I believe, reasonable to assume that at least one in twenty, in other words 5 per cent., of sputum-negative patients, now in sanatoriums, have not tuberculosis as a clinical entity. It appears to be impossible to avoid this. And no specialist has seriously objected to the tenancy of this irreducible minimum of waste beds in the sanatorium. Yet these, with their sputum, if they raise any, always negative, are affording no relief to the community by remaining segregated. If it is fair to house and feed this 5 per cent. at public expense, is it not a thousand times more just to give a chosen number of conscientious persons, who are really sick, with positive sputum, a chance at sanatorium advantages, even if only 5 per cent., a very conservative figure, should attain arrest of their disease or marked improvement? Especially does this seem desirable since, as I have shown, it can be done without sacrificing any benefits now derived from the sanatorium.

## *Medicolegal*

### Physicians and the Practice of Osteopathy

*(State vs. Wood (Mont.), 165 Pac. R. 592)*

The Supreme Court of Montana, in affirming a conviction of the defendant of practicing osteopathy without a license, says that the indictment stated that he was not a duly licensed practitioner of medicine and surgery. The practice of osteopathy in Montana is regulated by Sections 1594-1606, Revised Codes. A state board of osteopathic examiners is created, and every person who practices osteopathy in this state is required to secure from such board a license authorizing him to do so. But Subdivision b of Section 1605, which latter defines the practice of osteopathy, concludes: "Provided, however, that nothing in this section shall be construed to restrain or restrict any legally licensed physician or surgeon in the practice of his profession." If that is an exception, then a physician or surgeon is not within the prohibition of the penal statute, and may lawfully practice osteopathy as such in Montana without a license from the state board of osteopathic examiners. That this was not the intention of the lawmakers is practically a demonstrable fact. The practice of medicine and surgery is regulated by Sections 1585-1593, Revised Codes. Every person who practices medicine or surgery is required to secure a certificate from the state board of medical examiners, and every person who violates the statute is guilty of a misdemeanor. Section 1590 excepts from the provisions of the statute skilled and experienced midwives, commissioned surgeons of the Army and Navy in the discharge of their official duties, and physicians or surgeons, from other jurisdictions, in actual consultation here. Section 1591 defines "practicing medicine or surgery," and then proceeds: "Provided, however, that nothing in this section shall be construed to restrain or restrict any legally licensed osteopathic practitioner practicing under the laws of this state." A "physician or surgeon," within the meaning of these statutes, is one who has received from the state board of medical examiners a certificate authorizing him to practice medicine and surgery. An "osteopathic practitioner" is one who has received from the state board of osteopathic examiners a license authorizing him to practice osteopathy. In *State* vs. *Dodd,* 51 Mont. 100; 149 Pac. 481, this court considered these statutes at length, and concluded that the practice of medicine and surgery does not include the practice of osteopathy, and that the practice of osteopathy does not include the practice of medicine or surgery; that the legislature has grouped all persons practicing the healing art into two distinct classes, (1) physicians and surgeons, and (2) osteopathic practitioners, and that the so-called proviso added to Section 1591 above "did not affect the status of osteopathic practitioners in the least. They were confined thereafter, as theretofore, to the practice of osteopathy and forbidden to practice medicine or surgery without the certificate from the state board of medical examiners required of every one who seeks to engage in such practice." This court is more than ever confirmed in the correctness of those conclusions. The so-called proviso found in Section 1591, and the like provision in Section 1605b, were doubtless enacted out of abundance of caution and to emphasize the legislative intention that neither school of practice should be held to infringe on the other. Having determined that the provision in Section 1591 does not permit an osteopathic practitioner to practice medicine or surgery without a certificate from the state board of medical examiners, it follows that the compensating provision in Section 1605b does not permit a physician or surgeon to practice osteopathy without a license from the state board of osteopathic examiners, and, since the provision in Section 1605b does not exempt physicians or surgeons from the operation of the statute prohibiting the practice of osteopathy without the required license, it is not an exception within the meaning of that term as applied to statutory construction.

### Chiropractic Versus Osteopathy—Evidence of Not Being Licensed Physician

*(State vs. Hopkins (Mont.), 166 Pac. R. 304)*

The Supreme Court of Montana affirms a judgment appealed from by the defendant, who was convicted of a misdemeanor committed by engaging in the practice of osteopathy "under and by the name of chiropractic or chiropractor" for compensation without first having obtained a license from the state board of osteopathic examiners. The court says that, on a comparison of the definition of the expression "practicing osteopathy" found in Section 1605 of the Revised Codes with the accepted definition of the expression "practicing chiropractic," it is clear that the practice of the latter comes within the purview of the legislation. Since this definition is broad enough to include the system of chiropractic, the inference is necessary that the legislature intended to include it, whether or not it was a matter of common knowledge. That this definition includes the practice of chiropractic and applies to chiropractors is no valid objection to it. Counsel for the defendant insisted that chiropractic is not the same science or system as osteopathy, and that it is not reasonable to require a chiropractic who recognizes no similarity between the system he practices and osteopathy to pursue the course of study at a school of osteopathy as provided by the statute (Section 1598) and to be examined on the theory and practice of it. The mere difference in name, however, does not alter the fact that, whatever may be the distinction between the two as to the technical method of administering treatment, both administer it by the use of the hands. The spine is one of the parts of the body. The confinement by the chiropractor of his treatment principally to the spine does not excuse him from undergoing the ordeal of the examination prescribed for osteopaths whose treatment includes the spine as well as all other parts of the structure of the human body. Because of the difference in name it cannot be said that the examination prescribed by the legislature has proper relation to the practice of osteopathy, while it has none to the practice of the chiropractic. In the judgment of the legislature, proficient knowledge of the anatomy and the other branches of science enumerated was deemed necessary to qualify an osteopath to treat the human body. If proficient knowledge of these sciences pertaining to the human body have no relation to the practice of chiropractic, which is nothing more nor less than osteopathy under another name, it is impossible to conceive what qualifications a practitioner of it should have. It was argued that the legislation is an attempt to restrict all healing by drugless treatment to a single school, and thus confer a monopoly on the school of osteopathy. This contention is without merit. The statute merely discloses that one using the method of treatment therein described shall be deemed practicing osteopathy, and that he must secure a license before he engages in the practice for compensation. If he does this, he has fully complied with the statute, and it is not material whether he chooses to style himself chiropractor or osteopath.

The information alleged that the defendant was not a duly licensed practitioner of medicine or surgery. Without stopping to inquire whether or not this allegation was material, the court deems it sufficient to say that, however the legislation relative to the practice of medicine has been changed otherwise, the provision relating to the keeping of the record and its value as evidence has been retained substantially as it was in the original act. The secretary of the board of medical examiners, who had in his possession in the courtroom the records of the board from the date of its first meeting up until the date of the trial, testified that the name of the defendant did not appear on the register of applicants to the board for a certificate or license. The record being identified as one required by law to be kept by an officer of the board, the presumption attached that it had been correctly kept. It was therefore prima facie evidence that the defendant was not licensed to practice medicine or surgery. This was sufficient to send the case to the jury.

# *Current Medical Literature*

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Medical Sciences, Philadelphia

December, 1917, **154**, No. 6

1 Broader Aspects of Hematologic Diagnosis. E. E. Butterfield and R. G. Stillman, New York.—p. 783.
2 *Coagulation Time of Blood of Tuberculous Patients. N. B. Burns and A. E. Young, Boston.—p. 797.
3 *Subacute and Chronic Nontuberculous Pulmonary Infections. J. A. Miller, New York.—p. 805.
4 Reactions to Altitude in Tuberculous. D. C. Twichell, Albuquerque, N. M.—p. 827.
5 Cases of Paroxysmal Tachycardia in Children. H. Koplik, New York.—p. 834.
6 *Medical Aspect of Gastro-Enterostomy. H. S. Carter, New York. —p. 851.
7 Studies in Fractional Estimations of Stomach Contents. B. B. Crohn and J. Reiss, New York.—p. 857.
8 *Action of Opium and Some of Its Alkaloids on Digestive Tract. D. I. Macht, Baltimore.—p. 874.
9 Renal Infection; Analysis of One Hundred and Ten Cases. J. F. Geisinger, Richmond, Va.—p. 883.
10 *Banti's Disease. C. Norris, D. Symmers and L. Shapiro, New York.—p. 893.

2. **Coagulation Time of Blood in Tuberculosis.**—One hundred and twenty patients yielded 132 specimens of blood for the estimation of coagulation time. Of these patients 8 were probably nontuberculous. The rest were afflicted with pulmonary tuberculosis, 73 being open and 47 closed cases. Of the 120 patients, 54 per cent. gave histories of hemoptysis. The average clotting time was seven minutes, forty-five seconds. A substudy of 24 cases was made. Twelve patients with recent hemoptysis showed coagulation times increased in several instances and in average time eight minutes, thirty seconds. Twelve patients without hemoptysis and with disease processes parallel to those of the patients in the first group showed coagulation times increased in as many instances as among those of the first group. The average was the same, eight minutes, thirty seconds. No attempt was made to show the results of medication with calcium salts.

3. **Nontuberculous Pulmonary Infections.**—Miller analyzes 22 cases with very definite localized physical signs in the chest closely simulating pulmonary tuberculosis, the diagnosis of which disease has frequently been made, but in which a close study of the clinical findings and the subsequent course did not seem to justify this conclusion. Nine of the 22 cases were of the subacute type; 6 were cases of the subacute type with recurrences and 7 were cases of the chronic type. Of the 22 cases 8 were males and 14 females. The age incidence at the time of first observation varied from seven to sixty years, with the majority in full adult life, that is, from 30 to 50 years. The location of the physical signs was in the left lower lobe in 13 cases, in the right lower in 5, in both lower lobes in 3, and in the entire right lung 1. Cough and expectoration were the predominating features in all cases. Pleurisy was not a frequent finding (3 cases). Frank hemoptysis occurred in 2 cases and bloody sputum at times in 4 others. Very numerous and repeated examinations for tubercle bacilli were made in all cases, with negative results. Eighteen cases of the entire series were studied by means of the roentgen ray. The most striking feature was the insignificant changes shown when compared with the extent of the physical signs.

The chief points which serve to distinguish these cases from tuberculosis are: 1. Complete absence of severe constitutional symptoms, with the retention of excellent general condition in spite of the presence of extensive lesions. 2. The localization of the lesion with almost constant uniformity in one or both of the lower lobes. 3. The disappearance of all physical signs within a few months in the subacute cases. 4. The lack of progression of the lesion to other parts of the lungs. 5. The absence of tubercle bacilli in the sputum over long periods of time and the presence of other infectious organisms in predominating numbers. 6. The character of the roentgenogram which in these cases shows either nothing abnormal or very slight changes.

6. **Medical Aspect of Gastro-Enterostomy.**—Carter urges that all cases of gastro-enterostomy should be given, postoperative, a regular ulcer diet, giving the old ulcer the most favorable opportunity to heal and preventing irritation elsewhere, notably at the site of the new opening, surrounded as it is by tender and vascular mucous membrane, or opposite the stoma.

8. **Action of Opium on Digestive Tract.**—The practical deductions to be drawn from Macht's investigation are, first, that morphin alone is more nauseating than when given in combination with other opium alkaloids; second, that even minute doses of morphin, insufficient for the relief of pain, may nevertheless produce nausea. It is therefore not logical to decrease the dose of morphin for the purpose of eliminating its nauseating effect. Absorption from the stomach does not seem to be interfered with by morphin and opium. The secretions of the stomach are, however, markedly decreased. Morphin, after having been absorbed from the intestines, is reexcreted by the gastric mucosa. This suggests lavage as a rational procedure in all cases of opium or morphin poisoning. The most striking effect of morphin on the stomach is the powerful tonic contraction of the pylorus, which lasts for many hours. Opium, or the total opium alkaloids, does not or do not produce such a powerful spasm of the pylorus. The decrease in secretion and the pylorospasm are in large measure responsible for the indigestion following the administration of morphin.

While the action of morphin on the Auerbach and Meissner plexuses tends to stimulate the intestinal contractions, some of its other effects on the intestine tend to counteract this stimulation and inhibit the contraction, and still other effects, by producing changes in the consistency of the feces, tend still further to lead to constipation. The fact that small doses of papaverin and narcotin are sufficient to counteract the stimulating action of morphin and codein explains the empirical observation that opium is more constipating than morphin. Experiments made by the author with pantopon, a combination which contains 50 per cent. of morphin, proved that it possessed enough of the isoquinolin derivatives to produce an inhibition of the bowel in place of the ordinary stimulation following morphin alone.

10. **Banti's Disease.**—Inasmuch as the so-called Banti's disease is neither an independent clinical nor anatomic entity, the authors urge that the designation should be eliminated from the nomenclature of splenic pathology, since it not only carries with it the objections customarily urged against the surnamed diseases, but is in reality a manifestation of visceral syphilis. In 4,880 necropsies at Bellevue Hospital, cirrhosis of the liver occurred seventy-four times in 314 syphilitic subjects, and there was an associated splenomegaly of marked proportions in forty-eight. The histologic changes in the spleen in the condition described by Banti are identical with those due to syphilis.

### American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

December, 1917, **76**, No. 6

11 *Unilateral Defect of Tube and Ovary, Study in Prenatal Pathology. G. Gellhorn, St. Louis.—p. 877.
12 *Uterine Fibroids, Their Tendency to Become Sarcomatous. F. Warner, Columbus, Ohio.—p. 888.
13 Technic of Total Hysterectomy for Nonmalignant Conditions. R. Worrall, Sydney, N. S. W.—p. 894.
14 Influence of Oxygen on Liver Necrosis (Chloroform Poisoning). H. R. Spencer, Baltimore.—p. 898.
15 Importance of Eye-Ground Examination in Infants After Difficult Delivery with or Without Instruments. J. A. Kearney, New York.—p. 904.
16 Indications in Obstetric Surgery. E. M. Lazard, Los Angeles.—p. 909.
17 Maternal and Fetal Blood During Pregnancy and Puerperium. W. D. Fullerton, Cleveland.—p. 918.
18 Average Birth Weight in Two Thousand Confinements. S. P. Warren, Portland, Maine.—p. 932.
19 *Gallbladder Disease Complicating Disease of Internal Genitalia. J. H. Carstens, Detroit.—p. 936.
20 Gallbladder Surgery. J. H. Branham, Baltimore.—p. 940.
21 *Left Fallopian Tube and Intestinal Stasis. D. H. Stewart, New York.—p. 943.
22 Case of Megacolon. T. B. Noble, Indianapolis.—p. 946.
23 Treatment of Appendicular Abscess. W. A. B. Sellman, Baltimore.—p. 950.
24 Leftsided Appendicitis in Situs Inversus Viscerum Totalis. J. H. Jacobson, Toledo, Ohio.—p. 953.
25 *Thyroid in Gynecology. H. E. Hayd, Buffalo.—p. 958.
26 Interrelationship of Female Sex Glands and Pituitary Body. J. E. King. Buffalo.—p. 964.
27 Diagnosis, Treatment and Management of Surgical Conditions Complicating Process of Generation. B. C. Hirst, Philadelphia.—p. 971.
28 Fetal Dystocia as Indication for Operative Delivery. Relative Propriety of Such Procedures as They Affect Interests of Mother and Infant. J. A. McGlinn, Philadelphia.—p. 977.
29 Diagnosis and Treatment of Gallstones. G. T. Vaughan, Washington, D. C.—p. 982.
30 The McDonald Solution. C. S. White and O. Hunter, Washington, D. C.—p. 986.
31 Case of Pellagra in Child Residing in District of Columbia. J. Foote, Washington, D. C.—p. 1023.
32 Minor Neuroses of Childhood. J. Epstein, New York.—p. 1027.

11. **Unilateral Defect of Tube and Ovary.**—During a laparotomy on a girl of 19, whose sexual characteristics were normally developed, the total absence of the left tube and ovary and of the left broad ligament was accidentally discovered by Gellhorn. The uterus possessed a perfectly normal configuration. The right adnexa were inserted at the uterine horn. The right round ligament was present only in a rudimentary form. Chromocystoscopy revealed the absence of a ureteral opening on the left side, which suggested absence of the left kidney. Gellhorn suggests that the etiologic factors are either torsion of the adnexa or fetal inflammation.

12. **Sarcomatous Degeneration of Uterine Fibroids.**—The frequency of sarcomatous association with the uterine fibroids in Warner's series of 100 consecutive specimens, was 2 per cent., but one carcinoma was encountered in the entire series.

19. Abstracted in The Journal, Oct. 27, 1917, p. 1466.

21. Abstracted in The Journal, Oct. 20, 1917, p. 1378.

25. Abstracted in The Journal, Oct. 27, 1917, p. 1466.

### Annals of Medical History, New York

July, 1917, **1**, No. 2

33 Hygiene in World History. K. Sudhoff.—p. 111.
34 Patronal Festival for Thomas Willis. H. Viets, Newton, Mass.—p. 118.
35 Medicine and Mathematics in Sixteenth Century. D. F. Smith, New York.—p. 125.
36 Historical Development of Our Knowledge of Circulation and Its Disorders. P. S. Roy, Washington, D. C.—p. 141.
37 Jetons of Old Paris Academy of Medicine in Numismatic Collection in the Army Medical Museum at Washington, D. C. A. Allemann.—p. 155.
38 History of Infection. A. C. Klebs, Washington, D. C.—p. 159.
39 Beginnings of Intravenous Medication. H. M. Brown, Milwaukee, Wis.—p. 177.
40 Legislative and Administrative History of Medical Department of U. S. Army During Revolutionary Period (1776-1786). W. O. Owen, Washington, D. C.—p. 198.
41 William Shippen's First-Draft of Organization of Military Hospital During Revolution.—p. 174.

### Annals of Surgery, Philadelphia

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42 *Studies in Bone Regeneration by Means of Vital Stain. B. Brooks, St. Louis.—p. 625.
43 Complete Mastoid Operation; Its Relation to Modern Healing of Mastoid Wounds. H. B. Blackwell, New York.—p. 640.
44 *Dislocation of Cervical Vertebrae. K. Speed, Chicago.—p. 644.
45 *Tuberculosis of Appendix. J. R. Scott, Washington, D. C.—p. 648.
46 Obstruction of Ureter. J. F. Geisinger, Richmond, Va.—p. 654.
47 Gastric and Duodenal Ulcers from Surgical Point of View. A. Troell, Stockwell, Sweden.—p. 664.
48 *Annular Segmental Gastrectomy. W. H. Barber, New York.—p. 672.
49 Stricture of Gallbladder; Report of Case. W. F. Fowler, Rochester, N. Y.—p. 679.
50 Tumors of Bladder; Report of Twenty-six Cases. H. W. E. Walther, New Orleans.—p. 682.
51 Inguinal Hernia in Male. S. Erdman, New York.—p. 702.
52 Fractures of Os Calcis; Report of Seventy-two Cases. G. F. Cahill, New York.—p. 711.
53 Anatomic and Experimental Study of Sacral Anesthesia. J. E. Thompson, Galveston, Texas.—p. 718.

42. **Studies in Bone Regeneration.**—This experimental study of bone regeneration from bone transplants is based on the use of sodium alizarin sulphonate as a vital stain for new bone. The experimental method was the same in all experiments. Dogs were used as the experimental animals. The operations were all done under complete ether anesthesia. The aseptic precautions were such that infection of the operation wounds did not occur in any instance. A defect in the shaft of the ulna was produced by the excision of 20 to 40 mm. of the bone with its periosteum. The bone transplant or implant was placed in the defect of the ulna. In most experiments the bone transplant or implant was fixed in the medullary canals of the fragments of the resected bone. Living bone transplants were always obtained from the femur. These experiments show conclusively that a defect in the shaft of a bone may be quickly and completely regenerated after placing within the defect an autotransplant of living bone with periosteum and endosteum. There is a question whether the transplanted bone matrix and bone cells retain their viability for a short period of time, but there is no question that the identity of the transplanted bone is ultimately lost as a result of absorption and replacement by new bone. If the periosteum and endosteum together with the adjacent layers of bone are removed from the transplant, it has no osteogenetic properties. If an implant of sterile dry bone is placed in a defect in the shaft of a bone there is no evidence that such an implant aids in any way the regeneration of the defect. The implanted dead bone neither results in a metaplastic production of bone from the surrounding tissue nor does it possess any specific property of conducting bone growth across the defect in the bone shaft. These facts clearly indicate that the living bone transplant with the periosteum and endosteum is the only type of implant which has osteogenetic properties.

44. **Dislocation of Cervical Vertebrae.**—Speed reports two instances completely reduced manually without anesthesia. One case was a dislocation of the fifth cervical vertebra, rotatory in type, the left side having moved forward, the right side slightly backward. Placing the patient in a sitting position in bed, grasping the head beneath the occiput and chin,

Speed was enabled, by forcible extension which nearly lifted the patient's whole body weight, to make rotation and correct the deformity. A very slight jar was perceptible when the head was released; it returned to its former deformed position, without any snapping sound or subjective sensation, and without increased pain. Speed repeated the manual reduction twice but with the same result. A month afterward a plaster-of-Paris encasement was applied to hold the head in a slightly overcorrected position with some extension. In the second case the roentgenogram demonstrated a rotatory dislocation displacement of the third cervical forward on the right side, unilateral in character. By the same maneuver of traction on occiput and chin, followed by rotation during its maintenance, Speed established a complete reduction without palpable jar. The head was then moved over into a slightly overcorrected position and a plaster dressing was applied. Four weeks later the patient returned, the cast was removed, and immediately the patient was able to move the head and neck freely without pain or recurrence of deformity.

45. **Tuberculosis of Appendix.**—Scott claims that about 0.5 per cent. of all appendixes removed surgically are tuberculous. He had one case in 179 appendixes examined. The diagnosis rests on the demonstration of an afternoon temperature, progressive weight loss, evening sweats and pain and tenderness in the right lower quadrant. The prognosis is unfavorable except in the very rare primary forms of the disease. It is best in the hyperplastic form. The treatment is operative whenever possible. Active pulmonary lesions contraindicate operation.

48. **Annular Segmental Gastrectomy.**—The removal of an annular segment from the stomach in Barber's opinion leaves the stomach with greater emptying power than the removal of a saddle-shaped section from the lesser curvature.

### Boston Medical and Surgical Journal

December 27, 1917, **177**, No. 26

54 *Radium Treatment of Carcinoma of Cervix at Huntington Hospital. E. H. Risley and G. A. Leland, Jr., Boston.—p. 891.
55 Normal Weight. H. Gray and K. M. Gray, Boston.—p. 894.
56 Immoral Woman as Seen in Court; Preliminary Report. V. V. Anderson, Boston.—p. 899.
57 Differentiation of Psychotic from Neurotic Conditions. D. Gregg, Wellesley.—p. 904.
58 Urobilin Content of Feces as Measure of Rate of Blood Destruction. F. H. McCrudden, Boston.—p. 907.
59 Pulmonary Puzzles. J. B. Hawes, 2d, Boston.—p. 912.
60 Diagnostic Importance of Recognizing Absense of Epileptic Make-Up in States Simulating Idiopathic Epilepsy. L. P. Clark, New York.—p. 915.
61 Use of Hemostat in Tonsil Operation. J. Prenn, Boston.—p. 917.

54. **Radium Treatment of Cervix Carcinoma.**—This is a report of the results obtained in the treatment with radium of a series of 113 cases of carcinoma of the uterus at the Huntington Hospital from January, 1912, to June, 1916, inclusive. The points of interest and value brought out in this analysis are as follows: Much symptomatic relief can be expected from radium treatment, especially in the checking of hemorrhage and alleviation of pain. Prophylactic radiation immediately following hysterectomy is a logical, safe and advisable procedure and should reduce the number of recurrences. The treatment of early recurrences offers a fair prognosis. Late treatment offers little but alleviation of symptoms and but little retardation of growth. Inoperable cases are benefited by radium and the period of life is somewhat prolonged. Radium should be given more extended and earlier trial in these cases. It is believed that every case operated on should be required to report for observation once a month for the first year and once in three months for the second year, and at frequent intervals for each succeeding year. Only in this way can early recurrences be detected and early institution of radium treatment be started.

### Colorado Medicine, Denver

December, 1917, **14**, No. 12

62 Cancer and Its Surgical Treatment. A. D. Bevan, Chicago.—p. 317.
63 Unusual Form of Acute Nephritis Secondary to Focal Infection. C. B. Van Zant, Denver.—p. 325.
64 Local Treatment of Furuncles. H. B. Whitney, Denver.—p. 328.

### Georgia Medical Association Journal, Augusta

December, 1917, **7**, No. 8

65 Extra-Uterine Placental Growth. A. J. Mooney, Statesboro.—p. 155.
66 Case of Superfetation. J. C. Logan, Plains.—p. 158.
67 Hyperpressure. S. R. Roberts, Atlanta.—p. 159.
68 Dietetic Management of Typhoid. J. E. Paullin, Atlanta.—p. 165.
69 Treatment of Infantile Paralysis. F. G. Hodgson, Atlanta.—p. 168.
70 Primary Heart Strain. J. H. Honan, Augusta.—p. 171.

### Journal of Cutaneous Diseases, Chicago

December, 1917, **35**, No. 10

71 Pathology of Mycosis Fungoides. J. F. Fraser, New York.—p. 793.
72 Hypertrichosis. E. L. McEwen, Chicago.—p. 829.
73 Preoperative Reduction of Epithelioma by Roentgen Rays or Radium. D. W. Montgomery and G. D. Culver, San Francisco.—p. 837.

### Journal of Infectious Diseases, Chicago

January, 1918, **22**, No. 1

74 *Studies on Blood Proteins. Albumin-Globulin Ratio in Antitoxic Immunity. K. F. Meyer, S. H. Hurwitz and L. Taussig, San Francisco.—p. 1.
75 *Effects of Roentgen Ray on Antibody Production. L. Hektoen, Chicago.—p. 28.
76 Experimental Trypanosomiasis: T. Equiperdum Infection in Dog. E. B. Krumbhaar, Philadelphia.—p. 34.
77 Complement Fixation in Experimental Trypanosomiasis. A. C. Woods and H. H. Morris, Philadelphia.—p. 43.
78 Stability of Erythrocytes of Ox, Pig and Sheep. M. W. Lyon, Jr., Washington, D. C.—p. 49.
79 *Use of Monilia Vaccine in Treatment of Sprue. C. Michel, Porto Rico.—p. 53.
80 *Active Immunity to Systematic Plague Infection. F. Eberson.—p. 62.
81 Streptococcus in Acute Epidemic Respiratory Infection of Horses. G. Mathers, Chicago.—p. 74.
82 Antipollen Serum for Standardization of Pollen Antigen. R. O. Clock, New York.—p. 80.
83 *Allergic Phenomena Following Intraportal Injections. F. H. Falls, Chicago.—p. 83.
84 *Microscopic Demonstration of Cocci in Central Nervous System in Epidemic Poliomyelitis. L. Hektoen, G. Mathers and L. Jackson, Chicago.—p. 89.
85 *Inhibitive Effect of Ox-Bile on B. Typhosus. E. E. Ecker, Chicigo.—p. 95.

74. **Albumin-Globulin Ratio in Antitoxic Immunity.**—The evidence gained by the authors from their experiments with soluble toxins of diphtheria, tetanus and botulism toxin supports the contentions which they presented in a previous paper on the relation between blood globulins and bacterial infection and immunity. In general, the observations permit of the conclusion that no constant relation exists between the extent of serum globulin increase and the antitoxic content of the serum.

75. **Roentgen Ray and Antibody Production.**—In these experiments the radiation was always made with the Coolidge tube, the focal distance always 8 inches, the current 5 to 6 milliamperes, spark-gap 8 inches. Young animals were used. As a rule two exposures were made, a major, followed by one, one fourth as long the next day immediately before the injection of the antigen. Only one injection of antigen was given. In the dog, the antibodies measured were the agglutinin and opsonin for rat corpuscles and the lysin for goat corpuscles; in the rabbits, the titers of the lysin for sheep corpuscles and of the precipitin for sheep blood proteins were determined. Hektoen found that exposure may restrain in high degree, and under some conditions, completely, the production of antibodies as measured by the antibody content of the serum. When antibody production is at or near its height, exposure to the roentgen ray appears to have but little if any effect on the antibodies in the blood, and at this time dogs appear to have an increased resistance to the effects of the ray just as rabbits in the period of active production of antibodies have an increased resistance to effects of benzene. The results obtained from these observations harmonize with the view that antibodies are produced in the spleen, lymphatic tissues, and marrow, as these structures suffer most directly from the action of the roentgen ray; they indicate also that one reason why the lymphocyte appears to be an important agent of defense in tuberculosis and other conditions may be its power to form antibodies and that the rapid development of tuberculosis in roentgen-rayed guinea-pigs may depend, at least in part, on interference with antibody production.

79. **Monilia Vaccine in Sprue.**—Of eighty-one cases in Michel's care sixty-two patients have completed the vaccine treatment. All cases were diagnosed by Ashford, and *Monilia psilosis* was isolated from the feces. In all these cases the complement fixation test was positive. The diet was regulated so as to fit each individual case. The only medication given was to stimulate digestion. Americans responded very quickly to the treatment and required a shorter time than Porto Ricans. Of the sixty-two patients, forty-nine were discharged cured, twelve were improved, and one died of acute nephritis.

80. **Active Immunity to Systemic Plague Infection.**—The materials used by Eberson in the production of proteotoxins were *B. pestis,* antipest serum from rabbits injected with plague bacteria and normal horse serum. The treatment of rabbits with these proteotoxins conferred a definite resistance to systematically introduced plague organisms in at least 75 per cent. of the animals treated. Combined intravenous and intraperitoneal injections of the proteotoxin seem to be more effective than either method by itself, although intraperitoneal treatment of rabbits results in a powerful resistance to plague bacteria administered by that route. The immunity, so far as it has been possible to determine in these experiments, is definitely marked for at least one month after treatment. Injections given at intervals of two to three weeks give rise to a definite resistance to inoculation with living virulent plague bacilli. *B. pestis* appears to be the matrix for a specific poisonous substance of the nature of proteotoxin, and capable of inducing a specific resistance to the organism which is used in the manufacture of the toxic element. Observations so far support the hypothesis that one of the most potent factors in the protective mechanism is that of leukocytosis.

83. **Allergic Phenomena After Intraportal Injection.**—Fall's experiments show that guinea-pigs may be sensitized by intraportal injections of human serum. Anaphylactic shock may be evoked after the usual latent period by subsequent intraportal injection. Guinea-pigs may be sensitized by intraportal injections and shocked by peripheral intravenous injections of human serum. Conversely, guinea-pigs may be sensitized by intraperitoneal injections and shocked by intraportal injections. Larger doses are necessary to produce anaphylactic shock in guinea-pigs when the shock dose is administered intraportally, irrespective of the method of administration of the sensitizing dose. Passive anaphylaxis may be transmitted to guinea-pigs by way of the portal system and shock may be produced by portal or peripheral injections. Here again, however, larger doses seem necessary to produce shock when administered by the portal system. Human serum sensitizes and produces anaphylactic shock in the guinea-pig. It is, however, not without toxic effect on nonsensitized guinea-pigs as shown by the fact that 1.5 c.c. intrajugularly caused death in four minutes with symptoms of anaphylactic shock, the same amount introduced intraportally producing toxic symptoms but not death.

84. **Cocci in Nervous System in Poliomyelitis.**—In order to determine so far as possible whether coccal forms are demonstrable microscopically in the central nervous system in poliomyelitis as it occurs in different places, the authors obtained from various sources fixed poliomyelitic material, mostly pieces of spinal cord, which they studied. In all, material from fifty-seven cases has been studied. Except in a few instances, changes characteristic of epidemic poliomyelitis were present, most markedly in the gray matter, particularly the anterior horns, and in some cases, but to a much less extent, also in the membranes. Definite coccal forms were found rather easily in sections showing typical poliomyelitic changes. They were single, oftener in pairs, occasionally in small clumps, usually outside but also within cells. They were located in the gray matter, in the walls of the blood vessels, in perivascular and other infiltrates, and in hemorrhagic areas; they were found also in meningeal infiltrations. These cocci correspond in general, so far as shape and size and staining by Gram's method are concerned, with the cocci recently isolated in cultures of the central nervous system in epidemic poliomyelitis.

85. **Inhibitive Effect of Ox-Bile on B. Typhosus.**—Ecker's observations show that bile has a distinct inhibitive effect on the growth of typhoid bacilli. This inhibition can be reduced to a certain extent by the addition of glycerol.

### Journal of Pharmacology and Experimental Therapeutics, Baltimore

December, 1917, **10,** No. 6

86 *Therapeutics of Amebic Dysentery. H. H. Dale and C. Dobell, London.—p. 399.
87 *Salicylates. Question of Salicyluric Acid in Salicyl Urines. P. J. Hanzlik, Cleveland.—p. 461.

86. **Therapeutics of Amebic Dysentery.**—Dale and Dobell used kittens artificially infected with *E. histolytica* from man in their work. Experimental dysentery in kittens was refractory to all kinds of treatment. Neither the ipecacuanha alkaloids, nor other substances having a powerful action on the amebae in vitro, could cure the infection or definitely modify its course. Certain samples of *E. histolytica* survived the action of 1 in 1,000 and even 1 in 100 emetin, for periods up to one hour. Amebae which survived treatment by 1 in 1,000 emetin were found to be still capable of infecting kittens. Methyl-psychotrine, a natural alkaloid from ipecacuanha, which is more toxic for *E. histolytica,* when tested clinically on cases of amebic infection in man, appeared to be entirely devoid of therapeutic action, though given relatively very large doses. On the basis of these results it is suggested by the authors that the theory of the mode of action of emetin in amebic dysentery needs reconsideration and that the therapeutic efficacy of emetin is a result of its action on the host rather than on the parasite.

87. **Salicyluric Acid in Salicyl Urines.**—From Hanzlik's experiments it appears improbable that salicylates are converted into salicyluric acid in the human and animal organism.

### Kansas Medical Society Journal, Topeka

December, 1917, **17,** No. 12

88 Excision of Hemorrhoids Under Local Anesthesia. E. E. Mor-
91 Home Service Work of American Red Cross. A. Fairbanks,
rison, Great Bend.—p. 321.
89 Pink Eye. O. R. Wolfe, Beverly.—p. 323.
90 Nitrous Oxid in Obstetrics. L. B. Spake, Kansas City.—p. 326.
St. Louis.—p. 330.

### Medical Record, New York

December 29, 1917, **92,** No. 26

92 King's Evil and Its Relation to Psychotherapy. M. A. Starr, New York.—p. 1103.
93 Focal Sepsis as Cause of Diseases of Respiratory and Gastro Intestinal Systems. C. C. Browning, Los Angeles.—p. 1106.
94 Primitive Dietary Laws. J. H. Marcus, Atlantic City, N. J.—p. 1111.
95 Bladder Tumors; Report of Cases. J. U. Reaves, Mobile, Ala.—p. 1115.
96 Sublingual Medication. B. Robinson, New York.—p. 1117.

### New Orleans Medical and Surgical Journal

December, 1917, **70,** No. 6

97 Treatment of Typhoid. L. F. Salomon, New Orleans.—p. 488.
98 Cripples Who Should Not Be. J. T. Nix, Jr., New Orleans.—p. 494.
99 Occurrence of Clonorchis Sinensis in Eastern Cuba. P. L. Querens, New Orleans.—p. 500.

### West Virginia Medical Journal, Huntington

December, 1917, **12,** No. 6

150 Dementia Praecox. L. V. Guthrie, Huntington.—p. 201.
151 Acute Poliomyelitis. A. S. Bosworth, Elkins.—p. 208.
152 Communicability of Poliomyelitis. H. L. Amoss, New York.—p. 209.
153 Poliomyelitis Epidemic in Marion County, West Virginia, July 26 to October 7, 1917. P. Noe, Jr., New York.—p. 214.

### New York Medical Journal

December 29, 1917, **106,** No. 26

100 Removal of Steel Particles from Interior of Eye by Magnet. F. Allport, Chicago.—p. 1205.
101 Care of Eyes. A. E. Davis, New York.—p. 1208.
102 Exophthalmic Goiter; Statistics of Philadelphia. C. S. Miller, Philadelphia.—p. 1210.
103 Childbirth and Its Ancient Customs. J. H. Marcus, Atlantic City, N. J.—p. 1213.
104 Lateral Sinus Thrombosis; Five Cases Without Symptoms. A. S. Kaufman, Philadelphia.—p. 1216.

105 Report of Experimental Work in Production of Antitubereulous Serum. M. Staller, Philadelphia.—p. 1219.
106 Physical Training and Hygiene for Busy People. L. F. Fuld, New York.—p. 1222.
107 Frozen Feet, or Trench Foot, So-Called. H. Authelain, France.—p. 1225.

### New York State Journal of Medicine

December, 1917, **17**, No. 12

108 Peptic Ulcer. J. B. Deaver, Philadelphia.—p. 529.
109 Symptomatology of Peptic Ulcer. G. R. Lockwood, New York.—p. 535.
110 Treatment of Peptic Ulcer. L. Kast, New York.—p. 538.
111 Roentgen Ray in Peptic Ulcer. L. G. Cole, New York.—p. 542.
112 Elliot's Operation: Complications and Unfavorable Results. W. G. M. Byers, Montreal.—p. 545.
113 Irritable Bladder in Women. G. W. Stark, Syracuse.—p. 549.
114 Causes of Urinary Frequency in Young Men. E. M. Watson, Buffalo.—p. 532.
115 Some Aspects of Internal Hydrocephalus. C. G. Leo-Wolf, Buffalo.—p. 555.

### Pennsylvania Medical Journal, Athens

December, 1917, **21**, No. 3

116 Two Cases of Sarco-Endothelioma. A. R. Matheny, Pittsburgh, and A. B. Wallgren, Wilkinsburg.
117 Pyelitis Complicating Pregnancy. H. A. Miller, Pittsburgh.—p. 145.
118 Pyelitis. R. K. Rewalt, Williamsport.—p. 148.
119 Acute Otitis Media in Childhood. G. B. Wood, Philadelphia.—p. 152.
120 Common Cold. P. J. Eaton, Pittsburgh.—p. 156.
121 Meningitis; Different Forms and Their Diagnosis. E. E. Graham, Philadelphia.—p. 158.
122 So-Called Habit Spasm (Tic) and St. Vitus' Dance. C. W. Burr, Philadelphia.—p. 163.
123 Ulcer Treatment Based on Experimental Data. M. E. Rehfuss, Philadelphia.—p. 168.
124 Social and General Care of Gastro-Intestinal Cases in Dispensary. A. A. Howell, Philadelphia.—p. 174.
125 Pharmacology and Therapeutics of Ductless Gland Preparations. C. E. de M. Sajous, Philadelphia.—p. 178.
126 Some Beneficial Results of School Medical Inspection. W. W. McFarland, Pittsburgh.—p. 184.
127 Case of Ectromelus, of Partial (Hemimelus) Type. T. M. M. Flynn, Erie.—p. 187.

### Southern Medical Journal, Birmingham, Ala.

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128 World's War—Our Duty in Present Crisis. D. Eve, Nashville, Tenn.—p. 911.
129 French Sanitary Service. C. U. Dercle, Washington, D. C.—p. 917.
130 Needs of Medical Service. R. E. Noble, Washington, D. C.—p. 922.
131 Proper Organization of Medical Profession of Nation at War, with Moving Pictures. W. O. Owen, Washington, D. C.—p. 926.
132 Tuberculosis in Army. G. E. Bushnell, Washington, D. C.—p. 933.
133 Uncinariasis. C. C. McCulloch, Washington, D. C.—p. 938.
134 American Red Cross. C. H. Connor, Washington, D. C.—p. 948.
135 Medical Preparedness for National Defense. F. F. Simpson, Washington, D. C.—p. 951.

### Surgery, Gynecology and Obstetrics, Chicago

January, 1918, **26**, No. 1

136 *Operative Indications in Hour-Glass Stomach; Report of Seventeen Cases. W. A. Downes, New York.—p. 1.
137 *Treatment of War Wounds; Aseptic and Open-Air Treatment as Compared with Antiseptic Treatment. F. A. Besley.—p. 8.
138 Production and Transplantation of Double Faced and Combined Flaps; Report of Case. N. A. Ludington, New Haven, Conn.—p. 13.
139 Study of Postoperative Pneumonitis. A. O. Whipple, New York.—p. 29.
140 Chronic Surgical Prostatitis. B. A. Thomas, Philadelphia.—p. 47.
141 *Military Surgery During One Year's Service in Twenty-third General Hospital, B. E. F., France. J. M. Neff and J. G. O'Malley, Chicago.—p. 51.
142 Cysts of Hypophysis; Report of Cases. A. B. Kanavel and H. Jackson, Chicago.—p. 61.
143 Cases of True Prostatic Calculi. H. L. Kretschmer, Chicago.—p. 70.
144 Repair and Reconstruction of Hepatic and Common Bile Ducts; Report of Cases. E. Eliot, Jr., New York.—p. 81.
145 Repair of Tendons in Fingers and Description of Two New Instruments. S. Bunnell, San Francisco.—p. 103.
146 *Fate of Cystic Duct After Cholecystectomy. D. N. Eisendrath and H. C. Dunlavy, Chicago.—p. 110.
147 Removal of Portion of Sternum for Ligation of Innominate Artery; Report of Two Cases. W. T. Coughlin, St. Louis.—p. 112.
148 Simplified Skin Grafting. R. Durham, Brooklyn.—p. 117.
149 Postoperative Therapeutics of Surgical Infections. G. Cocci, Arezzo, Italy.—p. 120.

136. **Operative Treatment in Hour-Glass Stomach.**—Downes says that gastroplasty is suitable only for cases in which the pouches are movable, their walls free from induration, and the constricted area narrow. Gastrostomy is especially adapted to the cases in which the stomach is adherent along its lesser curvature to the liver, in which the pouches are relatively large, nearly equal in size, and can be approximated at their dependent portions. Mediogastric resection or resection in continuity is the ideal operation for hour-glass deformity of the stomach provided the pylorus is not stenosed, and should be performed in all suitable cases. The end-results obtained demonstrate the value of this procedure. Unfortunately, it is limited to the cases with few adhesions in which the pouches are fairly large, and permit of free mobilization. Midgastric resection was the method adopted by Downes in five cases. In three a perfect result seems to have been obtained. All symptoms referable to the stomach have disappeared. The fourth patient continues to have some distress in her stomach after meals although there has been no vomiting. She has gained in weight and has continued her work. The fifth patient died of pneumonia on the sixth day after operation.

137. **Treatment of War Wounds.**—As Besley's experience in war surgery grows, he becomes more and more impressed that maintaining the nutrition of the cell is the most essential factor in increasing its resistance. One of the most important and essential elements in the treatment of fresh wounds is the time element. Wounds with small entrance and exit may be treated with a dry dressing and not disturbed, and in a large proportion of the cases there will be little or no tissue reaction that will require further treatment. Large wounds, inflicted by an irregular missile, where the edges are contused or lacerated to a greater or less degree, should be treated by an early and thorough excision of all ragged or detached bits of tissue that have come in contact with and been soiled by foreign materials. It is customary to apply to such wounds a 4 or 5 per cent. solution of iodin. The all important principle is to excise all tissue the nutrition of which is questionable, or which has been contaminated. The wound can then be sutured and a very large percentage of these wounds will heal by first intention. In the case of deep wounds of the thigh, it is better to insert sutures at the time of primary excision and tie them within forty-eight hours, if there be no reaction.

Besley is strongly opposed to packing these freshly infected wounds with gauze. In exceptional cases, soft rubber tissue may perhaps be used to advantage. "Bipp," in his opinion, is of no value in preventing infection in a wound and is detrimental from all other viewpoints. Of 100 cases which had been treated with "bipp," 28 per cent. showed distinct evidence of bismuth poisoning; 19 per cent. had an acute hemorrhagic nephritis with large quantities of albumin, casts and red blood cells in the urine. In the treatment of extensive older infected wounds with widespread tissue reaction, and marked constitutional disturbances, the first and essential element is competent and adequate drainage, established without regard to the sacrifice of superficial tissue. Skin, subcutaneous tissue and deep fascia must be incised in a manner which will prevent pocketing; muscles must be separated and cut completely across, if necessary, to secure a wide open wound. All foreign material should be removed. Besley believes that little excision of the surrounding borders should be practiced in older wounds, for Nature has thrown up a barrier in the surrounding tissues which had better not be disturbed during the stage in which attempt is made to secure perfect drainage. Any tissue clearly necrotic should be removed.

Besley also believes it is important to avoid, so far as possible, the insertion of any tubes, gauze, rubber tissues, or other forms of drainage material. The best drainage can be secured by a free incision into all cavities containing pus; those incisions being made so as to prevent further pocketing. Occasionally it will be necessary in the preservation of a flap to place some foreign material beneath that portion of tissue which is left to prevent its becoming adherent to the deeper structures. Rubber tissue or paraffin gauze is the preferable material. After a wound is completely drained, it is doubtful if irrigating solutions are of any value, either mechanically or because of germicidal qualities. Hot baths and hot moist dressings are an advantage, for they tend to promote better nutrition of the part by bringing to it a greater blood supply, thereby aiding the natural defense of the body.

It is Besley's practice first to secure adequate drainage in these large, badly inflamed wounds, as stated above. Then during the first twenty-four hours he resorts to hot packs or hot baths. After this, the wound is exposed to the open air with no dressing whatever in contact with its surface for at least twenty hours out of the twenty-four. During two periods of two hours each within the twenty-four hours the wound is covered with hot moist dressings or immersed in a hot bath. Besley believes that the Carrel-Dakin solution probably plays a most important rôle in the closure of wounds by secondary suture, for the purpose of shortening convalescence. In those wounds in which secondary suture is not contemplated, the open-air aseptic method gives more comfort to the patient, a more rapid process of granulation, and much less constitutional disturbance than any other method that is being employed at the present time.

141. **Military Surgery.**—The sterilization of a septic wound by means of any solution seems to the authors, in the light of their experience, too absurd even to consider seriously. They claim that all irrigations of infected wounds are useless. They affect only the pathogenic organisms on the surface of the wound with which they come in contact. It makes no difference whether there be one or 100 tubes inserted in an infected area, it still resolves itself into a partial disinfection of the surfaces which are in contact with the tubes. In other words, all solutions are absolutely powerless to affect pathogenic organisms which are present beneath the surface, and it is these organisms that are doing the damage. All micro-organisms on the surface of an infected wound are harmless and are of no consequence, for the simple reason that they have been thrown out of the tissues by the exuding serum. To kill and wash these away obviously does no good. Within the tissues there is always a plus pressure in both the blood and lymphatic vessels in relation to the surface of the wound. This means that the flow of serum is always outward toward the surface, which makes it as impossible for any solution to enter as it is for water to flow up hill. Certain chemicals are absorbed, but they are absorbed by the superficial lymphatic vessels only, and do not enter the intervascular spaces. These facts explain the failure of all irrigations. The authors are of the opinion that most extravagant claims have been made by many surgeons as to the miraculous results obtained by the Carrel-Dakin method. Hot wet dressing are useful in relieving pain and facilitating drainage by preventing the drying of discharges. Vaccine treatment for infected wounds in the base hospitals is of little value, because the cases are all acute and do not remain long enough for beneficial results to be secured.

146. To be abstracted in The Journal.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

December 15, 1917, **2**, No. 2972

1 *Penetrating Gunshot Wounds of Chest, and Their Treatment. G. E. Gask and K. D. Wilkinson.—p. 781.
2 Anatomic and Physiologic Principles Underlying Treatment of Injuries to Muscles, Bones and Joints. John Hilton's Principles of Treatment. A. Keith.—p. 785.
3 Gastro-Intestinal Sepsis Cause of Ménière's Symptoms. T. M. Hovell.—p. 787.
4 *Paraffin Treatment of Burns. A. J. Hull.—p. 788.
5 Case of Fulminant Cerebrospinal Fever without Meningitis. W. St. C. Symmers.—p. 789.
6 Chlorin Water in Treatment of Infantile Diarrhea. S. Rosebery.—p. 789.
7 Case of Cesarean Section Complicated by Rupture of Uterus. G. W. K. Crosland.—p. 790.
8 Fate of Halazone in Animal Body; Stability of Tablets Containing It. E. K. Dunham and H. D. Dakin.—p. 790.

1. **Treatment of Wounds of Chest.**—This paper is based on 500 men with penetrating wounds of the chest admitted to the casualty clearing station, however serious the complications. Cases of concussion hemothorax in which the pleura had not been opened by the missile are not included. The objects of the authors' investigation was to determine accurately the cause of death, and the possibility of lessening mortality and shortening convalescence by early operation. They found that in chest wounds deaths occurring at a casualty clearing station after a few days and deaths at the base are due to sepsis. Similarly, prolonged illness is almost entirely due to sepsis. Therefore, treatment should be directed toward the elimination of infection in chest wounds as in any other wound. In Gask and Wilkinson's service a patient admitted with a suspected penetrating wound of the chest is put to bed and allowed to rest undisturbed for one or two hours to recover from shock. The only exception to this rule is when there is a large opening into the pleura through which air is sucked. In such cases the opening is immediately closed by temporary skin suture without anesthetic. This gives the patient immediate relief. A survey is then made of the whole patient, and all wounds examined; evidence of hemothorax, pneumothorax or collapse of lung is sought. The position of the heart is of the greatest importance. The whole body should be searched for complicating wounds, especially with regard to abdominal and spinal injury. Cases in which the missile has not passed out of the body should be examined by roentgen rays.

The indications for early operation are: (1) a ragged wound of the soft parts; (2) compound fracture of ribs; (3) bleeding from parietal wound; (4) suction of air into the pleural cavity; (5) retention of a large foreign body in an accessible position; (6) pain, and (7) rapidly increasing pneumothorax due to a valve-like opening into the pleural cavity, which allows air to be sucked in and prevents its expulsion. In cases in which none of these indications is present—that is, when the wounds of the chest wall are small and clean, when there is no evidence of fractured ribs, when the foreign body retained in the lung or mediastinum is small—the case is treated on general medical principles. The patient is kept in bed, propped up or flat as he prefers, and a careful record is kept of the pulse, respiration and temperature. Contraindications for operations are: 1. Shock and collapse. 2. Small clean wounds, without evidence of serious intrathoracic injury. 3. Retention of a small foreign body in the lung or mediastinum. 4. Collapse of the opposite lung.

4. **Paraffin Treatment of Burns.**—Various preparations of paraffin have been made under Hull's direction, containing acriflavine, brilliant green, chloramin-T, etc., dissolved in the paraffin base. These preparations have been given a very extensive trial. Another direction in which the new antiseptics have been given scope for improvement has been the treatment of the burn by an antiseptic before the application of the paraffin. The results following this modification have been so satisfactory that Hull adopted it as a routine method. The method of application of the paraffin base is the same in all cases. The burn is first of all washed with physiologic sodium chlorid solution (1 in 1,000 acriflavine solution of proflavine has now been substituted). The burn is dried with gauze or an electric drier. A layer of paraffin is painted over the burn. The paraffin is applied at a temperature of about 55 to 60 C. A thin layer of wool is placed over the first layer of paraffin and a second layer of paraffin at the same temperature painted over the wool. A dressing of wool and bandage is applied over the paraffin dressing. The dressing is changed every twenty-four hours. The addition of antiseptics to the paraffin preparation gave better results than preparations without antiseptics. The first antiseptic to be extensively used was eucalyptus oil, which, in conjunction with betanaphthol, is still used in No. 7 paraffin. Scarlet red paraffin has given satisfactory results in general use. It accelerates healing. Flavine paraffin has given satisfactory results. Paraffin preparations of brilliant green and chloramin-T have not been satisfactory from a pharmaceutical point of view, the antiseptics being difficult to incorporate in the paraffin.

The effect on recovery of the application of various antiseptic solutions previous to the application of the paraffin has been studied. Eusol accelerated the cleaning of the burn, but was too irritating in its action. Brilliant green cleaned the burns well, and if used beyond a certain stage caused light colored and unhealthy granulations. Acriflavine cleans the surfaces well; whether better than brilliant green or not is doubtful, but it certainly produces a healthier type of granulation. Scarlet red is only used when the burns are clean and require stimulation. Mustard gas burns heal readily by the ordinary application of No. 7 paraffin. The treatment giving the most satisfactory results, obviating pain, sepsis and other complications, and which Hull has found generally applicable, is the one described above.

6. **Chlorin Water in Treatment of Infantile Diarrhea.**—In fifty-three cases chlorin water in the following mixture was administered by Rosebery:

| ℞ | Gm. or C.c. | | |
|---|---|---|---|
| Aqua chlori | | 26 | ♏ iv |
| Quin. sulph | | 008 | gr. ⅛ |
| Salol | | 26 | gr. iv |
| Mucilag. tragacanth | | | q. s. |
| Aqua chloroformi | 4 | | ad ʒj |

Dose: ʒ ss to a child under 6 months, and proportionate doses in elder children.

This was given every six hours for the first twenty-four to thirty-six hours, and then thrice a day until the stools were normal. In addition, 10 to 20 minims, according to age, of the following mixture was administered twice a day:

| | Gm. or C.c. | | |
|---|---|---|---|
| Ol. ricini | 30 | | ℥j |
| Ol. olivae | 30 | | ℥j |
| Tinct. opii | | 13 | ♏ij |

Lavage of the bowel with physiologic sodium chlorid solution was resorted to in many cases. In cases of collapse a mustard bath was first ordered, followed immediately by injection of pituitary extract 1.5 c.c., repeated two or three times at intervals of four hours. Then an innunction of warm olive oil was given to diminish loss of heat from the skin. Lavage of the bowel was practiced two hours after the mustard bath. In the milder cases albumin water and barley water were sufficient. In the more severe cases sherry whey was given first until the vomiting ceased. The essential difference between the treatment adopted and that which is in common use was the administration of chlorin water.

### Bristol Medico-Chirurgical Journal

December, 1917, **35**, No. 134

9 War Surgery in Indian General Hospital in Mesopotamia. P. S. Connellan.—p. 113.

### Indian Medical Gazetta, Calcutta

November, 1917, **52**, No. 11

10 Pernicious Malignant Tertian Malaria Successfully Treated by Quinin Acid Hydrobromid Intravenously and Failure of "Splenox" in Benign Tertian Malaria. L. Rogers.—p. 385.
11 Bengali School Boys' Health Examination. R. C. Ray.—p. 386.
12 Position of Bearer Division or Subdivision During Rear Guard Action. C. C. Murison.—p. 393.
13 Probable Causes of Fever in Waziristan Field Force. G. A. Blake.—p. 393.
14 Rationing of Patients. B. Ram.—p. 394.
15 Six Months' Surgical Nursing. M. K. Strip.—p. 395.
16 Dressings of Surgical Cases. B. M. Lal and A. Singh.—p. 396.
17 Death from Rupture of Spleen Twenty-Five days After Abdominal Injuries and Apparent Recovery. H. K. Ganguli.—p. 399.
18 Maximal Perchlorid Irrigation of Conjunctiva in Cataract Operations. H. Herbert.—p. 400.
19 After-Treatment of Cataract Extraction by Shield Instead of Dressing and Bandage. H. Kirkpatrick.—p. 401.
20 Case of Ainhum. E. S. Bharucha.—p. 403.
21 Some New Inventions. W. H. Riddell.—p. 404.

### Lancet, London

December 15, 1917, **2**, No. 4920

22 Surgery of Exophthalmic Goiter. T. P. Dunhill.—p. 883.
23 Nasal Reconstruction. J. L. Aymard.—p. 888.
24 Use of Turbinals and Septum in Repair of Injuries and Defects of Wall of Nasal Cavity. G. S. Hett.—p. 892.

### Medical Journal of Australia

November 10, 1917, **2**, No. 19

25 Gunshot Wounds of Peripheral Nerves and Their Surgical Treatment. G. Owen.—p. 389.
26 Etiology of Gastric and Duodenal Ulcer. W. S. Laurie.—p. 394.
27 Two Cases of Traumatic Rupture of Spleen. R. M. Crookston.—p. 395.

### Archives des Maladies du Cœur, etc., Paris

November, 1917, **10**, No. 11

28 *Experimental Research on Origin of Extrasystolic Arrhythmia. D. Pletnew (Moscow).—p. 513.
29 *Recent Research on Paroxysmal Complete Arrhythmia. Carpentier.—p. 533.

28. **Extrasystolic Arrhythmia.**—Pletnew's work was done on dogs and rabbits, and his report supplements his communication in 1916 in the same *Archives*. The aorta or pulmonary artery was compressed, or saline was injected into the coronary arteries. The injection did not seem to influence the rhythm, but compression of the arteries brought on extrasystolic arrhythmia. The right ventricle and tricuspid valve gave out first.

29. **Paroxysmal Complete Arrhythmia.**—Carpentier devotes nearly twenty pages to a critical analysis of recent publications on transient auricular fibrillation. He warns that digitalis should not be given at first, as the attack may subside spontaneously. But if it keeps up, and the dilatation of the heart becomes accentuated, with congestion of the liver and oliguria, digitalis must be given in fractioned doses, especially if there is some valvular defect. Digitalis is formally demanded when the arrhythmia appears along with menacing asystoly. It should be given in adequate doses from the start as soon as signs of heart insufficiency become apparent. When the subjective symptoms are intense, complete rest and reassurance may be called for, with hot or cold applications to the heart region, and sedatives. In the intervals between attacks, digitalis is not to be given unless there are signs of habitual heart weakness. When the stage of permanent arrhythmia is reached, digitalis must be given in small doses at regular intervals, increasing the doses when a murmur appears at the apex or other sign of dilatation of the heart.

### Archives Médicales Belges, Paris

November, 1917, **70**, No. 11

30 *Elimination by the Kidneys. L. Ambard.—p. 1001.
31 Posterior Draining after Abdominal Operations. R. Reynders.—p. 1009.
32 Coma as Accident in Antimeningococcus Serotherapy. J. Roskam.—p. 1019.
33 Transfusion of Blood. A. Gratia.—p. 1029.
34 War Nephritis in Belgian Army. Moret.—p. 1035.

30. **Elimination by the Kidneys.**—Ambard strives to bring order into the confused conception of the three fundamental processes in elimination by the kidneys. He calls them elimination by effraction (as when blood or lymph gets into the uriniferous tubules), elimination by diffusion (osmosis), and actual secretion, the most characteristic feature of which is concentration. This permits the passage of a substance into the urine in proportions higher than the excess in the blood over the threshold of that substance. By the threshold he means the amount of that substance which is found constantly in the blood, unlike urea, iodin, methylene blue and ammonia which are eliminated until scarcely a trace may be left in the blood. The substances that have thresholds are those needed to build up the tissues, such as sodium chlorid and glucose. Those without a threshold are waste products. Only the excess above the threshold is what counts in estimating the concentrating power of the kidneys. The substances eliminated by diffusion seem to be the solvents of lipoids. The only hypothesis he knows of that seems to explain the mechanism of albuminuria is that there are two kinds of albuminuria, that of heart disease and that of kidney disease. With the former, the albuminuria is the result of excessive accumulation of albumin in the kidney region owing to the stagnation of the blood in the kidney; the albumin in the blood plasma is in excess above the threshold for albumin, and this excess is thrown off by the kidneys. In the nephritic type of albuminuria, an abnormal albumin appears in the blood, and is thrown off by the kidneys as an excrementitial element. One practical conclusion from his research is that it seems probable that substances which have a threshold must be regarded as useful to the organism. Hence determining the existence of a threshold may throw light on the

general conditions of the biology of the cell. Ambard, in closing, calls attention to a recent Paris thesis on the numerical laws of renal secretion, deduced from comparison of the blood and urine content (H. Chabanier, Paris, 1917).

### Bulletin de l'Académie de Médecine, Paris

Nov. 20, 1917, **78**, No. 45

35 *Extraction from the Rear of Projectile Resting on Aorta. O. Laurent.—p. 597.
36 *Present Frequency of Scabies. G. Thibierge.—p. 601.
37 Extraction of Projectiles in the Lungs; Twenty-Five Cases. Petit de la Villéon.—p. 604.

35. See Paris Letter, page 44.

36. Ditto, page 112.

### Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 12, 1917, **41**, No. 27

38 *The Meningococcus and Parameningococci. C. Dopter and others.—p. 988.
39 *Differentiation of Diphtheria Bacilli. S. Costa, J. Troisier and J. Dauvergne.—p. 991.
40 *Short Diphtheria Bacilli. P. Nobécourt.—p. 994.
41 *Achlorhydria without Cancer. F. Ramond, A. Petit and P. A. Carrié.—p. 997.
42 *War and the Suprarenals. F. Ramond and R. François.—p. 1001.
43 *Infectious Pyelitis. R. Le Clerc.—p. 1004.
44 *Abnormally Low Temperature in Soldiers. P. Merklen.—p. 1008.
45 *Pneumococcus Meningitis. G. Panayotabon.—p. 1015.
46 *Meningococcus Septicemia. A. Netter.—p. 1018.
47 *Meningitis Simulating Malaria. F. Bezançon and T. Gusman.—p. 1023.
48 *Suppurating Parotitis of Malarial Origin. L. Moreau.—p. 1027.

38. **Antimeningococcus Serotherapy.**—Dopter comments on the difference in meningitis now and before the war. The true meningococcus was found in 96 per cent. of cases before the war, but now various strains predominate. Agglutination with specific serums will help to differentiate them. Netter reports excellent results from a serum obtained by immunizing the horse simultaneously against the A and B strains. Two children with very severe meningitis recovered in sixty hours under three injections of 30 or 40 c.c. of serum thus obtained. One was a girl of 7, with purpura, already unconscious, and B meningococcus was found. The other was a boy of 13 with delirium and rigidity, and the A meningococcus. This polyvalent serum reduces the amount of horse serum that has to be used, which is a distinct advantage. Lousto stated that in 250 cases of meningitis he injected antimeningococcus serum at first, and if no improvement was noted he changed to the antiserum for other strains. Since this has been done the mortality has been much reduced.

39. **Rapid Cultivation of Diphtheria Bacilli.**—Costa and his co-workers describe a method for rapid differentiation of true diphtheria bacilli. It is based on the fact that these seem to be the only ones in their class that attack glucose and turn litmus red. Control tests in nearly a hundred cases have confirmed the prompt and reliable findings with this technic. They made the test on 560 smears; the results were particularly satisfactory in the carriers whose scanty bacilli it was difficult to detect with other technics. The culture medium is a mixture of 100 c.c. horse serum; 10 c.c. of a 30 per cent. sterilized solution of glucose; 30 drops of concentrated and sterilized tincture of litmus (prepared by the Institut Pasteur); 3 c.c. of 1 per cent. solution of sulphuric acid (10 gm. per 1,000). This mixture is distributed in flat Petri boxes, 10 or 12 c.c. to the box. It is coagulated in the autoclave or with dry heat, very slowly raising the temperature to 75 and 80 C. and keeping this up for an hour and a quarter. Then the boxes are turned over and covers lifted to expel any condensed moisture, and they are then dried. They can be kept for several days. The medium is blue with a slight greenish tinge, transparent, firm and elastic. It is inoculated with a triangular loop of platinum passed over the end of the cotton with which the throat has been swabbed. The loop is then dragged along the surface of the medium in parallel segments until all is smeared. The boxes are then incubated at 37 C., the cover below. In twenty-four hours the true diphtheria bacilli colonies show as transparent red pinheads. The false diphtheria bacilli do not attack glucose or modify the litmus tint. They show as opaque, gray, creamy colonies, while streptococci and pneumococci persist as merely punctiform colonies. Staphylococci sometimes turn the medium red, but the aspect of the colonies is different and the microscope will settle their identity. The findings with this method are so distinct and reliable that one box can be made to answer for two specimens.

40. **Short Bacilli in Infectious Sore Throat.**—Nobécourt states that smears have been made from every case of sore throat in his service during the last fifteen months. When the gram-positive bacilli were long, the case always proved to be one of true diphtheria. This was sometimes the case also with the medium sized bacilli, but it was exceptional with the short bacilli. The latter were found in 13 per cent. of the total cases. There never seemed to be any contagion from them, and the conclusion seems justified that healthy carriers of the short bacilli need not be isolated as strictly as those with the long and medium bacilli.

41. **Anachlorhydria.**—Ramond, Petit and Carrié state that in 270 dyspepsia cases anachlorhydria was found in thirty-six with no sign of a neoplasm, and in eight with a certain and in three with a dubious history of cancer. The symptoms presented in the thirty-six noncancer cases were not characteristic in any way, and sometimes there was no dyspepsia with the anachlorhydria. Diarrhea was exceptional. The anachlorhydria may prove a transient phase after acute gastritis. Hypersecretion of mucus is the rule with achlorhydric gastric juice. The anomaly is probably the sequel of some inflammatory process or congenital defect.

42. **War Suprarenal Insufficiency.**—Ramond and François remark, "This protracted war demanding of all our fighting men a continual moral and physical tension, forces overexertion on all the organs, especially the suprarenal capsules. The literature of the war already contains manifold examples of weakness, low blood pressure and dyspepsia from addisonism and in various infectious diseases. All bear the imprint of inadequate epinephrin supply. It is probably an important feature likewise in the clinical picture in the gassed." In their sector since last May they have encountered twenty-six cases of actual Addison's disease. All progressed to a fatal termination except in four cases. In these the thyroid functioning was defective, and improvement was realized under thyroid treatment.

43. **Infectious Pyelitis.**—Le Clerc relates that two days after a five-day febrile grip he developed colon bacillus pyelitis. The afebrile pyuria persisted for seven weeks before subsiding without leaving a trace. He has learned since of five exactly similar cases, all with the same favorable outcome in from five to seven weeks.

44. **Abnormally Low Temperature in Soldiers.**—Merklen says that the symptom hypothermia deserves a few lines in the medical history of the war. He has noticed cases in which during convalescence from pneumonia or other serious illness the temperature kept at 36 or touched 35 C. (95 F.) for a few days. The condition of the men did not seem to differ otherwise from the other patients. In some other men, even without preceding disease, the temperature chart turned upside down would be typical of typhoid, the range being 35 and 36 C. for two weeks. The fatigue from trench life is not the only cause, as the hypothermia has been noticed also in men in barracks that have not yet been to the trenches. It is accompanied sometimes by weakness and depression. Digestive disturbance is probably responsible in most cases, but suprarenal insufficiency may possibly be involved in others. In any event the temperature rights itself in time.

45. **Pneumococcus Meningitis.**—Two children in one family developed fatal meningitis and the pneumococcus was found in the pus in each. No carriers were found in the family. Antimeningococcus serum failed to show the slightest benefit.

46-47. **Intermittent Fever with Meningococcus Septicemia.**—Netter has encountered five cases of typical daily or tertian intermittent fever dragging along for one, two or more months, and explained by the cultivation of the meningococcus from the blood or ultimate development of meningitis. The septicemia may run its entire course without meningitis.

apid recovery under serotherapy at any stage is the rule. ultures of the meningococcus may be obtained from the urpura scraps.

Bezançon reports a similar case in a woman of 30 and one f 19. and Louste adds three more cases. In one the woman eemed to have infectious purpura, but as there was a case f meningitis in the neighborhood he ventured lumbar puncure which revealed the meningococcus. In the second case a olymorphous erythem masked the meningitis.

48. **Suppurating Parotitis in Malaria.**—Moreau emphasizes he necessity for watching over the mouth and supplying the rganism with water in every disease accompanied by much ss of fluids in sweats, etc. The dehydration favors ascending infection in the mouth, and in severe malaria has been esponsible for protracted suppuration in the salivary glands. le describes two examples of this; both men still had peristing fistulas when last seen.

### Le Nourrisson, Paris

November, 1917, 5, No. 6

49 *Classification of Digestive Disease in Infants. A. B. Marfan. —p. 321.
50 *Feeding of Infants with Congenital Debility. A. Mola (Montevideo).—p. 329.
51 *Whooping-Cough in Young Infants. G. Railliet.—p. 344.
52 Official Welfare Work for Infants. A. B. Marfan.—p. 347.
53 Relations between the Corpus Luteum and the Mammary Gland. Mulon.—p. 352.
54 *Milk in Infant Feeding. A. B. Marfan.—p. 360.

49. **Classification of Diseases of the Digestive System in nfants.**—Marfan extols the advantages of the classification e proposes, namely, that all the pathology of the digestive ract in infants can be separated into four groups according o the predominant symptom: Group 1 with vomiting; Group 2 ith diarrhea. Both of these groups have a subsection with astric or intestinal hemorrhage as the leading symptom; roup 3 with constipation. A subsection in this group presents norectal fistulas or other process as the leading symptom; roup 4 with denutrition as the predominating symptom. He as found that this classification facilitates clinical analysis, nd guides to the correct diagnosis and indications for reatment.

50. **Feeding of Infants with Congenital Debility.**—Mola ncludes in this group the prematurely born and all infants eighing less than 2.500 gm. at birth. Breast milk is indisensable, as the incompletely developed digestive system is nable to digest cow's milk. But these infants need much nore food in proportion to their weight than ordinary chilren. Budin claims that they require daily a fifth of their eight in milk. Mola has been studying the effect of the fat n breast milk as affecting these feeble infants. He estimated ver a period of five months the fat content of the milk of ive women between 25 and 30 who were giving the breast to ixteen of these feeble infants. In fifty analyses of the breast nilk he was impressed with the variability in the fat conent, even on the same diet. The normal average is generlly stated to be 35 per thousand, but he found 40 and 50 er thousand quite common, and yet the premature infants hrived so well on it that fat is evidently the primordial elenent, he says, for their growth. The large proportion of fat aused no gastro-intestinal disturbance, and the age of the vetnurse and the period of the lactation seemed immaterial. Vhatever the original weight of the premature infants, once ast the first dangers, they grew splendidly in weight, he says, n breast milk rich in fat.

51. **Whooping Cough in Young Infants.**—Railliet reports a amilial epidemic of whooping cough affecting first a boy of ½ with grave Little's disease. He died the eighth day and a eakly girl of 20 months developed the whooping cough the ext day and died in eight days. The mother showed sympoms of the disease the same day as this child, a few hours fter rapid delivery of a child two weeks before term. The nfant was nursed by the mother and speedily presented the ymptoms of whooping cough with cyanosis, râles and yspnea besides the cough. The disease was of an abnormal ype, showing the lack of protecting defences. The child urvived till the fifteenth day and then succumbed with symptoms of bronchopneumonia and heart failure as in the other children. Sprays, revulsion, heart tonics, and fixation abscess failed to arrest this tragic sequence.

54. **Milk for Healthy Infants.**—Marfan discusses whether it is best to add salt, sodium bicarbonate, lime water or sodium citrate to cow's milk for healthy infants. His decision is that they are not called for when the infant is thriving on the plain milk, but that one or the other may aid in certain digestive disturbances.

### Presse Médicale, Paris

Nov. 22, 1917, 25, No. 65

55 *Recent Research on the Functions of the Suprarenals. H. Roger. —p. 665.
56 Polyvalent Vaccine Therapy of Infections. G. Pochon.—p. 668.
57 Urticaria from War Gases. M. Pinard.—p. 668.

55. **Suprarenal Functioning.**—Roger reviews the multiple functions of the suprarenals, as he has determined them in large part by his own research, showing how they participate continuously in the workings of the economy, and the rapidity with which they respond to different nervous excitations. They restore almost instantaneously the balance in the blood pressure, or at least counterbalance the morbid influences which tend to depress it. They intervene as well in psychic disturbance as with material lesions of the nerve centers; they combat the exhaustion of the heart induced by fatigue, and modify the action of the pneumogastric on the heart. They also regulate nutritional metabolism and influence the consumption of sugar. They also serve in the elaboration of pigments, of cholesterol and of lipoids, and seem to act also on different poisons formed or introduced in the organism. This multiplicity of functions explains the multiplicity of disturbances for which they may be responsible. Among the numerous experiments related are some on rabbits with pulmonary edema induced by injecting into the veins a large amount of some isotonic and isoviscous fluid; by injecting methyl salicylate or similar substance which irritates the lung capillaries; or by intravenous injection of epinephrin. The hypersecretion in the lungs looks alike in all, but injecting each into a separate rabbit causes a very different response. The fluid from the first rabbit does not modify the blood; from the salicylate rabbit the pressure is reduced, while from the epinephrin rabbit, it sends the blood pressure very high. The rôle of the suprarenals in the development of arteriosclerosis has also been confirmed in Roger's laboratory. Repeated intravenous injections of epinephrin induced pronounced lesions in the arteries, but subcutaneously it induced glycosuria. This shows that it is by their action on the suprarenals that nervous impressions induce glycosuria, and that it is by the intermediation of these glands that puncture of the fourth ventricle produces this effect. The action of the pancreas hormone counterbalances the action of epinephrin. In thyroidectomized animals the epinephrin injections never induced glycosuria.

### Revue Médicale de la Suisse Romande, Geneva

November, 1917, 37, No. 11

58 *Physiologic Segmentation of the Patella. P. Reinbold.—p. 653.
59 *Heliotherapy and Pigmentation. L. Jeanneret and F. Messerli.—p. 668.
60 *Indications for Cesarean Section. C. G. Cumston.—p. 691; L. Aubert.—p. 703.

58. **Ossification Anomalies in the Patella.**—Reinbold gives roentgenograms of four cases of injury of the knee in which the medicolegal expert testimony was conflicting. An anomaly in ossification was evidently responsible for the misleading findings, and as they were alike in all, this anomaly should be excluded in case of injury of the knee before ascribing the findings to traumatism. The anomaly in question is the splitting off of a segment of the patella, always in the upper, outer quadrant, the loose portion looking like a nut lying on the rest of the patella. Sometimes this separate portion is fragmented. It may be movable or solidly adherent to the rest. It corresponds to the location of the longitudinal fractures of the patella, and consequently, to avoid confusion, palpation of both patellas and symmetrical radiography is necessary. This segmentation has nothing to do with traumatism, he says. In some of his cases there had been no

trauma and in the others the trauma was indirect and not serious. There were no local symptoms, no diastase, no effusion, and the joint could be moved normally. There was no sign of callus even four months after the trauma. The importance of this anomaly in ossification lies in the fact that it is discovered only in examining after a trauma. It imposes the necessity for examining the other knee at once.

59. **Heliotherapy and Pigmentation.**—Jeanneret and Messerli have made a systematic study of the tanning of the children taking courses of heliotherapy at a mountain sanatorium, 200, 720 and 800 children during the last three years respectively. They give a colored plate showing ten different tints in tanning, and urge that this plate be pasted on cardboard or a sheet of metal to serve as the standard pigmentometer. The pigmentation seems to be a normal phenomenon of a defensive reaction. It depends on the proportion of hemoglobin in the blood, hence is an index of the general resistance of which the organism is capable, and its power of reacting to the heliotherapy. Premature subsidence of the tan is a sign that the hemoglobin supply is giving out. Tuberculosis is the disease, above all others, which intoxicates the organism with the autogenous tuberculin and thus drags down the hemoglobin percentage. This secondary anemia is revealed in the depigmentation of the tanned children. Hence the tanning and the depigmentation are important both for diagnosis, prognosis and treatment. There must be an ample hemoglobin supply for the child to tan normally and to keep its tanning after cessation of the course of heliotherapy. This assumption is based on the findings in hundreds of cases over years compared with the clinical course, which they classify and tabulate. The sun bath acts on the skin first of all, stimulating the peripheral circulation and thus nourishing the muscles, vivifying the blood and increasing the hemoglobin percentage. This effect is so constant that sunlight is evidently the ideal remedy for debility in children, especially when associated with proper physical training. This action on cellular metabolism seems to be the whole secret of the success of heliotherapy in certain chronic affections, thanks to its stimulation of the processes which induce immunity. This explains the advantage of preventive heliotherapy against tuberculosis, such as L. Jeanneret has long been advocating. In noninfected children, adults and animals, the sun does not stimulate the processes of immunity as there is nothing to start them with. Although the general resistance may be superb, as in Australian natives and in the cattle of the Hungarian plains, constantly in the sunlight, yet infection once installed is liable to run a peculiarly malignant course, owing to the total lack of tuberculosis in their native environment. But in children already infected, the sunlight hastens and intensifies the protecting immunity processes already under way, and aids the organism in keeping the infection down and crushing it out.

Month after month during these three years they have witnessed how progressing tuberculous glands pass into a torpid phase—the test of victory over the primary infective tuberculosis; slight lesions in the lungs heal; and children who have been coughing all winter pass through the winters after their course of heliotherapy without "colds" of any kind. The beneficial action of the sunlight is equally effectual in the lowlands, in the mountains and at the seashore—the only difference is the number of days of sunshine. The proportion of ultraviolet rays was found by Berthelot to be approximately the same on the summit of Mont Blanc, on the shore of the Mediterranean and on the plains of France. When well tanned healthy children develop an acute infectious disease, they bleach out rapidly. The children that tanned rapidly and retained their pigmentation till spring were the healthiest ones. Among sixty-one children with slightly febrile tuberculous processes, four showed marked bleaching after four rainy days while no modification was evident in the 470 children of the other groups.

60. **Cesarean Section.**—Cumston's statements are based on twenty-nine cases, with thirty-three children, with all the children living except one. He warns that the toxemia resulting from the muscular effort of labor is bad preparation for cesarean section; every hour adds to the risk. It should practically never be attempted after fruitless efforts at extraction by the vagina or if the woman has an acute disease, but acute or chronic nephritis is not a contraindication. Among the indications for cesarean section he cites valvular disease, especially if it is the first child and the soft parts are stiff. Even if the women survive the fatigue of natural labor, it may permanently compromise their health. He advises repeating the cesarean operation at a later pregnancy even if the indications for the first operation no longer exist. The cicatrix otherwise is liable to open up again during the stress of labor. Hysterectomy renders the cesarean operation so much more serious that he advises to postpone it till later when possible. If the uterus is infected and no other mode of delivery is possible, the cesarean section should be followed by hysterectomy. The operative mortality may be high, but will not be so high as if the infected uterus had been left in place.

60. **Cesarean Section.**—Aubert reviews the conditions outside of contracted pelvis that may call for cesarean section. As a typical example he describes the case of a primipara of 43 with a perineal cicatrix from recurring anal fistula. Small fibromas could be palpated in the walls of the uterus; the vagina was unusually narrow; the pelvis normal. After twenty hours of labor, the os was only just beginning to dilate. The simplicity and facility of cesarean section in such cases are remarkable in comparison to the gravity and risks for the child of natural delivery. Breech presentation in an elderly primipara should suggest cesarean section, as also stenosis of the cervix, whatever its origin. As to placenta praevia, he says that at or near term, with living child and asepsis guaranteed, when the woman can be taken to the hospital, cesarean section is justified for placenta praevia, especially when it is of the central type.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 24, 1917, **47**, No. 47

61 *Determination of the Maximal Pressure by Palpation. C. T. Baumann.—p. 1569.
62 *Rachitis Developing at Thirteen. B. Ricklin.—p. 1586.

61. **Determination of Maximal Blood Pressure.**—Baumann reports extensive research on large numbers of patients at the medical clinic of the University of Berne, in charge of Sahli. Seventeen pages are devoted to the different series of tests. He declares that defective manometers must be responsible for some of the conflicting findings on record. The soft parts also influence the findings in a way impossible to estimate beforehand. The usual acceptance of the disappearance of the radial pulse as the criterion is a mistake, as the brachial pulse can still be detected after the radial has stopped. An error up to 20 mm. mercury may occur from this. It would be better to palpate the brachial artery just below the Riva-Rocci cuff if it were not that the fat in some persons would prevent this.

62. **Tardy Rachitis.**—The boy of 15 had developed symptoms of rachitis in the last two years with pains in the knees and ankles in walking. He was of a healthy family and had always been healthy, living in good circumstances in the country. He became irritable and whining, and lost flesh. With the knees touching, the ankles were 12 cm. apart. The calcium and phosphoric acid metabolism over six periods two before, two during and two after systematic courses of cod liver oil and calcium phosphate showed remarkable improvement under this medication, the boy finally showing the normal growth and symmetry of his age, with no visible signs of rachitis. At first phosphorus-cod liver oil was given, 0.01 : 100, three times a day, 5 c.c. Under this the calcium retention rose from 0.22 gm. CaO (15.2 per cent. of the calcium ingested) to 0.36 gm. CaO (22 per cent. of the calcium ingested). Still better results were obtained when this medication was dropped and the insoluble tribasic calcium phosphate given instead, 10 gm.: 100 c.c. cod liver oil; 5 c.c. three times a day. This insoluble calcium phosphate also gave better results in Schloss' hands in treatment of rachitis in infants.

Under this, in Ricklin's case, the retention of CaO was 0.85 gm. (39.9 per cent. of the calcium ingested) for twenty-two days. Then an operation was done to correct the genua valga and the metabolic research was arrested. The retention of phosphoric acid kept pace with that of calcium, the figure rising proportionally from 0.3 and 0.92 to 1.99 gm. (11.25; 24.6 and 41.1 per cent. of the amount ingested). Very much larger doses of other salts of calcium are necessary to attain such results as these, and the fact that the calcium retained was actually utilized to build up the bones is evident from the roentgenograms of the hand before and after.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Nov. 18, 1917, **38**, No. 92

63 *Prophylaxis of Inguinal and Femoral Hernia in Soldiers. G. Cajozzó.—p. 1218.

November 22, **38**, No. 93

64 *Malaria at Venice and the War. G. Jona.—p. 1233.

63. **Prophylaxis of Hernia in Soldiers.**—Illustrations are given of a bandage to be worn under or outside the shirt as a support to and preventive of hernia. The bandage is 5 meters in length by 8 cm. wide. It is passed across the pubic symphysis, crossed in the back over the sacrolumbar articulation, and the ends are brought around and crossed again over the symphysis. The ends are then carried around the root of the thigh and brought up along the side of the scrotum. The rolls formed by what is left of the ends are tucked under the flat part of the bandage above, where they serve as pads and are held in place with a safety pin. He thinks a simple bandage of this kind or its equivalent should be part of the equipment of every soldier, especially the cavalry.

64. **Malaria at Venice.**—The malaria encountered at Venice has been a mild form for many years. The number of cases dropped from 868 in 1876 to 102 in 1882, and in 1912, 1913 and 1914 the figures were respectively 18, 37 and 40. During the last three years there has been a large proportion of pernicious cases. Jona remarks that there seems to have been a general recrudescence of malaria in the last year or two, and Italy seems to be bearing the brunt of it. The details of four pernicious cases are given. In one the patient seemed in good condition without fever, and Jona was waiting for the next paroxysm to give quinin, when the woman was felled as by an apoplectic stroke, and died in coma apparently unmodified by 3 gm. of quinin given intravenously. He urges that all patients with rebellious malaria should be sent to some mountain resort both for their own benefit and to ward off infection of others.

### Policlinico, Rome

November 4, 1917, **24**, No. 45

65 *Subcutaneous Injection of Quinin in Malaria. N. Pende.—p. 1329.
66 *Treatment of Infected Wounds. D. Silvestrini.—p. 1333.
67 The State and Infant Welfare Measures in Italy and Scotland. M. Flamini.—p. 1338.

65. **Treatment of Malaria.**—Pende reports excellent results in severe and obstinate cases of malaria in which he gave quinin subcutaneously. The dose was 2 gm. of the quinin hydrochlorate, equivalent to 1.64 gm. of the alkaloid, in 250 gm. of physiologic saline, plus 0.5 c.c. of the commercial 1:1,000 solution of epinephrin. He insists that the patients bear this remarkably well, and the urine shows the presence of the quinin in an hour more or less. He makes the injection six or seven hours before the anticipated attack, giving a second injection fifteen or twenty-four hours later, and, in the severer cases, earlier than this, waiting only twelve hours. By this means the patient gets nearly 3 gm. of the alkaloid in the course of fifteen or twenty-four hours. No more quinin is given for five or six days, then the third injection is given and a fourth five or six days later. A week after the fourth injection the patient begins to take daily 2 or 3 gm. quinin by the mouth, fractioned, three days each week, with iron and arsenic in the interim. He comments on the fine results obtained, ascribing a large share in this to the epinephrin which wards off vasomotor collapse under these large doses of quinin. There have been no mishaps, no albuminuria, and this method is so harmless that he advises two of the injections at fifteen or twenty-four hours interval in dubious cases without waiting for a positive diagnosis.

66. **Infected Wounds.**—Silvestrini warns that a sharp distinction should be made between the treatment of infected wounds in the field hospital and in the base hospital. The measures advised for one do not apply to the other.

### Riforma Medica, Naples

November 3, 1917, **33**, No. 44

68 Advantages of Enrichment Technic for Colon Bacilli in Testing Water. N. Pane and C. Ninni.—p. 1033.
69 Contracture from War Wound Inducing Genu Recurvatum. C. Pastine.—p. 1037.

### Rivista di Clinica Pediatrica, Naples

November, 1917, **15**, No. 11

70 Consulting Stations for Healthy Infants. G. B. Allaria.—p. 561.
71 *Mothers' Refectories. G. B. Allaria.—p. 577.
72 *Pathogenesis of Congenital Depression in the Thorax. R. Simonini.—p. 595.

71. **Mothers' Refectories.**—This is Allaria's third article on sanitary prophylaxis for infants. He considers here the institutions which supply one nourishing meal a day to nursing mothers. Pestalozza founded the *Aiuto materno* at Florence to supply nursing mothers with materials for the meal at home. It was found that this reduced greatly the number of foundlings. Similar institutions elsewhere have the advantage of keeping the mothers in touch with the "consultations," but the mothers and the children did not thrive so well as when the mothers come daily to a refectory where a nourishing meal is served to them. Rome organized a refectory of this kind in 1879 and several are now running there. One was opened at Paris in 1905, and two societies are now engaged in the task, serving from 10,000 to 25,000 meals a year; five other French cities now have them, as well as other countries. The nursing mothers most in need of nourishing food, those with younger infants and those with several children should be given the preference when the demand exceeds the supply. Women should be admitted also during the last week of pregnancy. The nursing period may be said to include the first seven months, as the minimum, up to fourteen months. The hours that interfere least with the women's home duties are between 10 and 11 and 5 and 6. The infants should be cared for in a separate room while the mothers are eating, and it is a great advantage to have facilities where the infants can be bathed at need. A small circulating library of books on the care of infants is also useful.

The expense (outside of war times) was at Bologna less than 20 cents a day per head, including the consultations and the meals. At Paris it averaged from 6 to 9 cents. At an expense of not over $60 a year the nursing mother can thus be assured nourishment for her task of nursing. Street car tickets may have to be supplied the mothers. The car company may donate them, stamped to be used only at the given hour. The fear that the children might give or take infectious diseases has not been realized. The refectory and the consultation are connected, and the children are known. The danger of pauperizing the women is overcome by impressing on them that they pay for every meal by the milk they give their infant.

72. **Depression in the Thorax.**—Simonini describes what he thinks are the causal factors in the depression in the front of the chest presented by some new-born infants. The sternum sinks in. The necropsy findings in three cases showed nothing abnormal in the viscera except the fatal intestinal disease.

### Rivista Critica di Clinica Medica, Florence

Oct. 27, 1917, **18**, No. 43

73 *Big Abdomens in Soldiers. S. Pisani. Commenced in No. 40, p. 390.

November 3, **18**, No. 44

74 Necessity for Standard Technic for the Wassermann Test. A. Cceoni.—p. 433. Commenced in No. 43, p. 424.

November 10, **18**, No. 45

75 *Leukemia and Tuberculosis. F. Rietti.—p. 445. Commenced in No. 44, p. 436.

November 17, **18**, No. 46

76 *Meningococcus Infection with Tardy Meningitis. C. Cantieri.—p. 457. Commenced in No. 45, p. 448.
77 *Mirror Phobia. A. Martiri.—p. 461.

73. **Big Abdomens in Soldiers.**—Pisani says that a tonic spasm of the diaphragm during inspiration, associated with a segmental contraction of the oblique and transverse muscles, is causing a new variety of hysteric meteorism. Under chloroform the abdomen subsides to its usual outline, and sometimes it subsides during sleep. In the twenty cases studied, other signs of hysteria were manifest.

75. **Leukemia plus Tuberculosis.**—The cases on record of the association of leukemia and tuberculosis are classified by Rietti according as the tuberculosis was acute or chronic or without characteristic manifestations during life. In a personal case described a woman of 46 had chronic myelogenous leukemia, and necropsy showed the lesions of tuberculosis in various organs, but no tubercle bacilli could be detected.

76. **Tardy Meningitis.**—Cantieri reports a case which confirms the possibility of meningococcus infection running a protracted febrile course without any special localization for months. The young man was sent to the hospital with the diagnosis "malaria." Extreme weakness, slight fever at evening preceded by a feeling of chilliness, with pains in the limbs, and followed by slight sweating were the main symptoms for six weeks, growing gradually more severe and the joints and muscles becoming the seat of diffuse pains. The last two or three weeks the fever curve was of a remittent intermittent type, sometimes skipping three days and again showing no regularity. The young man had lost flesh, the skin was dry and bronzed; the mucosae blanched. The anterior of the tibia was slightly tender. About the seventieth day typical epidemic meningitis developed. Treatment had been with quinin at first, then with epinephrin subcutaneously, and heart tonics. Later a course of mercury was given. The meningitic symptoms solved the problem. The meningitis was mild and rapidly subsided; the temperature had begun to go down the day before serotherapy had been started. Bacteriologic examination of the blood had been done only once and had been negative. In another case intermittent high fever for three weeks was assumed to be of malarial origin until meningitic symptoms cleared up the diagnosis. In another case a peculiar intermittent fever developed after an attack of meningitis—a postmeningitic meningococcemia. In Hugel's case the fever for thirty days was accompanied by pains in the bones, joints and muscles as in Cantieri's first case. Urobilinuria was pronounced and constant, as also neutrophil leukocytosis. No eosinophils were found at one examination but later 4 or 3 per cent. Recent research by Pisani seems to show that the appearance of eosinophils in the course of meningococcus infection is a favorable omen. When they reach 4 or 5 per cent. by the twenty-fifth or thirtieth day, recovery can be counted on.

77. **Mirror Phobia.**—Martiri has encountered three cases of what he calls catottrophobia, from the Greek word for "mirror." The men were neurasthenic and shrank with absolute distress from the sight of a mirror and were uneasy in the room with one. For shaving, etc., they used very small mirrors, reflecting as small an area as possible for the purpose. The men were young and had been previously healthy until they wasted away under a grave form of dyspepsia of a neurotic type. From watching the change in their appearance week by week as their emaciation progressed, they grew to have a horror of every mirror, and this persisted after they had thrown off their dyspepsia.

### Semana Medica, Buenos Aires

September 27, 1917, **24**, No. 39

78 Abortive Treatment of Syphilis. D. Speroni.—p. 355.
79 Identification of Medicinal Sulphonals. J. A. Sanchez.—p. 358.
80 *Infarcts in the Placenta. V. Morinelli.—p. 360.
81 The Charitable Institutions of Buenos Aires. E. R. Coni.—p. 364. Continuation.
82 Antityphoid Vaccination in Argentine Navy. L. S. Moreno.—p. 372.
83 Atomizer for Paraffin Spray. J. M. and M. E. Jerez.—p. 373.

80. **Infarcts in the Placenta.**—Morinelli states that he found subchorial infarcts in 60 per cent. of the placentas he has examined. White nodular infarcts were found in 15 per cent. They seemed to be a sign of decidual endometritis, but did not affect the pregnancy in any appreciable way and did not seem to have any connection with syphilis or tuberculosis.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 6, 1917, **2**, No. 14

84 *The Tubercle Structure in Dermatologic Diagnosis. W. L. L. Carol.—p. 1201.
85 *Deficiency Diseases. D. J. H. Pol.—p. 1212.
86 Roentgen Treatment of Uterine Fibromyomas. L. F. Driessen.—p. 1222.
87 Case of Inherited Cerebellar Ataxia. J. R. Kollewijn.—p. 1225.
88 Optochin in Pneumonia. J. de Hartogh, Jr.—p. 1229.

84. **The Tubercle in Diagnosis.**—In connection with a puzzling case of suppuration in the leg with fourteen fistulas but no pain except on pressure, Carol discusses whether the tubercle must be regarded as always an evidence of tuberculosis. His decision is that giant cells and the tubercle structure may occur with other skin diseases, and hence that the tubercle bacilli probably are not directly concerned in their production.

85. **Deficiency Diseases.**—Pol has had much experience with Asiatic polyneuritis and its cure with a tropical bean, *Phaseolus radiatus*, and has published several studies of the deficiency diseases in general. He here reviews the evidence to date, and reaffirms that alimentary polyneuritis (beriberi, ship beriberi and the usual form of polyneuritis), scurvy, Barlow's disease and pellagra are all "avitaminoses," that is, deficiency diseases. The lacking substances, however, are not the same for each, the lack of different vitamins being responsible for different manifestations.

### Hospitalstidende, Copenhagen

October 31, 1917, **60**, No. 44

89 *Chronic Hemolytic Jaundice. K. Faber and E. Meulengracht.—p. 1069.
90 *The Morphology and Biology of the Spirochaeta Pallida. A. Kissmeyer.—p. 1074. Commenced in No. 43, p. 1049.

89. **Chronic Hemolytic Jaundice.**—Faber's account of his research on the pathogenesis and symptoms of chronic hemolytic jaundice was summarized in these columns, July 31, 1915, p. 468. He here describes the findings in the healthy members of the families in which the cases of hemolytic jaundice had developed. The red corpuscles of the healthy members of the family proved to be no more fragile than in normal families. It was found, however, that the resisting power of the reds declined with warm temperatures. Previous research which did not take this influence of the temperature into account has given erroneous deductions.

90. **The Pale Spirochete.**—Kissmeyer's sketch of the history, morphology and biology of the *Spirochaeta pallida* seems to definitely establish that it is a true spirochete. However, its place in the natural system is still undecided.

### Hygiea, Stockholm

Oct. 16, 1917, **79**, No. 19

91 History of Catheterization of Eustachian Tube. H. Key-Aberg.—p. 987.
92 Symptoms with Recent Traumatic Injury of the Internal Ear. H. Key-Aberg.—p. 1001.

### Ugeskrift for Læger, Copenhagen

November 1, 1917, **79**, No. 44

93 *Focus of Infectious Jaundice. J. Kamp and T. B. Wernøe.—p. 1777.

93. **Endemic Focus of Infectious Jaundice.**—Kamp and Wernøe state that 200 or 250 cases of infectious jaundice have been known within the last fifteen years in Nexo, a seacoast district in Denmark which has a population of less than 6,000. Both man and the domestic animals are affected by the disease. Bacteriologic examination has revealed only paratyphoid B bacilli. The disease can be transmitted from man to animals and from animals to man. The jaundice is the first and most striking symptom, with tenderness of the gallbladder, but diarrhea, often bloody, accompanied by colic pains mainly around the umbilicus, persisting in spite of all medication for weeks and months, is the most serious feature of the disease, along with the great depression in the general health, the somnolency, anemia and dull, sunken eyes. Bleeding from mouth, nose, bowel and urinary apparatus is common, as also complicating pneumonia and myocarditis. Five of the writers' patients died, and in all there seemed to be a tendency to recurrence.

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# A RARE TYPE OF BLADDER ULCER

## FURTHER NOTES, WITH A REPORT OF EIGHTEEN CASES *

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In 1914, I described a rare type of bladder ulcer in women.[1] Further work with this type of bladder inflammation has not revealed new material of special value, but I hope that a new publication with illustrations may receive a wider hearing and familiarize physicians with this exceedingly important group of bladder cases.

The fact that ten new cases can be added in less than three years demonstrates that we are dealing with a condition which is not so rare as may have been inferred from the former report, and which will be discovered and relieved much more promptly when the profession awakens to its existence.[2]

There is no department of gynecology or of urology that has baffled our attention more than the complaints commonly classified as "irritable bladder," "neuralgia or neurosis of the bladder," or "neurasthenia with the mind centered on the urinary apparatus." We have used such terms as a diagnostic entity, or as a hazy cloak for our ignorance, in seeking to classify that large group of patients who persist for years in complaining of the severe symptoms usually associated with cystitis, but in whom we can find but little evidence of cystitis by the ordinary urinary and cystoscopic examinations, and who fail to answer to the usual methods of bladder and urethral treatments.

By discovering that some of these cases are due to a chronic urethritis, which in turn is secondary to a distant focal infection, I have demonstrated a definite pathologic basis for a large group of these cases.[3] Such patients may suffer for months or years with the most distressing bladder symptoms, even to the extreme degree of a complete incontinence, and may indefinitely resist all forms of bladder and urethral treatments, and then promptly recover without further local treatment after the removal of infected tonsils, or abscessed teeth, or the drainage of infected sinuses.

The demonstration of the bladder lesion under discussion has removed another considerable group of cases from the vague classification of "neurosis of the bladder," and placed them on a definite pathologic basis, enabling us to treat them in a logical and successful manner.

### DESCRIPTION OF THE LESION AND DISCUSSION OF NOMENCLATURE

In my initial report, this lesion was spoken of as "simple" ulcer of the bladder for the reason that it is unassociated with any known infection. I contrasted this ulcer with the so-called simple ulcer of Fenwick.[4] Fenwick's terminology was based on the resemblance of his ulcer to the "simple ulcer" of the stomach, and he was apparently unaware that both Rokitansky and Tait[5] had forestalled him in this comparison.

This terminology was in use before the day of accurate bacteriologic work on the bladder infections, and it is a question now just what ulcers, if any, should be classified as "simple." In more recent years Buerger[6] has used the term "simple callous ulcer" to describe what is apparently the simple ulcer of Fenwick; but he reports one of his cases as beginning in pregnancy and yielding a *Staphylococcus albus* culture. Le Fur[7] states that simple chronic ulcers of the vesical mucosa do not always present themselves as round ulcers with thickened callous edges simulating ulcer of the stomach, but may offer very irregular forms or special aspects. He holds that they may be so small and superficial as to be called microscopic or histologic ulcers, as contrasted with the usual macroscopic ulcer.

Unfortunately, he illustrates the latter point by referring[8] to some of his results in animal experimentation, wherein histologic ulcers were caused after inoculation of the blood with organisms and then injuring of the bladder wall. Such conditions might conceivably result in what eventually might be called a simple ulcer; but these small fresh lesions in a recently inoculated animal would not correspond to the usual conception of a simple ulcer as one developing without demonstrable cause.

It is apparent to any one reviewing the literature of bladder ulcer that some organization, such as the American Urological Association or the American Association of Genito-Urinary Surgeons, could perform a valuable service by appointing a small commission to review the subject from every point of view, and adopt a nomenclature that would serve as a working basis for our present knowledge.

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* From the Gynecological Department of the Johns Hopkins University.

[1] Hunner, G. L.: A Rare Type of Bladder Ulcer in Women, with Report of Eight Cases, Tr. South. Surg. and Gynec. Assn., 1914, **27**; Boston Med. and Surg. Jour., 1915, **172**, 660.

[2] Four new cases have been seen between June and December, 1917.

[3] Hunner, G. L.: Chronic Urethritis and Chronic Ureteritis Caused by Tonsillitis, The Journal A. M. A., April 1, 1911, p. 937.

[4] Fenwick: The Clinical Significance of the Simple Ulcer of the Urinary Bladder, Brit. Med. Jour., 1896, **1**, 1133; Ulcer of the Bladder, London, J. and A. Churchill, 1900, p. 8.

[5] Tait: On the Cure of the Chronic Perforating Ulcer of the Bladder by the Formation of an Artificial Vesicovaginal Fistula, Lancet, London, 1870, **54**, 738.

[6] Buerger, Leo: Pathology and Treatment of Callous Ulcer of the Bladder, Med. Rec., New York, April 12, 1913; Ulcer of the Bladder, The Journal A. M. A., Feb. 8, 1913, p. 419.

[7] Le Fur: Des ulcérations vésicles et en particulier de l'ulcère simple de la vessie, Paris, G. Steinheil, 1901.

[8] Le Fur (Footnote 7), p. 205.

Geraghty[9] has proposed the designation of "paracystitis" for the lesion under discussion; but this conveys the idea of an inflammation of the tissues surrounding the bladder, and is therefore inadequate.

My associate, Dr. Cullen, after a review of the clinical and pathologic features of this lesion, has suggested the term "elusive ulcer," and this comprehends satisfactorily the difficulties in locating the ulcer part of the lesion, and its changing characters while under observation and treatment; but in common with any simple term, it fails to describe adequately the widespread character of the chronic inflammatory involvement of the bladder walls.

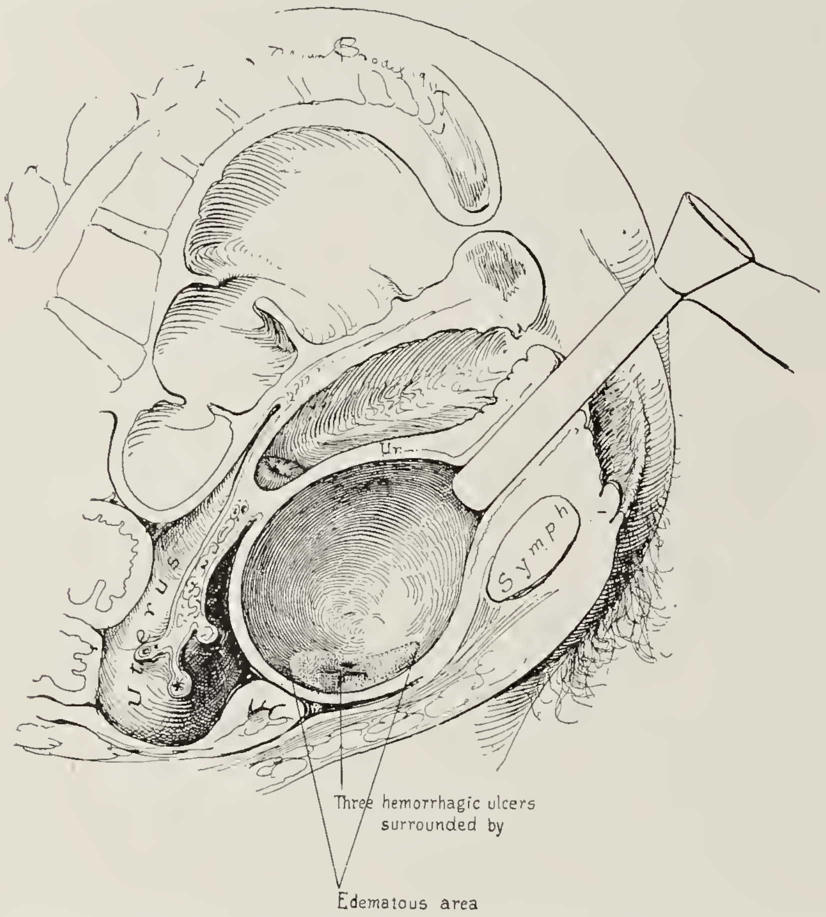

Fig. 1.—Location of multiple minute ulcers on the right vertex, and the surrounding edema area found at operation in Case 3.

The lesion under discussion is a chronic inflammation of all coats of the bladder wall; and by the time these cases have reached me for treatment, the lesion has become widespread.

In the two least extensive cases, the lesion in Case 3 covered an area 3 by 5 cm., and in Case 11 an area 2 by 3 cm. In the more extensive cases the lesion has necessitated the removal of more than the upper three fourths of the bladder. In spite of this widespread lesion, there is remarkably little to be found by cystoscopy, and this is one reason that many of these patients have suffered fifteen years or more, and have traveled from clinic to clinic in an effort to find relief.

The crucial test in cystoscopy is the finding of a small abrasion on the mucosa surface which, if not bleeding on discovery, will easily bleed on being touched with an instrument or with a cotton pledget. It is this minute area that gives rise to the urinary findings of a few leukocytes or a few erythrocytes or both when the urine is carefully settled or centrifuged. Occasionally the distention of the bladder by air as the patient assumes the knee-breast posture causes this area to split, and a tiny stream of blood flows to the vertex. In such a case one first notices the blood-tinged urine in the vertex in striking contrast to the perfectly clear urine that has just been drawn by catheter; and by sweeping the speculum around the equator of the bladder, one finds the blood streak and can trace it to the source. The ulcer is usually found in the vertex or free portion of the bladder, as contrasted with the location of the Fenwick ulcer on the base or fixed portion (Figs. 1 and 2). Its frequent location on the anterior superior wall is another reason for its having escaped diagnosis, this being a difficult area to examine with either the direct or the indirect methods of cystoscopy.

With the proper knee-breast posture and good relaxation of the patient, we can examine every portion of the bladder mucosa, including the anterior wall back of the symphysis. When there is any difficulty in a free examination of the anterior wall, this can easily be brought into vision by sliding the free hand beneath the mons veneris and gently lifting the anterior wall of the bladder into line with the examining cystoscope.

The actual abrasions of the mucosa may be single or multiple. If multiple, they may be in a small group (Fig. 1) or they may be widely separated, one ulcer being found in the vertex, perhaps close behind the symphysis on the anterior wall, and another near the base on the posterior wall (Fig. 2).

These ulcers are always small, varying in diameter from 2 to 5 mm., and they appear to be very superficial. I have never seen them covered with fibrin or with a deposit of urinary salts, and have never seen them present a picture suggesting malignancy.

They are exceedingly sensitive on being touched, and it is most gratifying on discovering one of these ulcers and touching it to have the patient who has been through many fruitless cystoscopies exclaim, "There: you have found the right spot at last!" The preliminary bimanual examination of the bladder will often suggest the location of the ulcer because of this tenderness. It is probably this preliminary palpation that starts the bleeding in some cases after one has just catheterized clear urine.

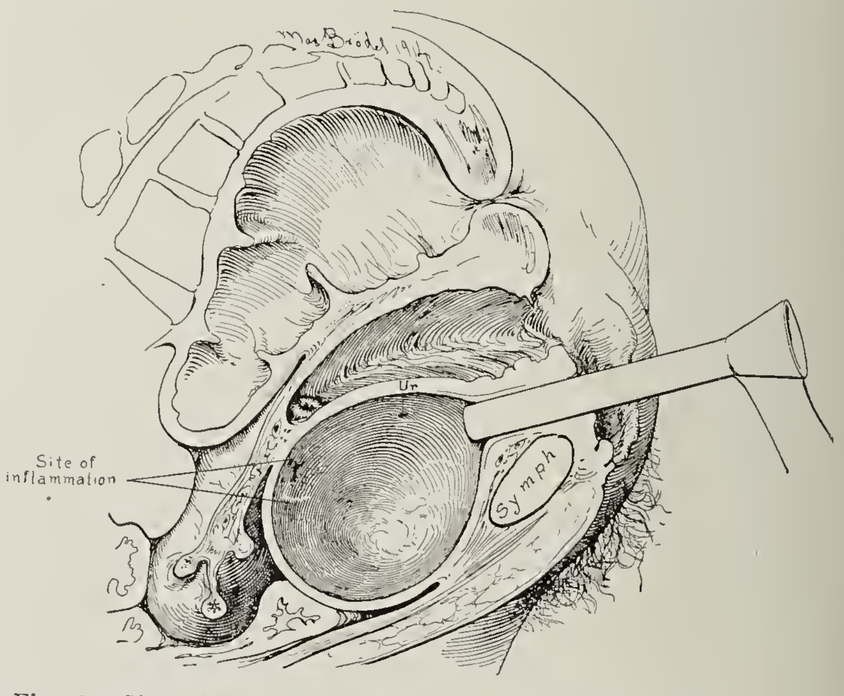

Fig. 2.—Site of the inflammatory area near the posterior pole in Case 8. In addition to this area there was a small ulcer back of the symphysis on the left anterior wall, and at operation an area 10 by 4 cm. was removed to include all the congested area.

On cystoscopy one's attention is not infrequently first arrested by a glazed, dead white appearance of a portion of the bladder mucosa. In such an infiltrated area the vessels may have a broken or "choppy"

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[9] Geraghty: Infections of the Bladder, with Special Reference to Localized Resistant Areas of Cystitis, Surg., Gynec. and Obst., 1917, **24**, 655.

appearance, only short segments of vessels appearing on the extra pale surface. One may see a dead white scar area with a small congested area in the immediate neighborhood; and while one is examining this area, or after one has touched it, the congestion becomes marked and may even begin to ooze blood (Fig. 3).

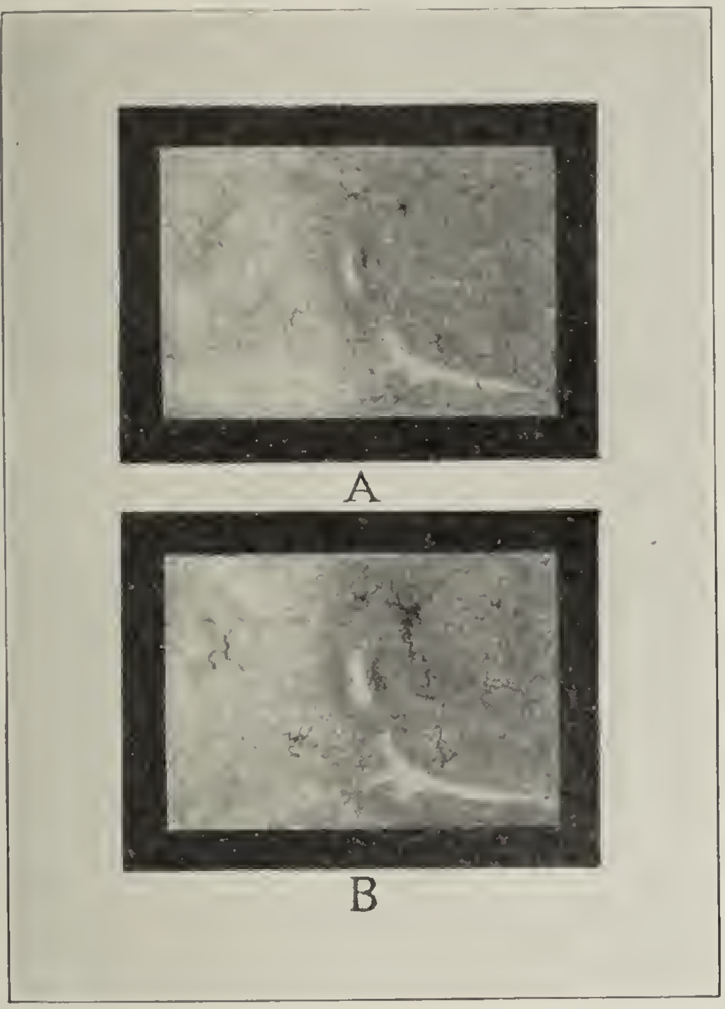

Fig. 3.—Cystoscopic appearances of an area near the posterior pole region in Case 8. The vascular changes from *A* to *B* occurred spontaneously while the artist was viewing the field through the speculum.

Sometimes during the cystoscopy an area of edema appears, the mucosa taking on a deep red congested appearance and being raised above the general mucosa level. This area of edema may occur immediately about the ulcer area or it may appear on a portion of the wall at some distance from the ulcer. It may be absent at several consecutive examinations and then appear at a subsequent examination. It is particularly likely to be seen if the patient is in the midst of an unusually bad period of bladder symptoms with strangury. The significance of this edema area will be fully discussed under the section on treatment.

### ETIOLOGY

The cause of this type of bladder inflammation remains a mystery. There is no evidence from the histories of these patients that the condition began as an infection in the urine. The patients, except in Cases 7 and 16, gave no history of having had pus or blood in the urine at any stage of their cystitis history. In Case 7, the patient said she had seen blood in the urine at times during the sixteen years of her symptoms. In Case 16, the patient was convinced that her bladder trouble of eighteen years' duration began after an operation, and was due to faulty catheterization. She was known to have had at that time a typical generalized cystitis with pus in the urine.

With this one exception, none of the cases, so far as could be determined by the histories, followed operation, childbearing or gonorrhea.

The urine is always sterile on our ordinary culture mediums. Attempts to grow anaerobic cultures from the removed tissues have resulted in failure, as have many attempts to find organisms in the tissues by numerous methods of staining.

In my early cases the long duration and the resistance to treatment made me suspect primary tuberculosis of the bladder; but the excised specimens examined microscopically did not bear out this view.

Because my work has demonstrated the probable relationship between infections of the tonsils, adenoids, sinuses and teeth, and conditions of chronic infiltration in the ureters and urethra, I have suspected that this chronic infiltration in the bladder wall may have a similar focal origin. These patients all have an infiltration, granulation, and extreme hypersensitiveness of the urethra. The tenderness and scar tissue contraction was so marked in most of the cases as to require thorough cocainizing and careful manipulation in order that satisfactory cystoscopy might be done. Fenwick emphasizes this urethral hyperesthesia in most cases of nonmalignant ulceration of the bladder, and advises chloroform anesthesia for cystoscopic examination. It is possible that the bladder ulceration and the inflammatory condition of the urethra may have a common cause, or it may be that the frequency of voiding and straining bring about a hypertrophy and hypersensitiveness of the sphincter region and an inflammation of the urethral tissues. I am inclined to take the latter view from the fact that these patients have no symptoms referable to the urethra after recovering from the excision of the bladder lesion. The location of these lesions in the vertex or free portion of the bladder, instead of in the base where there is the richer blood and lymph supply, probably argues against the focal infection theory.

The fact that many of the patients begin with their bladder symptoms in early life (seven of them dating the onset at 20 years and under) would tend to bear out the focal infection theory. On the other hand, the histories and examinations of these patients have not borne out the theory of a distant focus of infection in the striking manner we find to be the rule in most ureteral stricture cases.

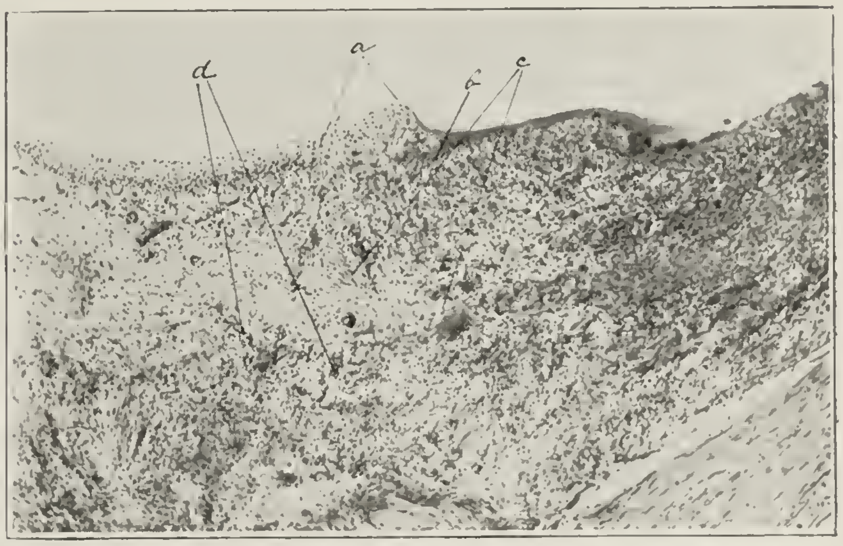

Fig. 4.—From Case 7 (Pathologic No. 29137): *a*, gradual fading of transitional epithelium; *b*, ulcer area, made up largely of blood vessels; *c*, muscle in mucosa layer; *d*, blood vessels packed with leukocytes even in the deeper layer of mucosa.

We have failed to make the systematic notes that should have been made on the condition of the teeth.

In Cases 4 and 7, the patients thought their bladder trouble began soon after the infectious fevers of childhood. In Case 3, the patient, who had suffered with bladder symptoms "all her life," had tonsillitis as a child. In Case 8, the patient had a severe attack of tonsillitis soon after the bladder trouble began at 15 years of age. In Case 16, the patient, whose bladder trouble began after an operation at 21 years of age, had had her tonsils guillotined when she was 12 years old. In Case 18, the patient, aged 28 years, had suffered with her tonsils, and had had them removed five years after the bladder symptoms began. In Case 15, the patient, aged 30 years, said that her bladder trouble had begun three years previously while she was suffering with a severe "cold." In Cases 8 and 10, the sinuses were diseased. In Cases 2, 5 and 9, the patients had rheumatism.

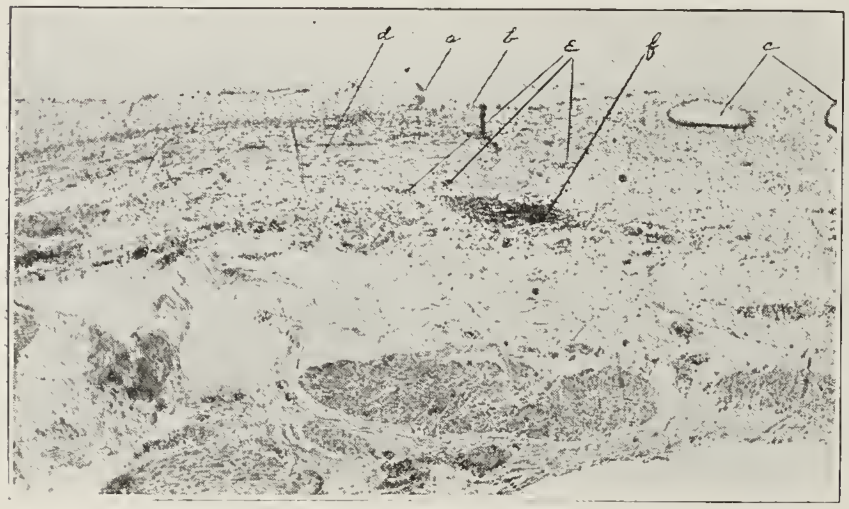

Fig. 5.—From Case 3 (Pathologic No. 20722): *a,* abrupt ending of stratified epithelium at edge of healing ulcer; *b,* single layer of cuboidal cells; attempt at repair over the healing area; *c,* so-called cysts or glands, with mucous or goblet cell lining; *d,* smooth muscle in mucosa layer; *e,* blood vessels filled with leukocytes; *f,* collection of small round cells and leukocytes. General rarefaction due to edema.

*Sex.*—My eighteen cases have all occurred in women, my work being confined to this sex. Dr. Geraghty has recently been finding these cases in men, and he thinks that their clinic has overlooked many of this type in the past and sent them away unimproved, after long courses of various forms of bladder and urethral treatment.

*Age.*—In my first eight cases, reported before, the average age of the patient on consultation was 37 years; the average duration of symptoms was seventeen years, making the average onset age 20 years. In my last ten cases the average age at consultation was 44.2 years, and the average duration of symptoms ten and four-fifths years, making the average age of onset 33.4 years.

Childbearing does not seem to have any relation to the disease, nine of the eighteen patients having been unmarried.

### SYMPTOMS

The chief symptom associated with this type of bladder ulcer is pain. Associated with the pain, the other symptoms of cystitis occur in varying degree, namely, frequency day and night, strangury, burning and smarting. The pain is often of the most extreme grade, the patient complaining of a jabbing or stabbing knifelike pain or of a sensation of a jagged, sharp stick in the bladder. In Case 8 the patient often had such extreme urgency that she had to leave a streetcar in order to enter the nearest house and ask for permission to void. In Case 6 the patient expressed the urgency of her pain by saying that if she were crossing the street, and an automobile were bearing down on her at the time of getting one of her knifelike stabs in the bladder, she would have to drop in her tracks and allow the automobile to run over her. In Case 3, the patient, when at her worst, could not allow people to walk across the room in which she was sitting because of the increased pain from the vibration of the floor. One is at a loss to describe the misery of these patients without selecting such descriptions from the patients themselves.

The pain is often referred to some other portion of the pelvis, particularly to the rectum. The pain is often increased after eating, probably owing to increased peristalsis. It is increased when there is "gas on the bowels" or when the patient is constipated, and just before and during stools, probably because of the fecal matter's passing by the tender peritoneum located over the diseased area of the bladder wall.

Pain referred to the hip corresponding to the side of the open ulcer is not uncommon. Pain in the perineum is common. The patients often say they must sit down in a particular manner, resting mostly on one hip, or sitting on the edge of the chair. Turning in bed at night may bring on severe pain and awaken the victim. In other words, these patients are in a constant state of muscular tension in an effort to "splint" the bladder and give it no undue movement or jarring.

The rectal symptoms, together with the failure of a diagnosis, sometimes convince the patient that a cancer of the bowel is developing. It is largely because of these referred pains, and the failure to make a diagnosis, that these patients are so often operated on for other supposed lesions.

*Urine Examination.*—The diagnostic features of the Fenwick type of ulcer are pain and hemorrhage. Only one of our eighteen patients reported having seen blood in the urine.

The urine is macroscopically crystal clear except for a mucin cloud in suspension; a hurried microscopic examination may readily miss the few erythrocytes practically always present. In a suspected case one should always settle, pipet and centrifuge the urine. We still hear the expression "an occasional leukocyte and an occasional red blood corpuscle, not enough to indicate any trouble." As long as clinicians take this attitude, these cases will be undiagnosed.

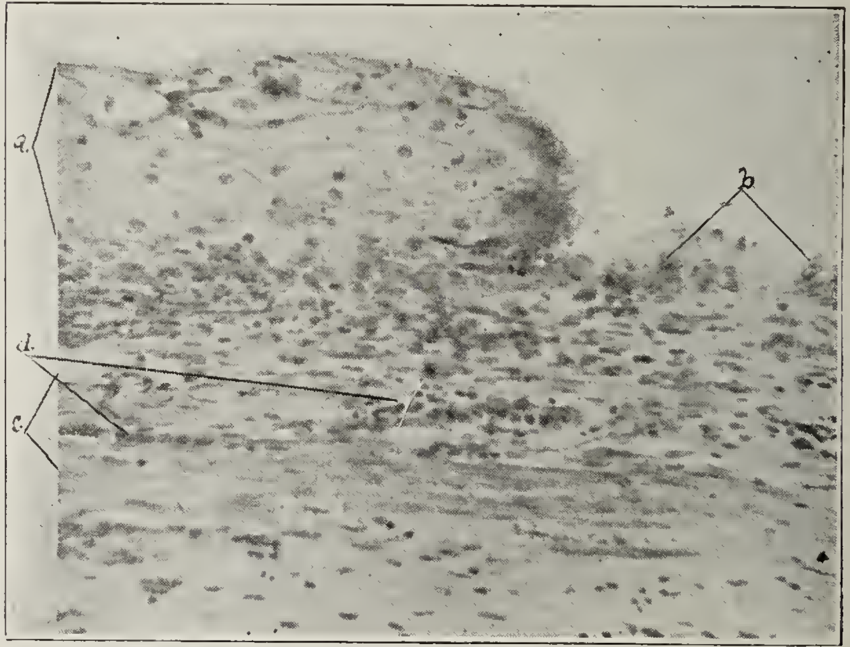

Fig. 6.—From Case 3 (Zeiss DD, 4.3 mm., reduced about one half): *a,* the horizontal arrangement and "hornified" appearance of the epithelial cells; *b,* single cuboidal layer over healing area; *c,* muscle cells of the mucosa layer; *d,* capillaries filled with leukocytes.

While treating these patients we can occasionally get the ulcer to heal over temporarily; at such times we may be unable by the most careful microscopic search to find a pathologic element in the urine. At the patient's next visit a week later we are very likely to find the usual few leukocytes or erythrocytes or both.

### PATHOLOGY [10]

The histologic study of specimens removed at operation shows a fairly uniform picture in all cases. It is a picture of chronic inflammation involving all coats of the bladder and extending over the wide area which at operation shows the edematous thickening. At the site of the minute ulcer there is loss of the epithelial coat, and the underlying mucosa shows the granulation tissue characteristic of an active ulcer (Fig. 4). Other sections, taken from what appears to be an ulcer in the gross specimen, show an abrupt ending of the epithelial layer at the edge of an area that is evidently undergoing healing, and here the mucosa layer is less richly supplied with capillaries, and is much like the mucosa beneath the epithelial covering, showing a preponderance of connective tissue and infiltration of small round cells and leukocytes. Such a healing area may be covered by a single layer of cuboidal cells (Figs. 5 and 6).

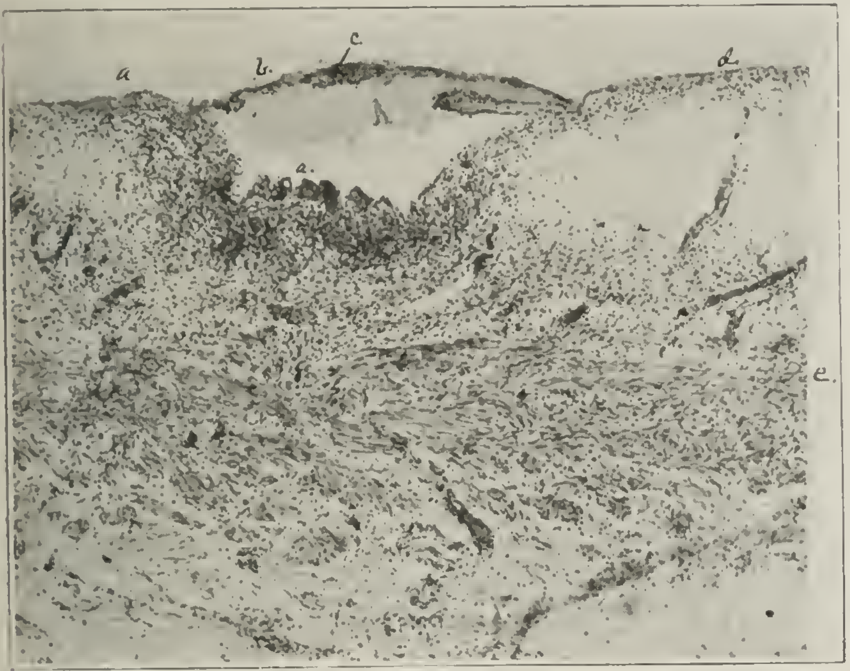

Fig. 7.—From Case 8 (Zeiss AA, 17 mm., reduced about one half): *a*, absence of epithelium except in protected depressions; *b*, bridge of organized tissue covering depression; *c*, blood vessel in bridge; *d*, unusual thickening of basement membrane; *e*, prominent muscularis mucosae.

Figure 7 shows another type of attempt at repair of the epithelial layer. In several of our sections we find depressed areas in the mucosa which have apparently become filled with fibrin or serum and in the bottom of which new epithelium is growing. This specimen shows, extending across the depression, a protecting bridge in which can be traced organized tissue, including blood vessels.

In general, the transitional type of epithelium has changed to a flattened horizontal type. Compare the normal transitional type of epithelium in Figures 8 and 9 with the changed types in Figures 5, 6 and 11.

It is interesting to find on the histologic examination that broad areas of the mucosa may be denuded of the epithelial coat even though the cystoscopic picture showed only a small ulcer area. It is possible that this wide loss of epithelium is an artefact due to the trauma during operation or during the preparation of the specimen. Great care has been used, however, during the operation not to injure the epithelium, and I think that a glance at Figures 5 and 6, showing the abrupt ending of the epithelial layer on the edge of an area apparently not in active ulceration, will convince one that this was the condition in vivo. The gradual shading off of the epithelial coat in Figure 4 *a* at the edge of an ulcer area is similar to the gradual ending of the epithelium in Figure 12 *a*, where the denuded area is covered by an intact thickened basement membrane and shows no special evidence of ulcer.

A thickening of the basement membrane is a prominent feature in some cases (Figs. 12 and 7). Apparently this basement membrane thickening is not dependent on the absence of the epithelial layer, but appears as well beneath the areas covered with epithelium, as seen in Figure 12.

In Case 3 there occur many of the so-called "glands of the bladder" lined with goblet cells (Fig. 5 *c*). The significance of these will be discussed in our future full pathologic report.

The mucosa layer in the neighborhood of the ulcer shows an increase in the number and size of the capillaries, varying in the different specimens. The capillaries are often stuffed with leukocytes, as are many of the lymph spaces. There are some enlarged lymph spaces crowded with lymphoid cells and leukocytes, and where these are seen lying beneath the normal epithelium near the ulcer, they at first suggest the picture of tubercle (Fig. 12 *d*). There is an appearance of hyalin degeneration in some areas, and in some of the sections the edema causes rarefication.

It is important to note that the presence of leukocytes stuffing the vessels in these specimens probably has no pathologic significance. Figures 8, 9 and 10, representing a section of bladder wall which I removed from a patient who had never had a history of cystitis, show the presence of a great many leukocytes in spite of the fact that the specimen was removed with as great rapidity and with as little trauma as possible, and was fixed in formaldehyd solution at once.

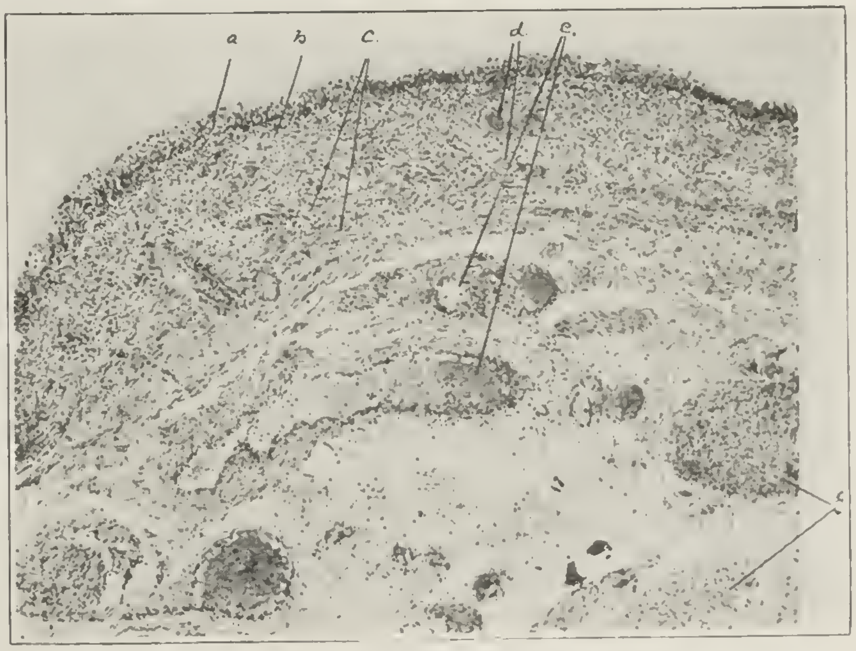

Fig. 8.—From normal case (Zeiss AA, 17 mm., reduced one half): *a*, transitional type of epithelium; *b*, indistinct basement membrane; *c*, muscles of mucosa layer; *d*, medium sized vessels of mucosa layer; *e*, large vessels of submucosa region; *f*, muscle layers.

The muscularis mucosae seems to be hypertrophied in most of the specimens (Figs. 5 *d*, 8 *c*, normal, and 7 *e*).

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[10] The author hoped to have ready with his associate, Dr. George L. Stickney, a full report on the pathology of this condition. Dr. Stickney was one of the early volunteers to leave for medical service in Europe, and we shall therefore defer the full pathologic report for a future publication.

The muscle coat shows enlarged lymph spaces filled with small round cells; these spaces, as well as some of the blood vessels of the muscle coat, contain many leukocytes. Immediately beneath the ulcer, the muscle in places shows invasion and breaking up by the inflammatory process.

The peritoneum, subtending a diseased area, shows decided thickening.

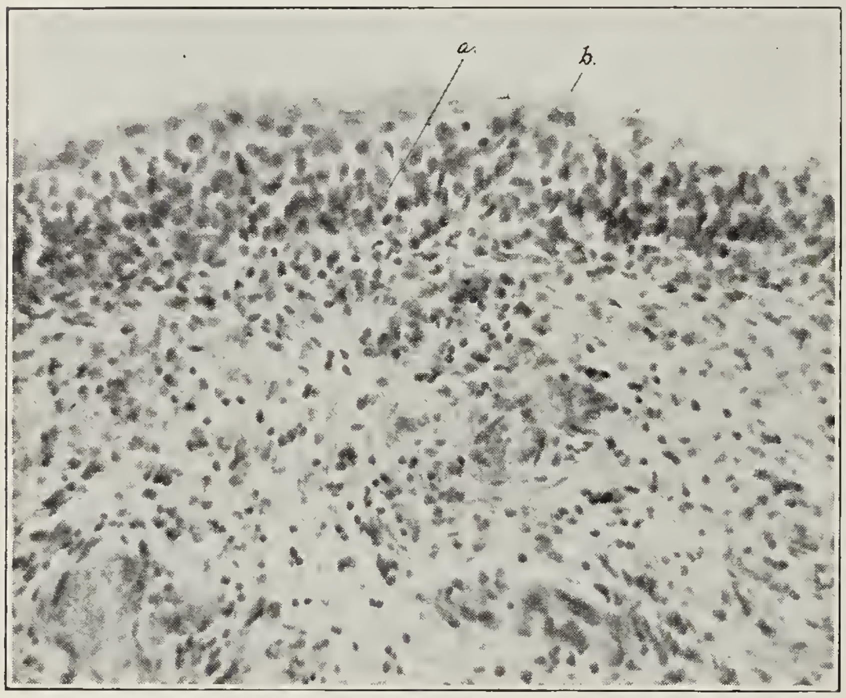

Fig. 9.—From normal case (Zeiss DD, 4.3 mm., reduced one half; enlarged from Fig. 8): *a,* typical transitional epithelium; *b,* cell of surface layer with double nucleus.

### DIAGNOSIS

The diagnosis of this form of bladder inflammation rests on the history, the urine examination, the cystoscopic findings, and the reaction of the disease to treatment.

So far as I know, there is no form of bladder inflammation or ulceration that presents an absolutely characteristic clinical history or cystoscopic picture. The process under discussion is no exception to the rule.

The patient's recital of the insidious onset without apparent antecedent cause, and the long duration in spite of various forms of treatment, make one think at once of tuberculous disease. This is excluded as soon as one finds macroscopically clear urine associated with such a long history, and absence of any sign of disease of the kidney or ureter.

One sometimes gets a history of serious symptoms simulating cystitis from patients suffering with chronic urethritis. The presence of microscopic pus or blood or of both in urine catheterized from women makes one certain that one is dealing with something more than a urethritis. Rarely one gets a few blood cells from trauma to the sphincter region during insertion of a catheter.

I have learned by experience to suspect the presence of this lesion when I am consulted about any patient who has suffered for years with symptoms chiefly referred to the bladder, but varied enough in character to have led to a number of operations without relief of the symptoms. If such an outline of trouble ends with the statement that "there has never been anything of importance in the urinary findings, only at times a few leukocytes or red cells," my suspicion is changed to a practical certainty.

These points may best be emphasized by a brief summary of the efforts at diagnosis and relief in two of my recent cases:

Mrs. W., aged 50, referred in January, 1917, by Dr. Catherine Macfarlane of Philadelphia, had suffered for eighteen years with symptoms chiefly referable to the bladder. She was convinced that these symptoms dated from a cystitis due to faulty catheterization after an Alexander operation.

The patient wrote me in April, three months after operation, to say that she was "perfectly well," and she sent me an interesting file of correspondence concerning her case, showing that she had been under the care of some of the best medical and surgical talent in Philadelphia, Baltimore, New York and Boston; and in her fits of despondency over the failure of these leaders in our profession to benefit her, she had interspersed among these treatments Christian Science, osteopathy, mechanoneurotherapy, and other *fin de siècle* methods in an attempt to get well. The patient had all of the diseases of childhood in a severe form, and at 12 years of age the tonsils were guillotined. She was married in 1896 at 19 years of age, and her first child was born a year later. In May, 1898, she had the Alexander operation, followed by the severe attack of cystitis. About a year later a Boston gynecologist made a cystoscopic examination under anesthesia, and diagnosed a colon bacillus ulcer of the bladder. This was later treated by a Philadelphia gynecologist, and it was apparently completely cured, according to cystoscopic findings. The symptoms, however, continued. In 1900, the sphincter ani was dilated by an osteopath. In 1903, the patient tried Christian Science. In 1905, a prominent Philadelphia gynecologist made an abdominal exploratory operation, and found a few adhesions spreading from the top of the uterus over the posterior wall of the bladder. These were cut, and it was hoped that the cause of the symptoms had been found; but there was general disappointment when the patient again became active and found that her old symptoms were still with her. In 1913, vaccines were used in the hope of clearing up abdominal adhesions. Bladder irrigations were tried, and an examination of the right kidney was made. The patient was sent away for a rest cure, a Philadelphia neurologist having concluded that she needed "a course of nervous and mental training with particular attention not only to control of the bladder function but along other lines." She was prescribed "a period of six or eight months at a place like Lake Placid, or in Canada, with a nurse of sufficient brain power and force of character and training to be able to carry out in detail the directions of the physician, and at the same time to direct the mental training when the proper time has arrived." In 1915, after the patient had considerably reduced her weight by diet, the right kidney was found floating, and a fixation was done. In 1916, treatment by the roentgen ray, electricity, and colored lights were used. Pyorrhea was discovered, and two teeth were drawn. Later there was treatment for arthritis. On first consulting me, the patient was

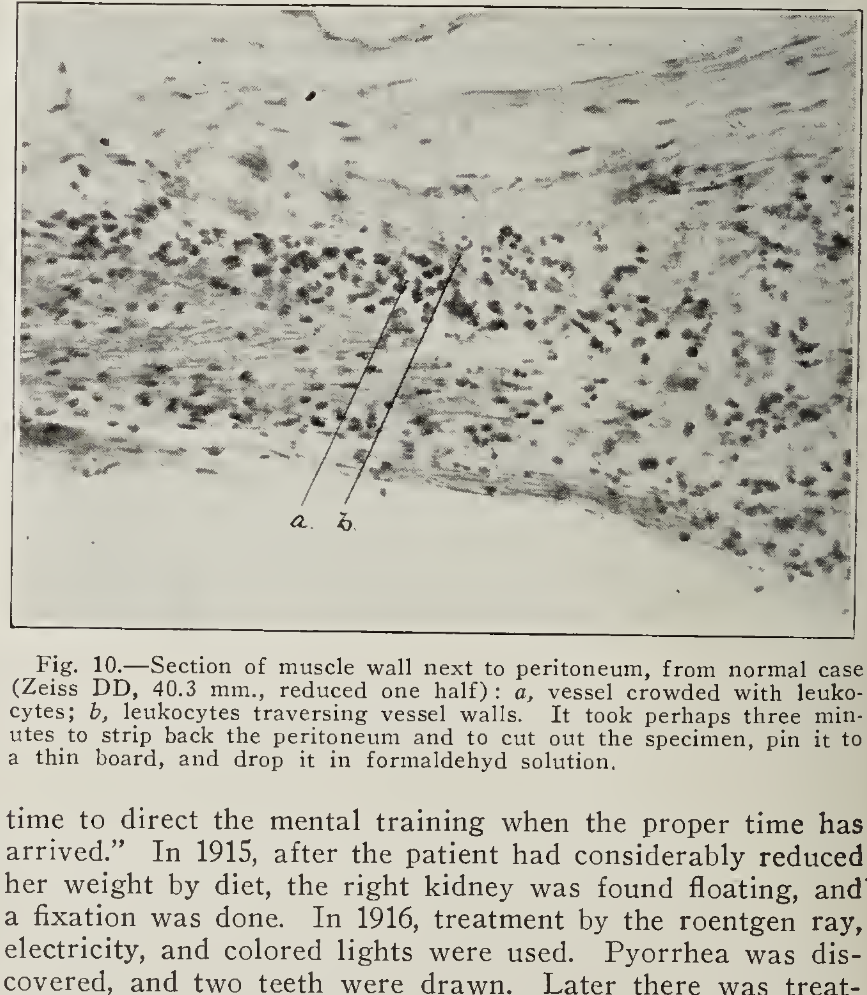

Fig. 10.—Section of muscle wall next to peritoneum, from normal case (Zeiss DD, 40.3 mm., reduced one half): *a,* vessel crowded with leukocytes; *b,* leukocytes traversing vessel walls. It took perhaps three minutes to strip back the peritoneum and to cut out the specimen, pin it to a thin board, and drop it in formaldehyd solution.

convinced that the fixed right kidney was back of her bladder symptoms, and that it should be removed.

The foregoing is only a brief summary, and does not begin to cover the field of the various diagnoses and treatments during these eighteen years of suffering.

My latest patient, Case 18, a woman, aged 28, unmarried, had been suffering with bladder symptoms for six years, during which time she had been in the hands of at least seven different physicians, all of them of excellent standing in their respective specialties. In the first year of her trouble she saw two physicians in Atlanta, one of whom gave her urethral and rectal irrigations, and the other dilated the urethra and "removed a small growth from the external orifice," and reported a negative bladder examination. He also catheterized the right ureter with negative results. Three and a half years before I saw the patient, a prominent Baltimore physician examined carefully with the cystoscope with negative results, dilated the urethra, and treated with radium for vaginismus. Eighteen months before, a Greenville, S. C., physician found an ulcer in the bladder, and after a few bladder treatments the bladder seemed normal, and the urine was reported normal; but the patient's symptoms remained the same. One of her chief symptoms was pain in the left labium. This physician severed the left pudic nerve without benefit. One year before, he did an exploratory celiotomy and "removed a normal looking appendix and a normal looking left ovary, and suspended the uterus." He also removed the left labium minus. Six months before, a Columbus, S. C., physician examined the bladder and kidneys with negative results. Eight months before, tonsillectomy was done. Four months before, a prominent Atlanta specialist treated her for sacro-iliac joint trouble without benefit.

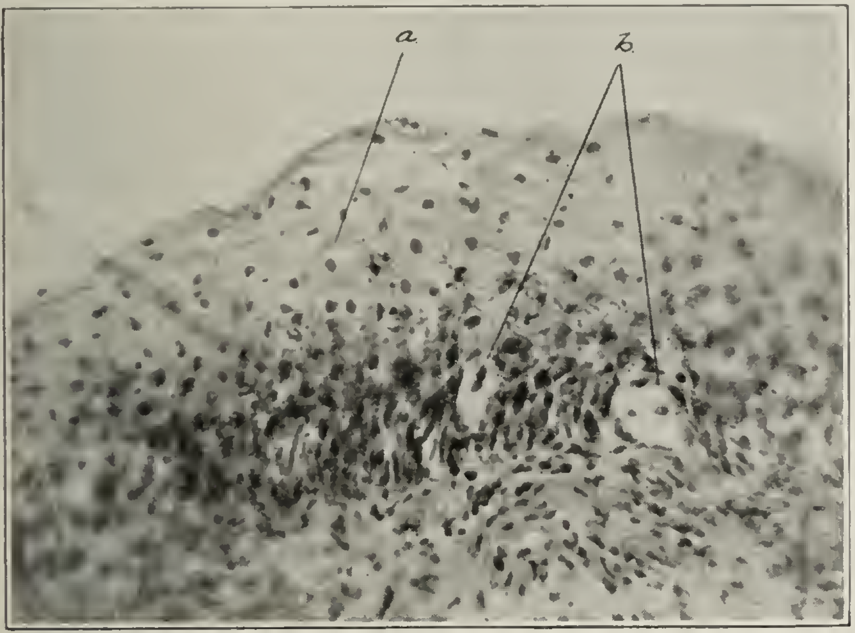

Fig. 11.—From Case 4 (Zeiss DD, 4.3 mm., reduced one half): *a*, flattening and "hornification" of upper layers of epithelium; *b*, clear spaces at base of epithelial layer, one space containing two leukocytes and one space an epithelial cell with double nucleus.

The patient was referred to me in March, 1917, by Dr. Barker. A typical lesion was found, consisting of a small ulcer in the right vertex and a congested area of mixed scar and vascular tissue in the left vertex. At operation the edema area carried us far down the posterior wall and on the base, and at the close of the operation there was just enough flap of bladder wall on the left side to be brought across to the resected edge of the right base and trigonal region. The remaining bladder probably held less than 1 ounce. One month after the patient's return home she reported: "Although my bladder is not quite well yet, the unpleasant symptoms are so slight now that they cause me very little inconvenience. The pain and gas in the stomach have entirely disappeared, my bowels move well without laxatives, and the old rectal discomfort is a thing of the past. My bladder will hold easily 10 ounces; and best of all, I am quite free from those horrible perineal spasms which had puzzled so many doctors and almost wrecked my nervous system. My appetite is good, I sleep well, and have gained 12 pounds since I left the Hopkins. My strength has returned with amazing rapidity; I ride and walk without pain, and I am sure that you would be pleased to know how much I am able to do in the way of housework."

Nine of the eighteen patients had had a total of sixteen operations directed toward the relief of their symptoms. These operations were largely futile because of a failure to make a proper diagnosis. I operated in Case 2, doing a perineal repair and supravaginal hysteromyomectomy, and in Case 4, removing an atrophic appendix, before discovering that the patients' chief symptoms were due to this type of bladder inflammation.

## TREATMENT

After an experience with eighteen cases, covering a period of seventeen years since treating the first patient, and a period of nine years since seeing the second patient and beginning to make a special study of this type of bladder inflammation, I believe it safe to say that no form of treatment will suffice in these cases except complete excision of the inflammatory area.

In Case 2, the patient is still under observation after nine years of intermittent treatment, and her cystoscopic picture has remained practically constant, the symptoms being alleviated materially when she persists in having an application of 10 per cent. solution of silver nitrate once in six weeks. From the first there has been a minute area of ulceration in the upper left vertex of the bladder close back of the symphysis. When the symptoms have been aggravated, there has been some edema about this ulcer area, and in addition an area of edema 3 or 4 cm. in diameter in the middle vertex. When the symptoms have been alleviated after a systematic course of treatments, the ulcer area on two or three occasions has seemed to be healed, and could then be identified only by a slight congestion. On such occasions the urine after careful centrifugation has been entirely free from pathologic elements. This "healed" condition has never been seen on two successive examinations, and the patient has never been entirely free from symptoms. She has had persistent courses with instillations twice a week with mercuric solution, 1 : 10,000 and with silver nitrate solution, 1 : 500, but the most effective treatment has

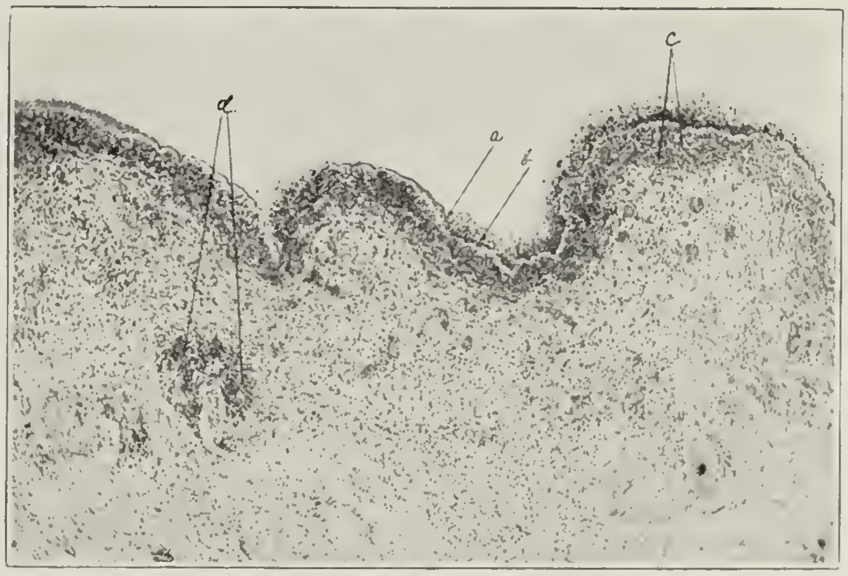

Fig. 12.—From Case 6 (Pathologic No. 20073): *a*, gradual fading of transitional epithelium; *b*, marked thickening of basement membrane; *c*, marked connective tissue thickening and small round cell infiltration immediately beneath the epithelium; *d*, focus of small round cells.

been with applications of 10 per cent. silver nitrate solution about once in four or six weeks. She was 54 years of age when first seen, and then had a repair of the outlet and supravaginal hysteromyomectomy before the true cause of her symptoms was discovered, and she has since preferred the comparative relief obtained by local treatments to the prospects of another operation.

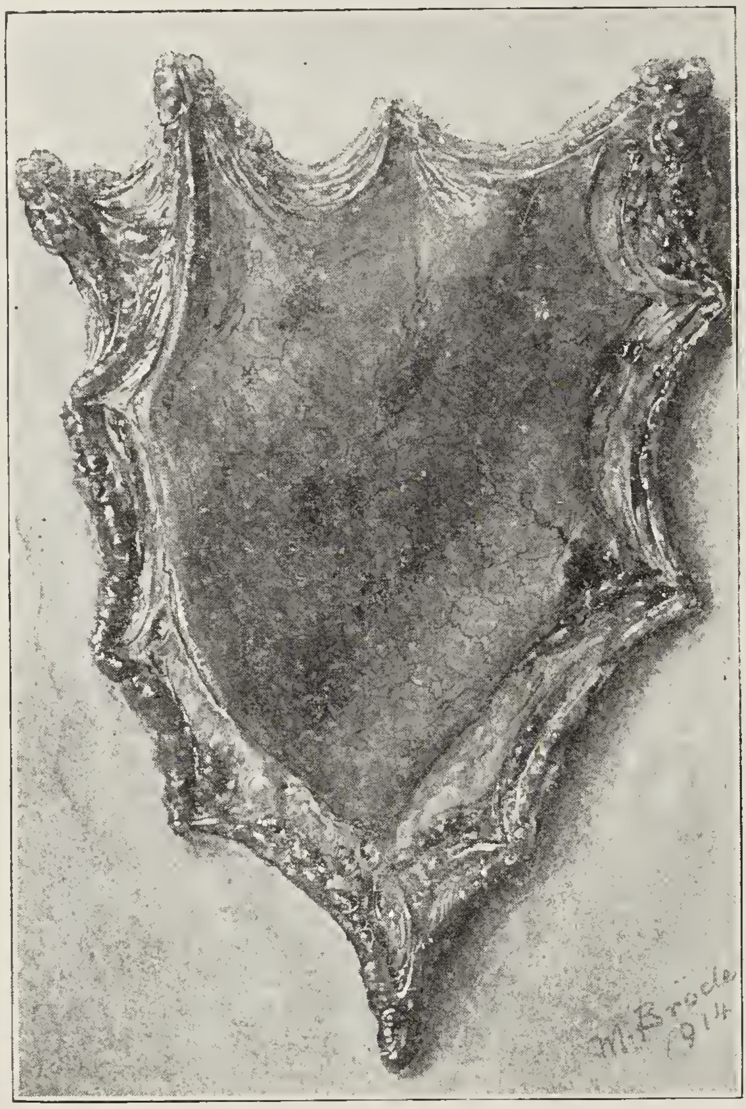

Fig. 13.—Excised specimen in Case 3. The area of edema and congestion measures about 3 by 5 cm., surrounding the small central ulcers. Naturally the trauma of operation makes the specimen more congested than it appears at cystoscopy.

In two other cases (10 and 13) the patients, aged 68 and 57, respectively, have not been operated on because of their age and general condition. In Case 10 the patient was treated in two consecutive summers by local applications of silver nitrate and has not been seen for a year past, but she still has bladder symptoms. In Case 13 the patient has had systematic treatment for more than a year with instillations given at home by her daughter, 1 ounce of 1 : 500 silver nitrate solution being used twice a week. In addition, she has had occasional applications of 10 per cent. silver nitrate solution. She has a small ulcer on each lateral wall rather near the base, and an edematous, angry, red area across the anterior wall of the bladder. The ulcers have been temporarily improved and the symptoms apparently benefited by the use on two occasions of the actual cautery wire.

The other fifteen patients have all had excision of the diseased area. In Case 9 the patient died. I had observed in the after-treatment of three successive patients operated on before Case 9 that there was complete incontinence for three or four days after operation, all the urine escaping through the urethra in spite of the suprapubic drainage tube. This led me in Case 9 to omit the drainage tube. The resected bladder when closed held about 1 ounce. The nurse failed to report that the patient was not having incontinence, and she was in great distress for seven hours until catheterized of 50 c.c. of urine. After the first catheterization the patient had incontinence.

At the operation, the peritoneum was so adherent over the posterior wall of the bladder that it was found necessary to do the transperitoneal operation and remove with the posterior bladder wall an area of peritoneum 2 by 4 cm. in extent. Great care was taken in closing the bladder, a combination interrupted and whipped suture No. 2 chromic twenty-day catgut being used instead of my usual closure with a running lock stitch suture. The first sweep with the interrupted portion of each suture took in all coats of the bladder, and the second sweep or whipped portion of the suture buttressed in the outer coats of the bladder. After closure of the bladder with a series of these sutures, the peritoneum was closed with a running suture, and then the line of bladder sutures was reinforced with a generous layer of fat and fascia. Two gauze and rubber wick drains were placed down to the bladder, and the suprapubic wound was closed about these.

In spite of the overdistention of the bladder on the first day, the patient seemed to do well until on the night of the second day, there being incontinence after the first catheterization and evidence of bladder leakage in a free suprapubic drainage of urine. Thirty-six hours after operation there was bleeding from the suprapubic drainage tract. This seemed to cease after twenty-four hours, the patient losing considerable blood in this time, and the pulse rising from 100 to 130. On the fourth day the bleeding having apparently ceased, we removed the two suprapubic drains and there was a gush of what appeared to be a pint of urine and blood which had been accumulated under pressure in the prevesical space. We considered that this gush of fluid under pressure argued for an intact peritoneal closure. The patient did not improve after removal of the drains, and eight hours later, on the evening of the fourth day, there was considerable distention and eructation, and the patient occasionally brought up brownish fluid. The temperature, 101.6 in the morning when the drains were removed, had dropped to 100 at night, but the pulse seemed weaker. The leukocytes were 30,000.

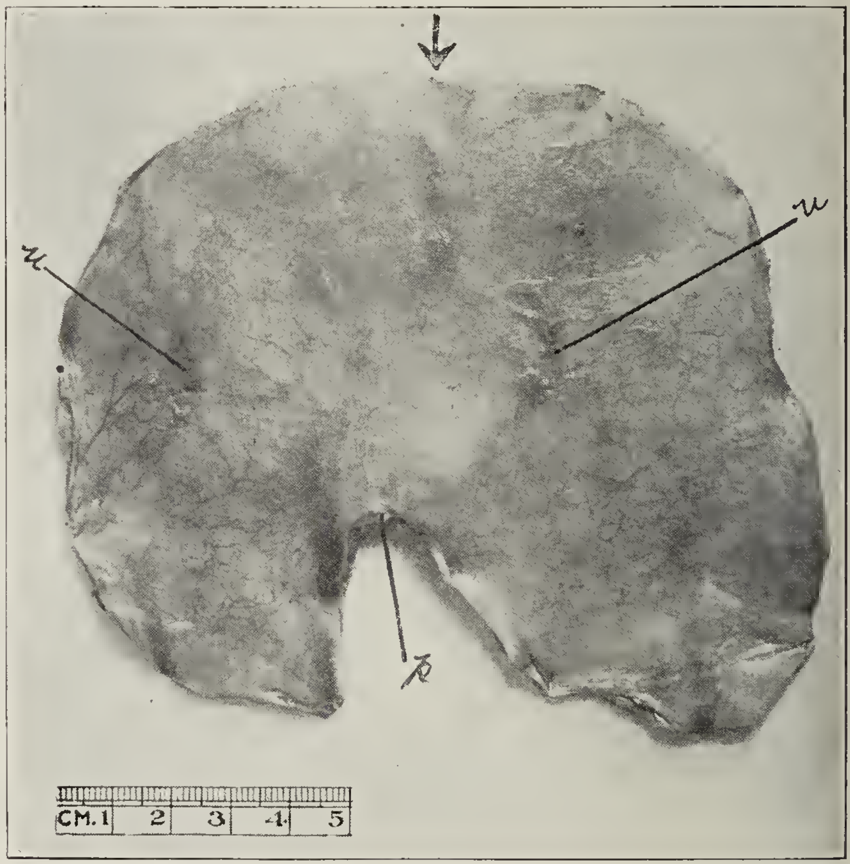

Fig. 14.—Section of bladder wall removed in a recent case. Arrow points to edge of mucosa 1 cm. from the sphincter urethrae. The area of edema seen over most of the specimen extended to within 2 cm. of the sphincter; *u*, *u*, two ulcers in the right and left vertex. An ulcer on the posterior wall at *p* was excised at the operating table and given to the pathologist for maceration and an attempt to grow anaerobic organisms. Bladder wall at *p* and over most of the area of edema about 1 cm. thick as contrasted with the 2 mm. normal thickness at the edges of the specimen.

The patient was rather stout, and we could not determine whether she had a low grade peritonitis or an intestinal ileus. The wound was opened, and through a small forceps opening through the fatty omentum there was found no evidence of peritonitis. On the passing of a stomach tube there was a great gush of air, and almost a quart of brownish fluid with suggestive fecal odor was removed. The stomach was washed again at midnight and on the morning of the fifth day, and after this washing an ounce of castor oil was left in the stomach. Two copious stools at noon showed considerable oil. The patient seemed better until the morning of the sixth day, when she became irrational and unconscious, and she died at 4 p. m. that day.

In the other fourteen excision cases, with the exception of Case 5, the patients have had wonderful recoveries from their previously miserable existence, and they form a group of most appreciative and grateful patients. In Case 5, the edema area disclosed at operation spread low over the base of the bladder, and to have excised beyond the edema line would have necessitated working close to the ureters. This was the first case in which I performed operation, Dr. Kelly having operated in Case 1 seven years previously, after I had made the diagnosis of ulcer and had treated the patient by various methods for more than five years.

Case 5 being my first operative case for this type of ulcer, I did not appreciate the significance of the widespread edema area, and undoubtedly left a portion of this. Our operation experience with these cases and subsequent microscopic studies have taught that the edema is coexistent with the chronic infiltration of the bladder wall. It is probable that the patient will again develop ulcer and symptoms if the excision fails to include the entire edema area (Figs. 13 and 14).

In Case 5, the patient made a splendid recovery, and seven weeks after operation reported: "I have been home three weeks now and am still improving. I get up about three times every night; occasionally it has been only once. When I came home I was voiding only 3 ounces, and now I have increased to 7 ounces." A week later the patient wrote me, in distress, that her old pains had returned and that the bladder capacity had dropped to 4 ounces. She is still suffering, four years after operation, and refuses to come back for another excision, although her physician reports that there is only a "tiny red spot" in the bladder. As incredible as it may seem, this patient was operated on one year after my bladder operation for "a fibroid tumor pressing on the left side of the bladder." Among the four operations she had had before I saw her was one abdominal section for "fibroid tumor pressing on the bladder."

As stated before, the cystoscopic picture in one of these bladder ulcers is not sufficiently characteristic to justify one in operating on a patient on the evidence gained by cystoscopy alone, and I trust that this paper will not lead to the removal by operation of bladder ulcers that should be treated by other methods.

I am becoming rather more radical in advising the removal of other types of ulcer. At times we are able to cure a general cystitis, with the exception of one ulcer area which seems to persist indefinitely in spite of various local applications. If such an ulcer is located in the upper portion of the bladder where it is easily accessible to operation, and if it refuses to heal even after the use of the actual cautery, I consider its excision a more conservative and much more certain method of treatment than the making of a vesicovaginal fistula. Another type of persistent chronic ulcer, fortunately of rare occurrence, is one which persists for years after the removal of a tuberculous kidney. It is not so uncommon to have cystitis symptoms persist for one, two or three years after the removal of a tuberculous kidney, but this is usually due to infiltration about the ureterovesical region, which eventually heals. On rare occasions a solitary ulcer will persist in the vertex of the bladder and perpetuate the patient's preoperative symptoms of cystitis indefinitely. Such an ulcer should be excised.

Given a patient who has had years of bladder misery in spite of many courses of systematic bladder treatment, who has microscopically clear urine, free from infection, but containing microscopic blood and leukocytes, and whose cystoscopic examination reveals one or more minute ulcers, one is justified in making a diagnosis of this type of ulceration.

Usually patients with a minute bladder ulcer have not had systematic treatments because the ulcer has been overlooked in spite of their ulcer history. For this reason it will be safer for those who have not had experience with these cases first to subject the patient to more conservative forms of treatment before making a final diagnosis. I have thus treated the patients on whom I have not operated: Case 2, nine years; Case 10, during two successive summers; Case 13, over one year. In none of them has there been more than an amelioration of the symptoms, and in none has there been an appreciable change in the bladder lesion. Of the patients on whom I operated, I treated with like results Case 1, intermittently for five years, Cases 7 and 8 systematically for more than a year, Case 11 once a week for two months, and Case 9 intermittently for a year.

Except in Case 1, the diagnosis was made promptly, and the long courses of treatment before operation were due in Case 9 to the patient's reluctance to undergo an operation, and in the other cases to a deliberate postponing in an effort to test the effects of various methods of treatment.

The diagnostic features in this form of bladder inflammation are so clear in most cases that one is not justified in allowing the patient to continue suffering under ordinary methods of treatment unless the patient objects to operation or has some other factor, such as advanced age, or heart or lung disease, to contraindicate operation.

No better evidence can be adduced as to the extent of the suffering of these patients than to see them willingly accept another operation as the possible way out, even when they have been through from one to five operations with similar hopes of relief.

My conservative treatments consisted of instillations, local applications and the use of the high frequency current and the actual cautery wire. The instillations consisted of as strong solution of mercuric chlorid (usually 1:10,000) or of silver nitrate (usually 1:500) as the patient could bear, 1 ounce of the solution being left in the bladder twice a week. This treatment can be carried out by a nurse at the patient's home. Local applications were made of some strong cauterizing agent about every four to six weeks. For these we use pure phenol (carbolic acid), the silver stick or, as has usually proved most satisfactory, the 10 per cent. silver solution. The high frequency current has been tried twice on one patient and once on another, and both patients refused to have further treatments by this method because of the after-pain. In contrast to this result it is rather curious that the actual cautery wire, used on two of these patients, has given satisfaction as regards the amelioration of symptoms, but we have not seen an ulcer of this type show increased tendency to heal after the use of the cautery; while for the chronic ulcer following an infected cystitis, this has usually proved a valuable method for getting the deep slough necessary for final healing.

When we study the excised specimens microscopically, and see the widespread chronic infiltration and inflammation of all coats of the bladder wall, we are not surprised that excision is the only method of cure.

## OPERATIVE TECHNIC

The excision is done through a suprapubic incision. To facilitate the finding and handling of the bladder, it is left full of air if cystoscopy has just been done in the knee-breast posture, or it is distended with sterile fluid just before operation.

If possible, the operation is kept extraperitoneal. This can be accomplished in those cases in which the disease is confined to the vertex and anterior wall. If the disease involves a portion of the bladder covered by peritoneum, it is possible in some cases to separate the involved peritoneum; but more often the attempt at separation results in an opening into the peritoneum or into the bladder.

Experience has taught that the best method of separating the peritoneum is first to brush back the vertex portion as far as it will go with ease; then, instead of persisting in trying to carry this separation farther down the posterior wall from the vertex, one should next free the lateral walls and attempt to get down near the ureter regions on both sides. From near the base in the lateral or ureter regions one can work toward the midline about the base of the bladder; and after separating the peritoneum in the uterovesical region, one can finally come forward on the posterior wall until the entire peritoneum, except the urachus portion, is freed. The freeing of the urachus portion can be done with less danger of entering the peritoneum if done as the final stage in the separation than if undertaken as the first step.

If it is found at any point that the peritoneum cannot be separated from the bladder wall, it is best to continue the separation at other points until all the peritoneum that will separate easily is free. Then one enters the peritoneum with a free opening and packs off the peritoneal contents with an abundance of hot salt solution gauze pads before entering the bladder. One always tries to determine by cystoscopy where the first opening into the bladder should be made in order to avoid the inflammatory area.

If the redness and the edema of the bladder mucosa have extended over the anterior wall of the bladder to within 1 or 2 cm. of the sphincter urethrae, it is well to make the first incision as near the urethra as can safely be done without taking the sphincter.

If the preliminary cystoscopic studies have shown the inflammatory area to be located to the right of the midline, one makes the first incision in the midline or slightly to the left. In spite of the most careful cystoscopic studies, one usually finds at operation that the inflammatory area, as indicated by the edema, is more widespread than anticipated, and one may open through the inflammatory area instead of opening through normal mucosa near one edge of the diseased area as intended.

Every portion of the bladder wall should be carefully inspected before the end of the operation in order to make certain that all the edematous wall is removed.

On opening the blader, one may first fail to see the one or two small ulcers before seen by cystoscopy, because the edema arising during the preliminary freeing of the bladder may elevate the mucosa about the ulcers in a manner almost to hide them. Usually the preliminary trauma has caused the ulcer or ulcers to bleed so they are easily found on opening the bladder. A suction apparatus should be ready to keep the bladder clean during operation, and sponging should be avoided. The mucosa should be handled as little as possible in order to preserve its microscopic features. In order to preserve its natural outline for microscopic study, the specimen should be pinned to a thin board as soon as removed, being stretched to its former size as nearly as possible, and then dropped at once into the hardening solution.

During the bladder operation, all blood vessels of the wall should be carefully clamped and either tied at once or at the close of the excision. The bladder vessels are liable to retract into the wall and cease bleeding temporarily, only to give serious trouble later. The presence of urine is liable to interfere with coagulation and determine a serious bleeding from a small vessel that would promptly close in another location.

In Case 3, oozing of blood from the suprapubic wound began on the night of the third day, and continued intermittently for four days.

In Case 9, I attribute one of the chief causes of death to hemorrhage which began on the second day and continued for twenty-four hours. It was not the hemorrhage per se that played an important rôle in the patient's death; but the hemorrhage prevented me from starting the drains at a time when we feared that the patient had properitoneal accumulation of bladder fluid. This fluid under pressure probably got through the peritoneal incision, and caused a low grade peritonitis.

After excision of the diseased area, the bladder is closed by bringing the edges together with a running lock stitch suture of twenty-day formaldehyd catgut No. 2, leaving a slight opening in the vertex through which the mushroom retention catheter is carried and sutured to the bladder wall with a No. 2, ten-day catgut. In recent cases, I have used the combination interrupted and whipped suture as explained in the description of the closure in the report of Case 9, in which the patient died. This probably controls bleeding better than the lock stitch suture. The abdominal wall is closed except for a small opening to carry the rubber catheter and two cigaret drains, which are introduced down to the bladder wall.

These cigaret drains are removed at the end of forty-eight hours, and daily irrigations of the bladder with 1:10,000 solution of silver nitrate are carried on through the retention catheter, the strength of the solution being increased as the patient recovers. An ounce or two of the solution is introduced and immediately withdrawn through the catheter until several washings are made. This is best accomplished with the patient on her side.

The retention catheter is withdrawn on the tenth to the fourteenth day, after which the irrigations are given through the urethra daily until the bladder is free from infection.

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# A REPORT OF BACTERIAL VACCINE THERAPY IN A SERIES OF PROSTATIC CASES *

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Following the appearance of the paper by Cabot and Crabtree,[1] setting forth the favorable results obtained from the administration of colon vaccine in a series of eight prostatic cases, the procedure was adopted from time to time in the Mayo Clinic; but not until May, 1917, was it systematically carried out. At about this time also there appeared an article by von Sholly, Blum and Smith[2] on the therapeutic value of bacterial vaccine in whooping cough, the authors stating that during the administration of the vaccine they were very enthusiastic as to the beneficial results. After their tables had been compiled, however, and carefully compared with the controls, the results showed that the untreated patients had done, on the whole, better than those receiving the vaccine. Similarly, Whittington[3] reported on 230 typhoid cases with careful controls and, interestingly enough, he also felt confident of favorable results until his careful analysis disclosed again that the controlled patients not receiving the vaccine had done better than those so treated.

In undertaking our study, it seemed advisable to give all the patients the vaccine for five months and then to compare the results with those obtained in the previous five months without the vaccine. Thus the element of coincident time would be sacrificed for that of greater numbers, and the result, we believed, would be more accurate. This also seemed just, since the treatment of these cases is now routine and has not varied appreciably during the present year.

TABLE 1.—PROSTATIC RECORD*

| Date 1917 | Institution | Residual Ounces | Catheterized | Permanent Urethral Catheter | Suprapubic Catheter | Wound | | Phthalein | | Blood Urea | Urinalysis | | | | Leukocytes | Hemoglobin | S. B. P. | D. B. P. | Weight | Vaccine | Complication |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Wet | Dry | M. | V. | | Amount 24 Hours C.c. | Specific Gravity | Microscopic Examination | | | | | | | | |
| | | | | | | | | | | | | | Blood | Pus | | | | | | | |
| 6- 1 | Clinic | 4 | √ | .... | .... | .. | .. | 45 | .. | .. | 1,000 | 1.014 | 1 | 3 | .... | .. | 160 | 110 | ... | ... | |
| 2 | .......... | .. | .. | .... | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | 160 | ... | |
| 3 | .......... | 4 | √ | .... | .... | .. | .. | .. | .. | 40 | .... | .... | .. | .. | 1,500 | 54 | ... | ... | ... | ... | |
| 4 | Sanatorium | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | 50 | |
| 5 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 6 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 7 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 8 | .......... | .. | .. | In | .... | .. | .. | 25 | .. | .. | 1,500 | 1.007 | 1 | 3 | .... | .. | ... | ... | ... | 100 | |
| 9 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | 140 | 90 | ... | ... | |
| 10 | .......... | .. | .. | Out | .... | .. | .. | .. | .. | 35 | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 11 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | 1,400 | 60 | ... | ... | ... | 200 | |
| 12 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | 155 | ... | |
| 13 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | 1,900 | 1.009 | 2 | 3 | .... | .. | ... | ... | ... | ... | |
| 14 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 15 | .......... | .. | .. | In | .... | .. | .. | 35 | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | 250 | |
| 16 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 17 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | 2,200 | 1.011 | 2 | 2 | .... | .. | 130 | 85 | ... | ... | |
| 18 | .......... | .. | .. | In | .... | .. | .. | .. | .. | 25 | .... | .... | .. | .. | .... | .. | ... | ... | ... | 300 | |
| 19 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 20 | .......... | .. | .. | In | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 21 | .......... | .. | .. | In | .... | .. | .. | 40 | .. | .. | 2,000 | 1.014 | 2 | 2 | 1,200 | 65 | 135 | 80 | 150 | ... | |
| 22 | Hospital | .. | .. | In | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | 350 | Operation |
| 23 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 24 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 25 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | 400 | |
| 26 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 27 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 28 | .......... | .. | . | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 29 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | 450 | |
| 30 | Sanatorium | .. | .. | .... | In | .. | .. | .. | .. | .. | 1,400 | 1.008 | 4 | 2 | 1,400 | .. | 110 | 60 | ... | ... | Epididymitis |
| 7- 1 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | 1,600 | .. | ... | ... | ... | ... | Epididymitis |
| 2 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | 1,800 | .. | ... | ... | ... | 500 | Epididymitis |
| 3 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | 1,400 | .. | ... | ... | ... | ... | Epididymitis |
| 4 | .......... | .. | .. | .... | In | .. | .. | .. | .. | .. | .... | .... | .. | .. | 1,700 | .. | ... | ... | ... | ... | Epididymitis |
| 5 | .......... | .. | .. | In | Out | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 6 | .......... | .. | .. | In | .... | √ | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | 500 | |
| 7 | .......... | .. | .. | In | .... | √ | .. | .. | .. | .. | 2,000 | 1.009 | 3 | 2 | 1,000 | 70 | ... | ... | ... | ... | |
| 8 | .......... | .. | .. | In | .... | √ | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | 125 | 70 | ... | ... | |
| 9 | .......... | .. | .. | In | .... | .. | √ | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | 500 | |
| 10 | .......... | .. | .. | In | .... | .. | √ | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 11 | .......... | .. | .. | In | .... | .. | √ | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 12 | .......... | .. | .. | In | .... | √ | .. | .. | .. | .. | .... | .... | .. | .. | .. | .. | ... | ... | 155 | ... | |
| 13 | .......... | .. | .. | In | .... | .. | √ | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | 500 | |
| 14 | .......... | .. | .. | In | .... | .. | √ | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 15 | .......... | .. | .. | In | .... | .. | √ | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 16 | .......... | .. | .. | In | .... | .. | √ | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |
| 17 | .......... | .. | .. | Out | .... | .. | √ | .. | .. | .. | .... | .... | .. | .. | .... | .. | 130 | 85 | ... | 500 | |
| 18 | .......... | .. | .. | .... | .... | .. | √ | .. | .. | 20 | .... | .... | .. | .. | .... | 75 | ... | ... | ... | ... | |
| 19 | .......... | .. | .. | .... | .... | .. | √ | 25 | .. | .. | 2,000 | 1.010 | 1 | 1 | .... | .. | ... | ... | ... | ... | |
| 20 | Home | .. | .. | .... | .... | .. | .. | .. | .. | .. | .... | .... | .. | .. | .... | .. | ... | ... | ... | ... | |

* No. A144495; age, 66.

Further to make the two series as synchronous as possible, all cases in which the so-called two-stage operation was done (that is, suprapubic drainage followed by prostatectomy) have been considered separately. Judd[4] believes that, with the exception of a few selected cases requiring very lengthy drainage to reestablish kidney function, better results are obtainable by means of the permanent urethral catheter than by the suprapubic stab. The former renders a good surgical procedure possible since there is no scar tissue to interfere with ample exposure, thus permitting injection of the capsule, excision of the gland, suturing of the capsule, and the establishment of complete hemostasis with ease and precision. The operative field, as in other surgical procedures, is clear and accessible. On the other hand, in the presence of an old suprapubic sinus with its accompanying scar tissue, such procedure is impossible, and the operation that is performed tends to become the finger enucleation of the past with its lamentable lack of precision and total disregard of hemostasis. A permanent urethral catheter preoperatively also has the added advantage of rendering the patient accustomed to its presence, and thereby makes its postoperative use less hazardous.

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* From the Mayo Clinic.

[1] Cabot, Hugh, and Crabtree, E. G.: The Etiology and Pathology of Non-Tuberculous Renal Infections, Surg., Gynec. and Obst., 1916, **23**, 495-537. Crabtree, E. G., and Cabot, Hugh: Colon Bacillus Pyelonephritis: Its Nature and Possible Prevention, The Journal A. M. A., Feb. 24, 1917, pp. 589-591.

[2] Von Sholly, Anna I.; Blum, Julius, and Smith, Luella: The Therapeutic Value of Pertussis Vaccine in Whooping Cough, The Journal A. M. A., May 19, 1917, pp. 1451-1456.

[3] Whittington, T. H.: A Report on the Use of Stock Vaccine in Infection by the Bacillus Typhosus, Lancet, London, 1916, **1**, 759-766.

[4] Judd, E. S.: Surgical Treatment of the Prostate, Pennsylvania Med. Jour., 1917, **21**, 72-75.

The routine preoperative and postoperative treatment in relation to the vaccine therapy may be readily understood by Table 1, representing a chart such as is used in our prostatic cases. Thus in parallel columns records are kept of the phenolsulphonephthalein, blood-urea, specific gravity, volume, and microscopic and residual urine, together with the blood pressure, hemoglobin and the amounts of vaccine given from day to day. The vaccine was administered twice a week in doses beginning with 50 million, increasing by multiples of 50 to a maximum of 500 million, and continuing throughout convalescence.

Considerable thought was given to the question of the relative merits of stock and autogenous vaccines. The autogenous vaccines seem to have the greater amount of literature to their credit. They are, of course, always fresher and, on the basis of specificity, would seem to be superior. The stock vaccine, on the other hand, is within reach of the greater number of physicians, and is safer, since it is put out by the large laboratories under federal license. Therefore, following the technic of Cabot and Crabtree, we used mixed colon vaccine prepared from various strains of colon bacillus isolated from different urines and prepared fresh once a week.

The administration was subcutaneous and, with two exceptions, no untoward symptoms resulted. The majority of the patients complained of malaise with slight nausea and a little rise of temperature during the first few inoculations. The reactions resembled those usually associated with the administration of typhoid vaccine. Some patients stated that they could feel no effect; the majority regarded it as a necessary evil, and complained most of the localized inflammatory reaction, which lasted one or two days but always wore off. In the two patients mentioned, the reaction was marked enough to require abandonment of the treatment, but never was in any way alarming.

To determine our results, a comparison of the patients treated with vaccine with those not receiving vaccine must be made relative to the incidence of complication manifestly due to infection, namely, pyelonephritis, epididymitis, phlebitis, cystitis and wound infection. The last two conditions it seems best to disregard, as both are almost universally present to a mild degree in such cases, and their relative severity is difficult to use as a matter of careful comparison.

Pyelonephritis is naturally our best criterion. The characteristic symptoms of malaise, accompanied for several days by gradually increasing fever with chills and sweats and a subsequent decline, make it typical; and to one who has been long associated with patients who are having residual urine repeatedly removed, the so-called "reaction" can never be forgotten. Cabot and Crabtree have reported a series of cases in which the colon bacillus was obtained during such reactions, especially during the chills, in pure culture from the blood stream. We attempted to repeat their experiments, and although blood was obtained from six patients, all within an hour of the onset of the chill and from two at its height, in no instance could a growth be obtained, our cultures always being sterile. Owing to the absence of Cabot and Crabtree in Europe, we were unable to ascertain wherein our technic differed from theirs, and so gave up further attempts to isolate the organism. Therefore, to prevent such reactions or to reduce their severity becomes the chief function of the vaccine, and its final sentence in the court of last appeals must be based largely on its ability to produce evidence that the incidence of pyelonephritis is lessened by its administration. It has long been known and fully realized that a patient having undergone such a reaction, although for the time greatly weakened, is a better surgical risk than he who has not. Therefore, a patient having had a reaction and being subsequently treated with colon vaccine may well be likened to one having recovered from typhoid and subsequently receiving typhoid prophylactic treatment, unless the immunity conferred by an attack of pyelonephritis is only transient, as Cabot and Crabtree suggest.

Phlebitis and epididymitis have also been added, together with the length of preoperative treatment and of convalescence, but the main judgment must rest on the pyelonephritis incidence. It seems only fair to state that at the writing of this paper the results had not been compiled, that at first we were very enthusiastic, that subsequently we became skeptical, and that after the completion of Table 2, we discontinued the administration of the vaccine.

TABLE 2.—PROSTATECTOMIES FROM JAN. 1, 1917, TO NOV. 1, 1917

| | For All Causes | For Adenofibromatous Hypertrophy | | |
|---|---|---|---|---|
| | | Receiving Vaccine | Not Receiving Vaccine | Two-Stage Operations |
| Number | 105 | 49 | 24 | 12 |
| Average age | 63 | 65 | 67 | 62 |
| Days prior to operation | 31 | 38 | 23 | 279 |
| Days of convalescence | 34 | 32 | 37 | 28 |
| Total days treated | 65 | 70 | 60 | 307 |
| Pyelonephritis | 31% | 32% | 37% | ... |
| Epididymitis | 26% | 35% | 25% | ... |
| Phlebitis | 4% | 4% | 4% | ... |
| Number of deaths in the hospital | 2 | 1 | 0 | 1 |

Thus it appears that in the series in which vaccines were given, there was 5 per cent. less of cases of pyelonephritis than the controls, and 1 per cent. more than all cases. However, it must not be concluded that the vaccine has produced this decrease; for if the action of the vaccine were specific, a greater reduction than 5 per cent. should have occurred, and the incidence, as compared with all patients operated on, should have been less — not greater. This conclusion is further supported by the 10 per cent. increase in the cases of epididymitis among patients that were treated compared with the controls.

A survey of the length of time the treatment was given is of interest in demonstrating that, although the convalescence of the patients not receiving vaccine is longer by five days, their entire time under treatment is shorter by ten days, showing that the greater the length of preoperative preparation the shorter the convalescence. This fact is further emphasized in the two-stage series, when a preparation of several hundred days is given to patients who are the poorest of surgical risks, and leads to a convalescence much shorter than the average. In the two-stage series no attempt was made to chart the incidence of infection, because much of the patients' preoperative time was spent at their homes, where accurate observation was, of course, impossible.

### CONCLUSIONS

1. Immunity to pyelonephritis by means of mixed colon bacillus vaccine cannot be produced.
2. The administration of mixed colon vaccine does not markedly reduce the incidence of genito-urinary infection, if it affects it at all.
3. Preoperative attacks of pyelonephritis are the natural means of producing an immunity to renal infection, and their occurrence makes operative risks less.
4. The length of convalescence is usually in inverse proportion to the length of preoperative treatment.

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## THE OCCURRENCE OF A POSITIVE INTRACUTANEOUS REACTION IN MENINGOCOCCUS CARRIERS *

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The importance of any facts bearing on meningococcus carriers makes advisable a brief report on our present limited series of observations with an intradermal test in meningococcus carriers, in order that they may be extended by others who are dealing with this problem.

It would probably be impossible to make any conclusive statement at present as to the degree of systemic reaction of healthy individuals who harbor the meningococcus in their throats to this micro-organism. On the degree of this reaction would depend, of course, their resistance to further invasion of the coccus; and concerning this resistance we have conflicting testimony. Temporary carriers may, subsequent to the bacteriologic detection of the meningococcus in their throat, fall ill of meningitis; on the other hand, the majority of detected carriers certainly are themselves unaffected in any serious manner by the parasite they harbor. There is, indeed, certain evidence from the occurrence of meningismus or aborted attacks of meningitis in carriers, as noted by Flack,[1] that an acquired immunity of some efficiency has been engendered in at least some of the carriers which protects them partially from specific meningitis.

It has been generally admitted and specifically proved by one of us (A. J. M.) that the usual tests for antibodies (agglutinins, fixation antibodies) yield no results of significance in positive meningococcus carriers. It seemed of interest, however, particularly in view of the results of the typhoidin test in cases of recovery from typhoid fever, to test the localized intracutaneous susceptibility to preparations of the meningococcus in positive carriers, as compared with those who, on similar bacteriologic examinations from the pharynx, presented no meningococci in detectable numbers. For several months the naval recruits at this station have been systematically examined for the presence of the meningococcus, and positive carriers have been isolated until cultures from them became negative, following appropriate treatment. In connection with this particular investigation, it should be specifically stated that it cannot be assumed that this separation between positive and negative carriers on the basis of a single bacteriologic examination is perfect. It can, indeed, be assumed from work on this subject that among those classed as positive meningococcus carriers were included some individuals who harbored only gram-negative and nonpathogenic chromogens instead of meningococci, and on the other hand that those who were dismissed as "negative" must, in some cases, have harbored meningococci.

The preparation of meningococcus ("meningococcin") used in these experiments was made as follows: Pure cultures of five of the six strains chosen as representative of the meningococcus group by Amoss (Rockefeller strains numbered 1, 10, 30, 44 and 60, including two normal meningococci; two irregulars, and one normal parameningococcus) were grown on 1 per cent. starch agar without peptone for forty-eight hours in ordinary slant tubes. These separate cultures were suspended in sterile saline solution, to each tube 3 c.c. The suspended cultures were mixed, and three volumes of absolute alcohol added. The organisms were flocculated at once and were rapidly centrifugalized, the supernatant fluid removed, and the bacterial deposition thoroughly shaken in the original volume of fresh absolute alcohol. Recentrifugalization, removal of alcohol, and resuspension in ether (distilled over sodium) were performed. After recentrifugalization and decantation, the sediment was dried two days in partial vacuum over sulphuric acid. The hard dried sediment was ground to impalpable powder in an agate mortar and dried again for twenty-four hours as before.

This preparation was then suspended in physiologic sodium chlorid solution containing 0.5 per cent. phenol (carbolic acid). The dose of this suspension, which tends gradually to sediment, employed in the intradermal tests is a volume of 0.05 c.c. containing $\frac{1}{150}$ mg. (0.000006 + gm.) of the dried meningococcus powder. Great care is taken to inject this dose with a fine (27 gage) hypodermic needle so as to leave a persistent bleb under the superficial layers of the skin.

Readings of the reaction were made at the six hour, twenty-eight hour and forty-eight hour periods. A positive reaction consists in a well demarcated areola of from 3 to 7 mm. which is distinctly indurated. The most distinctive results are apparently present at the twenty-four-twenty-eight hour period, and the reaction has usually disappeared in forty-eight hours. We have found this reaction positive between two and three times as frequently in those classified by bacteriologic examinations as positive when compared with those classified negative, thus:

In thirty-one positive carriers, the intradermal test was positive in twenty, or 64.5 per cent.

In thirty-eight negative carriers, the intradermal test was positive in ten, or 26.4 per cent.

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* From the Department of Pathology and Bacteriology of the University of California and the U. S. Naval Training Station, Yuba Buena Island, San Francisco.

[1] Flack, M.: Report on Cerebrospinal Fever in the London District, December, 1915-July, 1916, Special Report of the Indicated Research Committee on Bacteriological Studies in the Pathology, Prevention and Control of Cerebrospinal Fever Among the Forces During 1915 and 1916, London, T. Fisher Unwin, 1917.

The average size of the indurated areola in the negative cases, moreover, was 3.9 mm., whereas in the positive it was 4.75 mm. There is also apparently some evidence that the more persistent carriers gave the more intense reaction.

We present these findings with all reserve as to their significance. It would seem certain that with more extended bacteriologic examinations the relation between a positive intradermal test to the meningococcus and the presence of the meningococcus in the throat would become more evident. The duration of the localized infection would doubtless affect the result. The significance of this relation, if it proves usual, would be to indicate systemic reaction on the part of the carriers, and probably postulate some degree of acquired resistance. Whether this reaction would serve a diagnostic purpose in the detection of meningococcus carriers must only be suggested for future investigations.

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# THE COMPARATIVE EFFICIENCY OF LOCAL ANESTHETICS *

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## Part I. The Investigation of the Clinical Efficiency of Local Anesthetics by Experimental Methods

*Criteria of Usefulness.*—The substances that have been introduced as local anesthetics are so numerous that it is difficult properly to compare their value. This has been attempted in a considerable number of experimental investigations; but the results have rather confused than cleared the subject. The confusion is due largely to faulty interpretation and unwarranted extension of the results into fields to which they do not apply, or to the failure properly to analyze and reproduce the essential factors of the clinical use of these agents.

The clinical desirability of a local anesthetic is determined on the one hand by its anesthetic efficiency, and on the other hand by the degree of local irritation and by the systemic toxicity.

Systemic toxicity has usually been estimated by hypodermic injection into guinea-pigs. The value of this method is extremely doubtful. The choice both of the animal and of the channel of administration is unfortunate from a clinical standpoint. Rodents depart much more widely than do dogs or cats from human subjects in their response to various poisons. They are, therefore, of questionable value even for the determination of *absolute* toxicity. *Actual* toxicity further involves the rate of absorption. Rapid destruction renders this especially important for the local anesthetics. Most cases of human poisoning arise from application to mucous membranes. The absorption from these, of course, has no relation to the absorption from hypodermic injections in guinea-pigs.

Local irritation is best estimated by clinical application. In fact, clinical experience soon limited the use of the more irritant of the anesthetics, such as stovain, acoin, and the higher concentrations of quinin-urea hydrochlorid.

It seemed advisable to divide the problem, so that the present investigation does not touch further on the questions of irritation and toxicity, but is confined to the subject of anesthetic efficiency.

The methods most widely used for the estimation of anesthetic efficiency consist in observing: (1) the abolition of motor irritability of the frog's sciatic nerve, immersed in the solutions; (2) the failure of the frog, intact or, better, decapitated, to retract the irritated foot, after its immersion in the solution; (3) abolition of the winking reflex after application to the cornea, and (4) abolition of sensation after intracutaneous injection in the human subject.

Many series of determinations have been made with one or several of these methods, the efficiency being judged sometimes by the minimal efficient concentration, and sometimes by the duration of the effect, but often without a clear understanding of the relation of these various experimental methods to the various clinical methods.

### METHODS OF ESTIMATING ANESTHETIC EFFICIENCY

Local anesthetics are used clinically in several very distinct ways, especially on mucous surfaces (surface anesthesia); by infiltration and hypodermic injection (injection anesthesia); by intraneural injection, and by subdural (spinal) injection.

Each of these clinical methods involves not only the factor of the *absolute* efficiency but also the balance between the penetration to the nerve fibers, and of absorptive removal from the anesthetic region.

SCOPE OF THE VARIOUS EXPERIMENTAL METHODS

| Experimental Method | Adaptation to Clinical Problems |
|---|---|
| Intracutaneous ...... | Absolute anesthetic efficiency<br>Infiltration and injection anesthesia<br>Intraneural injection |
| Intracutaneous and sensory nerve trunk | Suggestive for subdural injection |
| Cornea and frog-skin. | Anesthesia of mucous membranes (the frog-skin test being less satisfactory because of the absence of circulation, and the different structure of the mammalian mucosae). |

With these considerations in mind, I have employed and compared all these experimental methods, and a further method of direct application to the sensory fibers of the sciatic trunk (testing their excitability by the persistence of the reflexes). The results appear to justify definite conclusions as to the scope of these methods, and as to the availability of the tested anesthetics for clinical purposes.

1. The application of the anesthetics to the motor fibers gives concordant results that are of scientific interest; but these results cannot be transferred to sensory fibers and therefore have little practical value.

2. The sensory methods fall into two classes: (*a*) the application to mucous surfaces, illustrated by the cornea or frog-skin and corresponding to the clinical use in the eye, nose, throat, urethra and bladder, and (*b*) the direct application of the anesthetic to the nerves, either by injection, or by immersion of the exposed nerves. The methods of the second class (*b*) are illustrated, respectively, by the intracutaneous (wheal) method, and by the application to the sensory nerve of the frog.

The intracutaneous method gives the closest approximation to the absolute anesthetic efficiency: it does away entirely with the factor of penetration, since the solution comes into direct contact with the fine nerve-fibers. Absorptive removal of the drugs can be practically obviated, either by making the observa-

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* From the Pharmacological Laboratory of the Western Reserve University School of Medicine.

* This investigation was partly supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

tions very shortly after injection, or by the addition of epinephrin.

In addition to this scientific value, the wheal method is important because its results can be transferred directly and quantitatively to the clinical method of infiltration and intraneural anesthesia.

Immersion of the nerve trunk into the anesthetic solution, and testing the response of the sensory fibers, seem to approach closely the clinical methods of subdural injection. However, the clinical conditions are complicated by the undetermined factor of the rate of penetration in human spinal nerves; by the absorptive removal, and by the reaction of the cerebrospinal fluid. It is conceivable, therefore, that the order of clinical efficiency for intraneural injection may differ more or less from the experimental efficiency, by either the intracutaneous or the nerve-trunk method. These, therefore, can be considered only as suggestive.

In the light of the foregoing, the scope of the various experimental methods may be defined as in the tabulation.

## Part II. Synopsis of the Results of the Investigations

The methods of experimentation and analysis, as sketched in Part I, have been applied to those local anesthetics that appear to have maintained themselves in clinical practice, and to a few other substances which have not been used extensively in the clinic, but which appear worth investigating from the same standpoint.

I shall present the results mainly in the form of diagrams, dispensing with the details. These can be found in the full papers published in the *Journal of Pharmacology and Experimental Therapeutics.*

### EFFICIENCY RATIO OF THE ANESTHETICS

This is shown in Figures 1 and 2. Figure 1 represents the methods that reproduce injection anesthesias.

Figure 1*A* shows the results of the intracutaneous method, indicating the absolute efficiency; it corresponds also to the practical efficiency for infiltration, injection and intraneural anesthesia.

Figure 1*B* shows the results of the direct immersion of the nerve trunk, for the sensory fibers. It probably approaches the conditions of subdural injections (potassium chlorid may behave differently on subdural injection).

Figure 1*C* gives the corresponding results for the motor fibers. They agree fairly well with the sensory fibers.

Figure 2 represents the methods of surface anesthesia.

Figure 2*A* shows the results for the cornea, which is probably fairly representative of mucous membranes.

Figure 2*B* gives the results with the frog-skin, which are in the same class, but are less related to the clinical conditions.

*Rapidity of the Onset of Action.*—This has no practical importance for infiltration anesthesia, since the action is almost instantaneous with this method. The rapidity is somewhat more significant for surface anesthesia, but even here the differences do not appear to have much practical importance. For the cornea, with the minimal effective concentrations, the anesthetics (hydrochlorids) could be arranged in three groups:

Most rapid: Tropacocain, alypin, quinin-urea.
Intermediate: Beta-eucain.
Slower: Cocain, novocain, holocain.

*Duration of Action.*—This varies, mainly according to the rate of absorptive removal. It is of some practical importance for surface and subdural anesthesia, but it matters very little for infiltration anesthesia, for in this, the duration can be prolonged at will by the addition of epinephrin (except with tropacocain).

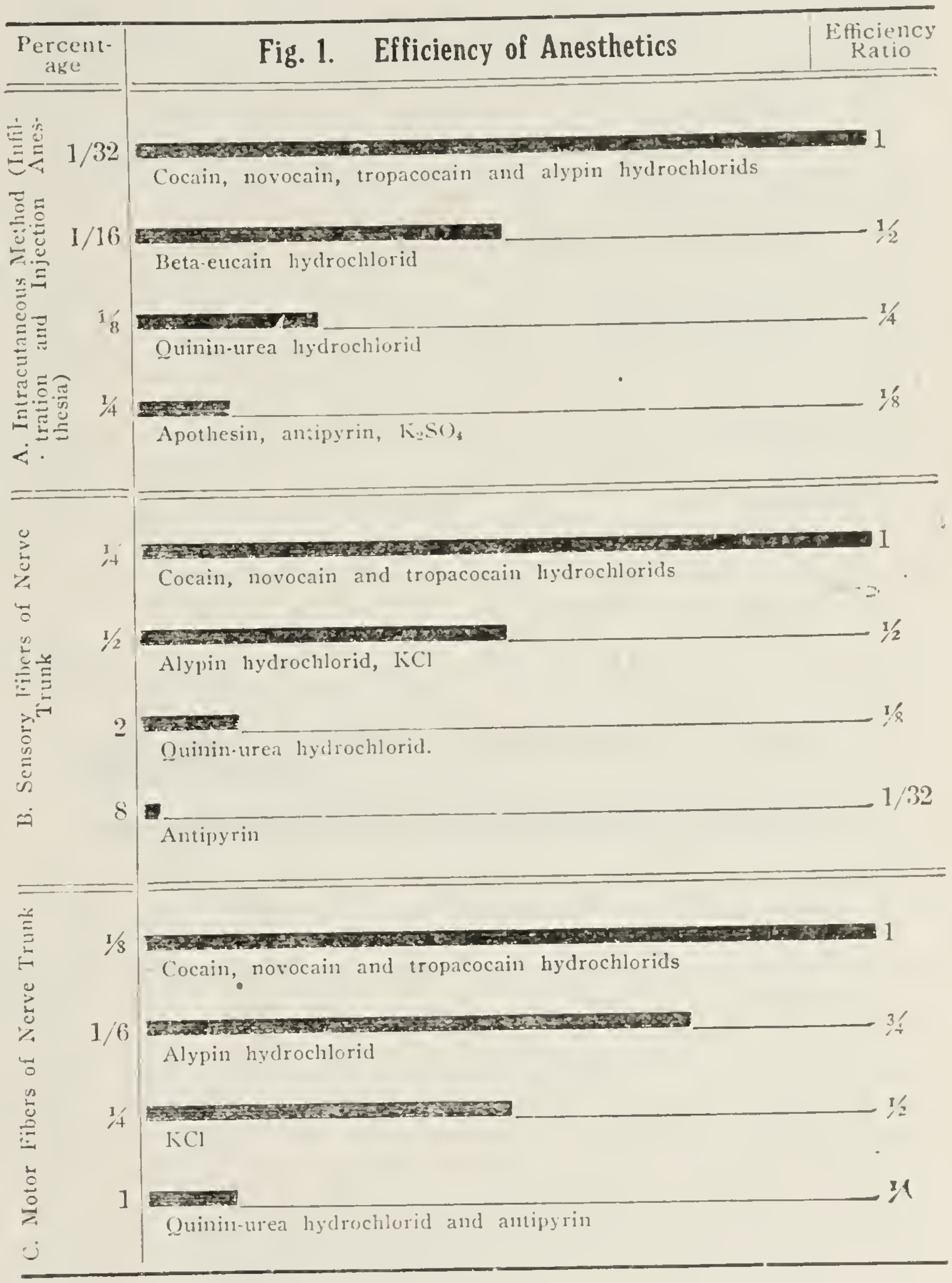

Fig. 1.—Efficiency of anesthetics in injection anesthesias.

There are no experimental data on the duration of action after subdural injection. The corneal method, however, furnishes direct information for surface anesthesia. The time (in minutes) required for complete recovery after the application of the minimal concentrations producing complete anesthesia was (for hydrochlorids):

From ten to fifteen minutes: cocain, tropacocain.
From twenty to thirty minutes: alypin, beta-eucain, holocain.
Fifty minutes: novocain.
Sixty-five minutes: quinin-urea.

### THE EFFECT OF ALKALIZATION

O. Gros found that the addition of alkali increases very noticeably the efficiency of cocain and of the synthetic anesthetics, doubtless because the free anesthetic bases penetrate more readily than the salts. His results were based mainly on the motor fibers of nerve trunks.

My results confirm this potentiation for the motor-nerve trunk, and extend it to the sensory fibers of nerve trunks, to the frog-skin and to the cornea. On the other hand, no potentiation occurred on intracutaneous injection, evidently because this does not require penetration.

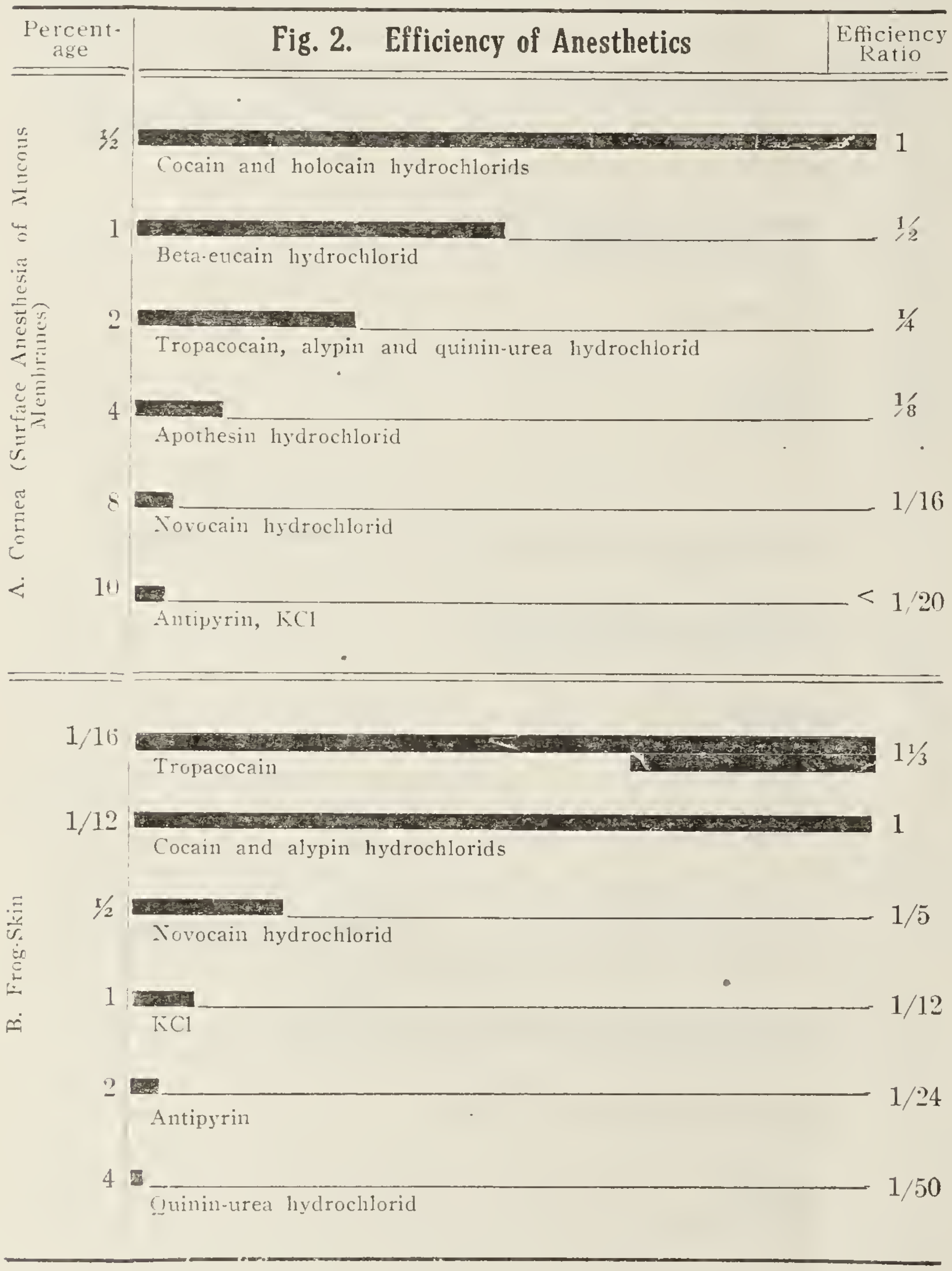

Fig. 2.—Efficiency of anesthetics in surface anesthesia.

Accordingly, the addition of sodium bicarbonate, as suggested by Gros, serves no useful purpose for infiltration anesthesia. It may be of some use for intraneural and possibly for subdural injections, and it would be definitely useful for surface anesthesia. For these uses, the anesthetic should be made up in double concentration, and diluted, just before use, with an equal volume of 0.5 per cent. sodium bicarbonate. This increases the efficiency (for the cornea) as follows: Cocain, from one to two times; beta-eucain, two times; novocain, from two to four times; tropacocain or alypin, four times. For instance, a 0.5 per cent. solution of alypin in 0.25 per cent. sodium bicarbonate is just as effective as a 2 per cent. solution of alypin (the hydrochlorid) in plain saline. This effects a considerable saving in anesthetic. It is not certain whether or not it modifies the toxicity.

Alkali should not be added to holocain or to quinin-urea.

### EPINEPHRIN

This was introduced mainly by H. Braun, to prolong the local anesthetic action for infiltration and injection anesthesia. It is notably effective for this purpose. With intracutaneous injection, the anesthesia is prolonged for hours (tropacocain is an exception, since this destroys the vasoconstrictor action of epinephrin). The actual efficiency is not increased, so that there is no true synergism. The epinephrin acts solely by preventing the absorptive removal of the drugs. In practice, this means that the anesthesia can be maintained for the duration of an operation with much less drug, thus diminishing the chances of systemic toxicity, and obviating waste of anesthetic. The addition of epinephrin (about 1 : 50,000) is therefore advised for all injection anesthesias (except tropacocain). On the other hand, epinephrin is quite useless for surface anesthesia; indeed, it rather diminishes the penetration and therefore the efficiency of the anesthetics on mucous membranes (cornea). I also doubt whether it would be of service in intraneural or subdural injections.

### COMBINATIONS OF ANESTHETICS

The efficiency of mixtures of the local anesthetics corresponds to more or less complete summation, without any potentiation. In other words, if two solutions of different anesthetics are diluted until they are "just effective," then a mixture of the two solutions will also be "just effective"—no more and no less.

A single exception to this rule exists, namely, the potentiation of potassium with certain of the other anesthetics, discovered by Hoffmann and Kochmann. I have confirmed this for motor paralysis; but I cannot confirm it for sensory anesthesia. It has, therefore, no practical importance.

There would be little or no advantage in mixing the synthetic anesthetics with each other, except, perhaps, in mixing any of the synthetic anesthetics with quinin-urea, or with potassium chlorid. These are rather too feeble by themselves; but when they are used in nonirritant concentrations, being employed to take the place of a part of the synthetic anesthetics, the toxicity of the latter is correspondingly reduced.

### SUMMARY

These investigations of the local anesthetics justify the following conclusions, as to their suitability for clinical uses, mainly from the standpoint of efficiency:

1. For the anesthesia of mucous membranes, the relative efficiency is shown in Figure 2*A*. The numbers at the left show the percentages needed to equal 0.5 per cent. cocain hydrochlorid. Cocain, beta-eucain, alypin and tropacocain are the most useful; quinin-urea hydrochlorid is fairly active. Apothesin,[1] novo-

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[1] Apothesin is a new proprietary anesthetic, said to be the cinnamic ester of gamma-diethylamino propyl alcohol hydrochlorid. It was obtained through the kindness of Dr. McCoy, U. S. Public Health Service.

cain and potassium chlorid are relatively inefficient. Alkalization increases the efficiency from two to four times. The solutions of the anesthetic salts may therefore be mixed with an equal volume of 0.5 per cent. sodium bicarbonate, without loss of efficiency, and with a saving of one half of the anesthetic. The mixtures, however, do not keep well, and should be recently made.

The addition of epinephrin does not increase the efficiency, and is probably useless.

2. For infiltration and injection anesthesia, the relative efficiency is shown in Figure 1*A*. Cocain, novocain, tropacocain and alypin are about equally efficient. Beta-eucain and quinin-urea hydrochlorids are intermediate; apothesin and potassium sulphate (or chlorid) are relatively inefficient.

The efficiency is not increased by alkalization. Epinephrin greatly prolongs the action, and should always be added (except to tropacocain).

The anesthetic action of potassium sulphate or chlorid is not great enough to be of real value.

A 1 per cent. (that is, isotonic solution) would be equivalent to about 0.125 per cent. of cocain or novocain. However, it may well be used in place of sodium chlorid for making anesthetic solutions, as suggested by Braun.

Several of the synthetic anesthetics can completely take the place of cocain. In view of this fact, it would be feasible to prohibit entirely the importation, manufacture, sale and use of the habit-forming cocain, except for scientific purposes.

# FLUID SUBSTITUTES FOR TRANSFUSION AFTER HEMORRHAGE

## FIRST COMMUNICATION *

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There exists at present a great and urgent need for an injection fluid that can be satisfactorily employed instead of blood for transfusion in cases of hemorrhage. It is common knowledge that casualty clearing stations, after a "push," are crowded with men who have lost too much blood to be operated on, who cannot be revived by means of salt solution and supportive measures, but who would undoubtedly respond to transfusion. For the latter neither time nor donors are available.

A number of fluid substitutes for transfusion have recently been suggested. Our work relates, first, to what may be expected of a substitute, and, second, to the relative merits of some of the substitutes proposed.

### THE LIMITS OF SUBSTITUTION FOR HEMOGLOBIN

That severe acute hemorrhage, even to apparent exsanguination, does not entail permanent damage to the organism is shown by the rapid and complete recovery that usually follows transfusion. May one expect some such recovery when another fluid than blood is used? Or is this essentially dependent on the new supply of corpuscles and plasma?

The importance of the plasma has been investigated by Abel, Rowntree and Turner,[1] who demonstrated that the healthy body will withstand and quickly repair great losses of the fluid. The ability to withstand similar losses of red cells only — or, more properly speaking, of functioning hemoglobin — has not been inquired into. This point was the first taken up in our work. Animals have been bled repeatedly, and the blood bulk at once restored by the injection of compatible plasma

Rabbits were used because their rapid exsanguination and injection involves only minor operative procedures. All possible blood was taken by cardiac aspiration with strong suction, and then through an ear vein warmed plasma was run in containing the minimum of sodium citrate that would prevent clotting (about 0.5 per cent.). At the first bleeding, somewhat more than half of the total calculated blood bulk (5.5 per cent. in the rabbit[2]) was usually obtained in from one to three minutes. It was replaced with exactly the same amount of plasma. After a wait of a few minutes, to give time for part of the citrate to leave the circulation, a second bleeding and injection was carried out. Thus from three quarters to four fifths of the total hemoglobin was abruptly replaced.

The results were surprising. When the hemoglobin was reduced by not more than three fourths — as, for example, from 80 to 20 per cent. — and the rabbit replaced in its cage, no marked change was noted in its behavior. The respirations were for a few minutes somewhat quickened, and the ears for many hours were cold, with vessels contracted; yet the animal moved about normally, and immediately after the operation would eat when supplied with food. The blood gradually returned to normal in the course of the next few weeks, and the only inconvenience noted was that during the days of severest anemia, the least exertion would cause the animal to pant heavily.

A very different condition was seen after four fifths or slightly more of the hemoglobin had been removed. On its release from the operating board, the animal lay panting, with the accessory muscles of respiration actively employed, and made at first no attempt to rise. Soon, however, the respirations became less frequent, though still rapid, and when touched the animal would get on its feet. At first, following the outside stimulus, it sat like a normal rabbit with head up, ears back, and legs drawn well together; but soon the head nodded, the ears drooped, the legs sprawled out irregularly, and if undisturbed the animal sat somnolent for a long time. When touched it would straighten up and assume an alert posture, only in the course of a few minutes to relax again. These animals died in from three to six hours.

We have spoken of proportional amounts of hemoglobin rather than of absolute quantities, because of indications that, within limits, it is the proportional loss that most affects the results. A rabbit with an initial hemoglobin of 80 per cent., Sahli, will withstand a reduction to 20 per cent., whereas this is fatal to an animal having 100 per cent. to begin with. The symptoms described can scarcely be due to the citrate in the plasma, since this was varied freely in cases yielding similar results, and because, furthermore, the same effects were obtained when a noncitrated fluid, namely, horse serum, was used instead of plasma. The lowest absolute hemoglobin percentage to which we have reduced an animal without death was from 17 to 18 per cent., Sahli. Horse serum was the fluid used to replace the blood withdrawn. In this instance, the hemoglobin value did not rise during several days.

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* From the Laboratories of the Rockefeller Institute for Medical Research.

[1] Abel, J. J.; Rowntree, L. G., and Turner, B. B.: Jour. Pharmacol. and Exper. Therap., 1914, **5**, 625.

[2] Boycott, A. E., and Douglas, C. G.: Jour. Path. and Bacteriol., 1909, **13**, 256.

The ability of rabbits in which anemia is gradually produced, as well as that of patients with chronic anemia, to survive with only 20 per cent. of hemoglobin or less is usually ascribed to gradual bodily adjustments. But the present experiments show that in reality the body can tolerate an abrupt change to a very low figure.

Such great losses of hemoglobin as were accomplished in our rabbits are never brought about by hemorrhage. As is well known, a loss of slightly more than half the total blood bulk is usually fatal to man. This fact is true also of rabbits. The loss of hemoglobin is never so great as that of blood bulk, for the reason that as hemorrhage proceeds the blood is diluted with fluid previously extravascular. The dilution occurs so rapidly that the last blood to flow from a cut carotid is appreciably thinner than the first. Thus a relative retention of hemoglobin is brought about. This point is well indicated in the recent work of Depage and Govaerts.[3] They studied the hematologic indications for transfusion on wounded soldiers, and state that when wounds do not involve the abdomen, and the red cells fall below 4,500,000 per cubic millimeter in the first three hours, or 4,000,000 in eight hours, or 3,500,000 in the first twelve hours, the patient will probably die unless tranfusion is performed. In such instances, the full loss of hemoglobin is doubtless not indicated by the counts, since there is an attendant loss in blood bulk. Yet, even allowing for this, the total reduction in hemoglobin is not sufficient to account for the impending death. The amount of the pigment retained in the body under the circumstances of the most severe acute hemorrhage is always far above that which, as the present experiments have shown, will support life. The objection may be made that under the circumstances of clinical hemorrhage, no such immediate replacement of blood bulk occurs as in our bled and infused rabbits, and that the losses of hemoglobin may not be so well supported by animals rendered acutely anemic for some hours. But, as has already been pointed out, the results of transfusion in exsanguinated individuals show clearly that ordinary hemorrhage does not of itself produce lasting injury.

The view, therefore, seems justified that, however desirable it may be, it is not essential to supply blood corpuscles in ordinary cases of *acute* hemorrhage. Even in the worst example, the body retains at least twice the minimum functioning hemoglobin which, if other factors are favorable, will support life.

### THE LIMITS OF SUBSTITUTION FOR PLASMA

To determine the limits of possible substitution for plasma is difficult for the reason that the body possesses immediate fluid reserves as well as the ability to manufacture fresh plasma in a few hours. This, of course, is not the case with hemoglobin. Only after the depletion of the fluid reserves does an injected liquid play an essential part in an animal's recovery. And even then the results must be discounted because of the organism's activity in furnishing for itself a new plasma. The limits of substitution are directly dependent on the time taken for the plasma's removal and that allowed for recovery.[4] When both are generous, the possibilities as regards plasma withdrawal and substitution are practically unlimited. Unfortunately, in cases of hemorrhage the depletion is extremely rapid and involves both cells and plasma. New fluid is required, not merely to replace the plasma, but also to make up the total blood bulk.

### BLOOD BULK AND BLOOD SUBSTITUTES

Hemorrhage depletes, not merely the blood, but the fluid reserves as well — a fact long recognized by physiologists. The results may be clearly seen in rabbits bled at intervals of fifteen minutes. The effect on a good sized animal of a first bleeding of 20 c.c. is to lower the blood pressure only temporarily. A second similar bleeding causes a greater fall and a somewhat slower recovery, but soon the normal is reached again. A third bleeding of only 10 c.c. may now bring about a great drop in pressure, from which there is practically no return. In such an instance, not only have all physical means of adjustment, such as vasoconstriction, been pressed into play, but the fluid reserves have been so exhausted that nothing is forthcoming to replace the blood bulk. Under such conditions, the effects of a substitute for the blood can be directly observed.

Unfortunately, the fluid reserves and other compensatory mechanism differ so much in animals of the same size that often one cannot tell how far recovery is dependent on the character of an injected fluid and how far on the organism's natural resiliency. For this reason, as well as to save time, we have employed the rapid exsanguination by suction already referred to. Half or more of the total blood — and blood not diluted as when it flows from a vessel — is rapidly removed and replaced through an ear vein with the fluid under test. Aspiration from the femoral artery has proved safer than that from the heart, and quite as rapid. A large blunt needle is thrust far up the vessel, and then suction applied. The blood pressure is recorded from the carotid artery with mercury manometer and kymograph.

The ability of plasma to replace whole blood was first studied. When more than half of the total calculated blood volume had been taken, and the carotid pressure had fallen to a physiologic zero (from 10 to 20 mm. of mercury), it was instantly and permanently restored to the normal by the injection of an equivalent quantity of plasma. This was the case, too, when horse serum was used. A saline solution, on the other hand (Ringer's fluid), brought about only a slight, transient recovery of the pressure. Sometimes, nevertheless, the animal survived for the half hour or more necessary for the successful utilization of its own fluid resources.

The reasons for the failure of saline solution, as thus indicated, have been variously given, but the most important, undoubtedly, is that it leaves the vessels for the tissues and the urine almost as soon as it is injected. The same is true to a less extent of many fluids better than salt solution, but not so good as plasma. After the injection of such a fluid, the blood pressure may be immediately restored to normal; but it does not remain there. Almost at once the pressure begins to fall as the fluid leaves the vessels, and only after a greater or less period, as the organism itself furnishes a blood substitute, does the fall cease and the pressure rise gradually to normal. If the fluid is a fairly good substitute for blood, the depth of the curve expressing the pressure changes is not great

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[3] Depage and Govaerts: Presse méd., 1917, **25**, 602.

[4] Hurwitz, S. H.: Intravenous Injections of Colloidal Solutions of Acacia in Hemorrhage, The Journal A. M. A., March 3, 1917, p. 699. Abel, Rowntree and Turner (Footnote 1).

(from 15 to 20 mm. of mercury), and return to the normal pressure is complete within one-half hour.

### THE RELATIVE MERITS OF BLOOD SUBSTITUTES

Gelatin-containing fluids have often been used as blood substitutes. Hogan[5] advises 2.5 per cent. gelatin and Bayliss,[6] 6 per cent. We have tested several fluids made with gelatins which answered to Hogan's requirements for purity and ability to "gel." They were made up carefully according to his formula, and rabbits were used as in his experiments. But though these solutions undoubtedly restored blood pressure better than did salt solution, their effect was soon lost, the pressure falling off in the course of fifteen or twenty minutes nearly to the level to which the bleeding had originally reduced it. In these results there is no necessary contradiction to Hogan's findings. He took the rate of secretion of urine as the index of the ability of his solution to stay in the vessels, and found that it was not increased. But, as Bogert, Underhill and Mendel[7] have shown, loss of fluid into the tissues is often far more important for blood volume than that through the kidneys.

Larger concentrations of gelatin up to 6 per cent. act proportionately better than Hogan's solution. In some instances, 4 per cent. gelatin restores blood pressure permanently, but in others it does not. Six per cent. gelatin, in our experience, is always effective.

It has been interesting to determine the effects of hypertonic glucose and dextrin solutions, since these have been advised to draw fluid into the circulation. Under most circumstances, a pump for continuous injection, such as that employed by Erlanger and Woodyatt,[8] will not be available, so we have contented ourselves with immediate large injections. Eight per cent. dextrin (Merck) in salt solution, and 5.4 per cent. glucose in Ringer's solution — a fluid with twice the tonicity of blood — have been found to exert only a slight transient effect to raise the blood pressure in the bled rabbits.

Bayliss, who originally advised either 6 per cent. gelatin or 7 per cent. gum acacia as blood substitutes, has recently advocated the latter,[9] and for good reasons. It can be sterilized by boiling, whereas the autoclaving of gelatin is necessary in order to kill tetanus spores. It is more uniform in constitution than commercial gelatin, and, being protein free, it does not induce anaphylaxis or the severe reactions that often follow the latter. We can confirm Bayliss' statement that 7 per cent. gum acacia will permanently restore blood pressure to normal.

At the British front, where acacia solutions are now used, there has been an avoidance of the higher percentages in favor of a 2 per cent. fluid, and the results, while encouraging, have not been convincing. The reason for this is well seen in our experiments. A 2 per cent. acacia solution, like Hogan's fluid, at first raises the pressure to normal, but it drops off within a few minutes to the danger point. Four per cent. is more satisfactory, as the secondary drop in pressure, being slow, is better compensated. But neither the 4 per cent. nor the 5 per cent. solution recommended by Hurwitz[4] is effective in all cases. Six or 7 per cent. is required if one is to bring back the normal pressure in an organism depleted of its fluid reserves.

Mention has already been made of horse serum. The indications are that it would be an effective blood substitute, except for the risk of inducing sensitization or causing anaphylactic shock. In nonsensitive animals (rabbits, dogs), it acts as well as the plasma of the same species. But large quantities of it bring about serum sickness. A rabbit that had three quarters of its blood replaced by horse serum died on the sixth day, and showed extensive liver necroses. In a sensitive man, as we have had opportunity to observe, the injection of 2 c.c. induced a fall of twenty points in the systolic pressure, which was repaired only after several hours. In a nonsensitive man, the effect of the injection of 90 c.c. was to raise the pressure slightly for a few minutes. Horse serum injections, under the conditions of the battlefield, might well save many lives, but they would probably cause death in some cases.

### BLOOD SUBSTITUTES AND THE INDIVIDUAL CASE

The needs for a blood substitute may in individual cases be widely different. When the hemorrhage has been rapid and has been completely checked, almost any harmless isotonic solution will tide the patient over. It matters little that the fluid will soon leave the vessels, for the patient's own fluid reserves are almost intact, as is his ability to manufacture a plasma rapidly. At the other extreme are those instances in which the blood has been draining steadily away and there remains in the body no source of an immediate restoration of fluid. Here half-measures cannot suffice. A fluid must be furnished which will take the place, over many hours, of the lost blood bulk. Except for the blood or plasma of other human beings, fluids containing from 6 to 7 per cent. of gum acacia are the best at present available for the purpose. Their use when death threatens and transfusion cannot be performed is worth the taking of risks. Intermediate cases can undoubtedly be much helped by a 2 or 3 per cent. acacia solution or perhaps by Hogan's solution. In view of our ignorance of the after-effects of these foreign substances, it is certainly advisable not to inject more than the needs of the case may demand.

Further attempts to devise blood substitutes may be expected in the next few months. The fact may, therefore, be pointed out that it is not vital to success, as Bayliss has assumed, that a fluid substitute have the viscosity of whole blood; for plasma, which has only about half this viscosity, substitutes perfectly. Indeed, the advisability of raising the blood pressure after hemorrhage beyond a certain point by making an injected fluid difficult to push through the vessels may well be questioned. In order that a diminished number of red cells may carry on the body's normal work, it would seem that a brisker circulation is requisite.

Our experiments have brought out no indication of a special stimulating influence on blood pressure of either plasma or serum. That these fluids possess special characters which render them preferable to any possible substitute is obvious. But the important point is that their use is not essential.

### SUMMARY

The animal organism will withstand an abrupt reduction in hemoglobin to almost, if not quite, the low percentage that is tolerated in chronic anemia. Roughly speaking, three quarters of the total hemoglobin may be safely removed, provided the blood bulk is maintained. If four fifths is suddenly withdrawn, the animal becomes apathetic, shows symptoms of air hunger, and dies in a few hours. The amount of hemoglobin which remains after fatal acute hemorrhages is far above the minimum requirement of the body. As Abel and his co-workers have shown, great losses of plasma are soon repaired by the organism, if only the blood bulk is maintained. Taken together, these facts show that however desirable transfusion may be (especially to furnish the elements needed in clotting, to lessen acidosis, to improve oxygenation, etc.), it is not essential to recovery from even the severest *acute* hemorrhage, if only the blood bulk can be restored in other ways.

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[5] Hogan, J. J.: The Intravenous Use of Colloidal (Gelatin) Solutions in Shock, THE JOURNAL A. M. A., Feb. 17, 1915, p. 721.

[6] Bayliss, W. M.: Proc. Roy. Soc., B, **89**, 380.

[7] Bogert, L. J.: Underhill, F. P., and Mendel, L. B.: Am. Jour. Physiol., 1916, **41**, 219.

[8] Erlanger, Joseph, and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, THE JOURNAL A. M. A., Oct. 27, 1917, p. 1410.

[9] Bayliss, W. H.: Arch. méd. belge, 1917, **70**, 793.

Of the several fluid substitutes for transfusion which have recently been suggested, all are preferable to salt solution. Bayliss' 7 per cent. gum acacia solution is up to the present the best, and its use should save life in many instances. In less urgent cases, from 2 to 3 per cent. acacia solution, or Hogan's 2.5 per cent. gelatin solution, are to be preferred to salt solution. But these fluids leave the circulation relatively soon, and when the organism has been drained of its fluid resources their injection restores the blood pressure to the normal level for only a few minutes. Permanent betterment cannot be expected in cases of severe hemorrhage with solutions containing less than from 5 to 7 per cent. gum acacia.

It is not essential that a blood substitute should possess the viscosity of whole blood.

# FATAL RESULT FOLLOWING INJECTION TREATMENT OF HEMORRHOIDS

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House Physician, New York Hospital
NEW YORK

The grave complications frequently arising from seemingly simple methods employed in the treatment of dispensary patients leads to the presentation of one such treatment and its undesirable result.

The rectal mucosa cannot be effectively freed from pathogenic organisms, which may be carried deeper by a hypodermic needle. The liquid injected reduces tissue resistance, and furnishes a good medium for the growth of organisms. If an anesthetic agent is injected, pain and the defensive reflexes it arouses are abolished. Hence, the mechanical spread of the infection is unretarded. The patient's walking, jolting in cars and sitting in chairs all aid in spreading the infection. Dispensary patients, therefore, are subjected to a double risk.

## REPORT OF CASE

*History.*—For ten years, a chauffeur, aged 38, had had external and internal hemorrhoids, which had bled six years. He was constipated. January 31, in a dispensary, three large internal hemorrhoids were injected with quinin and urea hydrochlorid. They later sloughed off. That night, he had a severe headache; the next, a severe chill. These symptoms recurred to the end. Pain in the right hypochondrium commenced the fourth day.

The sixth day, February, 5, while having a chill, he was admitted to the hospital, obviously acutely ill. His condition was septic. There were no signs of jaundice. Over the right lung, patches of harsh breathing, modified voice, and râles were heard. Examination of the heart was negative. Tenderness was elicited over the lower half of the abdomen and over the right hypochondrium. Neither the liver nor the spleen was palpable. Rectal examination revealed several external hemorrhoids and a few ulcerated, tender, sloughing, internal hemorrhoids. The blood count revealed: white blood cells, 12,400; polymorphonuclear neutrophils, 93 per cent.; lymphocytes, 4 per cent.; transitionals, 3 per cent. Blood pressure ranged between 72 and 118 systolic.

The seventh day, February 6, the liver and spleen were palpable, and the tenderness was greatly increased. The eighth day, a light jaundice appeared. It increased rapidly. The patient's condition appeared more septic. Liver dulness reached the fourth space anteriorly, the sixth in the midaxilla, and the scapular angle posteriorly. A needle inserted into the right eleventh space posteriorly found no pus. Two blood cultures were taken, the first February 6, directly into plain broth and agar plates, and the second, February 9, into sterile water, the sediment being centrifuged and planted in glucose broth. Both cultures remained sterile. The patient died the twelfth day, February 11.

*Necropsy.*—The diagnosis at necropsy was: ulcers of the rectum, following necrosis of internal hemorrhoids; phlebitis of the prostatic and possibly of the hemorrhoidal veins; thrombosis of the same veins; multiple abscess of the liver; septic infarct of the lungs, chronic pulmonary tuberculosis, which, however, was obsolete; parenchymatous degeneration of the heart, liver, kidneys, etc., and infection by *Bacillus aerogenes-capsulatus.*

Following is a summary of the detailed report:

The skin and conjunctivae were icteric. The heart was normal except for the fact that the myocardium was pale, grayish pink, opaque, soft and friable. There were no focal lesions. The chambers contained fluid blood intermingled with gas bubbles. Frothy blood escaped from the large thoracic vessels. The lungs were congested. There was a large septic infarct located in the left upper lobe anteriorly. Several small hemorrhagic foci with necrotic centers were found in the right lower lobe. The spleen was enlarged, weighing 11½ ounces, and though it showed a normal consistency, the capsule was doubled in thickness. The cut section was dark, brownish red, and the trabeculae and malpighian bodies were indistinct. The kidneys, weighing, respectively, 6 and 6½ ounces, were pale, grayish pink. After being stripped of the capsule, they were smooth, and revealed a normal consistency, a thickened cortex, and indistinct markings. The periprostatic plexus veins appeared dilated, and a creamy pus escaped when they were cut across. The rectal mucosa showed three sloughing ulcers each about 1 cm. in diameter. The hemorrhoidal veins were small and apparently clear. The pelvic and abdominal veins showed no thrombophlebitis, but they contained fluid, frothy blood. The liver was enlarged, weighing 6 pounds and 7 ounces. It was soft and friable, and was brownish red. Scattered throughout the organ were irregular, large, greenish-yellow, necrotic, fairly circumscribed foci, with softened centers. The nodules were as large as walnuts, and on pressure yielded a purulent discharge. Those just beneath the capsule did not project above the surface of the liver. The normal liver markings were gone. Frothy blood was found in the large veins of the liver. The gastro-intestinal tract was negative, and the stools were gray.

An emulsion of pus from one of the liver abscesses was injected into a rabbit, which later died. A beginning abscess in its liver yielded encapsulated bacilli with the characteristics of *B. aerogenes-capsulatus.* A blood culture from the rabbit's heart gave a pure culture of the same organism.

8 West Sixteenth Street.

**Wounds in the Trenches.**—In modern trench warfare, about 75 per cent. of the wounds are produced by shell-fire and 20 per cent. by rifle and machine-gun fire, this proportion, of course, varying with the nature of the action. In 100 wounded there will be: 10 to 20 head wounds, 5 to 10 chest wounds, 6 abdominal wounds, 60 wounds of extremities.—Lieut.-Col. T. H. Goodwin, R. A. M. C.

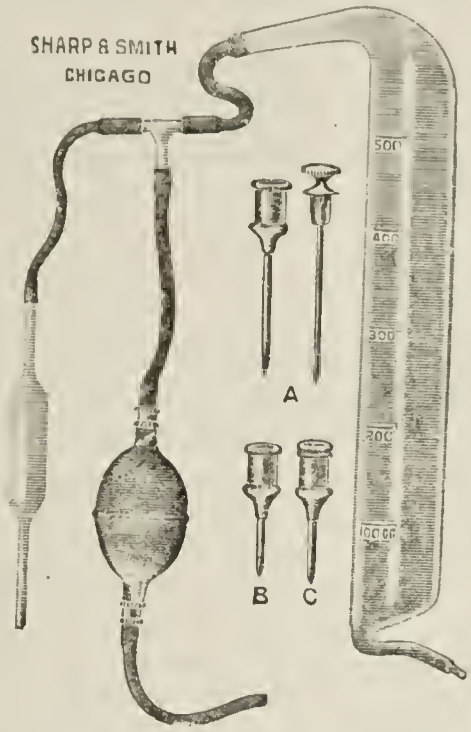
# Clinical Notes, Suggestions, and New Instruments

## A NEW BLOOD TRANSFUSION METHOD

Philip H. Kreuscher, M.D., Chicago

The transfusion of blood has been rightfully considered a major procedure. This circumstance is due to the facts that first, the operation, until very recently, was done only in the greatest emergency; second, the technical details could be mastered only after repeated trials; third, when not done properly and carefully in every detail, the operation often proved fatal.

From time to time, the methods have been simplified until, at present, the physician is told that he may collect a quantity of blood from the donor, and after adding a small quantity of sodium citrate solution, he may carry it from his office to the hospital and inject the modified blood into the vein of the recipient. This method, which is said to have given good results in the hands of some men, is open to serious objection. It would seem to me that the most rational procedure would be the transfusion of the fresh warm blood of the donor which has been proved compatible with the blood of the recipient.



Appliance for blood transfusion without destruction of the vein.

Every one who has done numerous transfusions by the ordinary methods finds that the most suitable veins in both patients have been destroyed after the second or third operation. It occurred to me that a method could be devised by which blood could be transferred from one patient to another without destroying the vein, and by which the operation could be converted from a major operation of blood transfusion into a minor procedure. An appliance that will answer the requirements of such a method is shown in the accompanying illustration.

The glass collecting tube, which holds 500 c.c. of blood, has a tip especially constructed so that a short, small caliber steel or platinum needle, of the type shown at *B* and *C*, may be slipped on it, precisely as the needle is attached to the ordinary Lüer syringe. The double-action bulb and the glass mouthpiece are attached to the distal end of the tube. Either the bulb or the tube may be used for aspirating and expelling the blood. If the operator wishes to use the bulb, the tube leading to the glass mouthpiece should be securely clamped. After the desired amount of blood has been drawn into the tube, the bulb is reversed and by the ordinary repeated compression of the bulb, the blood is forced out of the tube. In other words, the double-action bulb may act as a suction or as an expelling apparatus. If the surgeon desires to aspirate the blood by mouth suction, the tube leading to the bulb is clamped. The dilated portion of the glass mouthpiece should contain a small quantity of sterile absorbent cotton so that the mucus from the operator's mouth cannot pass into the collecting tube.

The best method of sterilizing the glass tube is as follows: Several large pieces of paraffin are placed in the collecting tube, and the tube is put into the ordinary dry sterilizer in a horizontal position, laid, according to custom, between other bundles of dressings that are to be sterilized. When the sterilization is complete and the tube is still warm, the operator or nurse grasps the tube with sterile gloves, and after a few rapid rotations, the entire inner surface is coated with the paraffin. It is important that the coating extend throughout the tube from the tip to which the needle is attached to the distal end to which the aspirating apparatus is connected.

I wish to call special attention to the fact that it is possible to coat the lumen of the needles with a thin film of paraffin. This might be desirable when large quantities of blood are to be transfused.

It is most essential that the lumen of the needle be of exactly the same size as the lumen of the glass tip to which it is attached. Between the tip of the tube and the lumen of the needle there must be no dead space in which the blood could clot. We have, then, a smooth, uninterrupted lumen extending from the tip of the needle to the place where the collecting tube dilates.

If supplied with a close-fitting obturator, as at *A*, the needle is useful when the transfusion is to be made into a very small vein. In this case the needle, with the obturator in position, is introduced by the operator into the vein of the recipient before the actual operation is begun, or by an assistant while the operator is collecting the blood from the donor. The obturator, which fits closely and extends to the tip of the needle, will not permit a blood clot to form. When the surgeon is ready to inject the blood, the obturator is removed, the tip of the collecting tube is attached, and the blood is introduced.

The tip of the collecting tube is so constructed that the transfusion may be done according to the old methods without the operator's attaching the needles at all.

### SUMMARY

We have, then, a method with all the advantages of the former procedures and the following additional advantages:

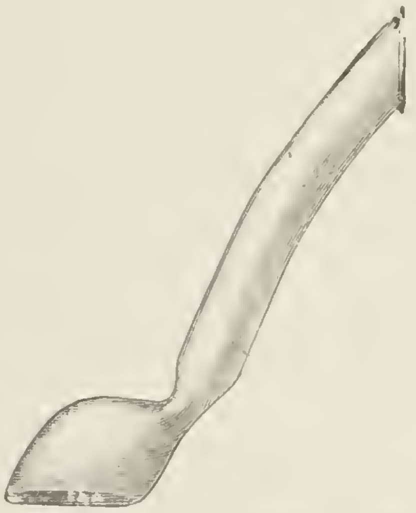
1. It makes blood transfusion a minor operation.
2. The same vein in both the donor and the recipient may be used many times.
3. The needle is introduced through a minute opening in the skin over the vein.
4. The detachable needle with the obturator makes possible transfusion into a vein of very small caliber.

2526 Calumet Avenue.

## A SIMPLE APPARATUS FOR COLLECTING URINE FROM MALE INFANTS

Oscar M. Schloss, M.D., New York

The use of an ordinary test tube to collect urine from male infants has several disadvantages. Unless the closed end is strapped firmly to the thigh, it is apt to be higher than the penis, and as a consequence the urine leaks out as fast as it is voided. Moreover, the mouth of the test tube must be fastened so firmly that the lower edge may cause considerable pressure.



Apparatus for collecting urine from male infants.

These difficulties are obviated by a tube made as illustrated.[1] Another advantage is that the infant may change his position to a considerable degree without loss of the contained urine. The tube may be secured by means of a special band with abdominal and perineal straps, by means of floss around the abdomen and thighs, or by adhesive plaster.

Such tubes have been in use on Dr. L. E. La Fétra's service at Bellevue Hospital for about three years, and have been very satisfactory.

172 West Seventy-Ninth Street.

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[1] These tubes are made by Eimer and Amend, Third Avenue and Eighteenth Street, New York.

## THE PROBABLE ASSOCIATION OF AMINO-ACIDURIA WITH BENCE-JONES PROTEINURIA

Charles E. Simon, B.A., M.D., Baltimore
Professor of Clinical Pathology, University of Maryland School of Medicine and the College of Physicians and Surgeons

In the course of certain investigations regarding the nature of the so-called Bence-Jones protein, I made the incidental observation that the urine from such a case gave a most intense ninhydrin reaction. The color was a rich Burgundy, however, and not the reddish violet that is noted in the Abderhalden pregnancy test. The urine in question had been preserved for a number of years with thymol, and the question naturally arose whether a fresh specimen of urine containing the Bence-Jones protein would give the same reaction. Normal urines, it may be mentioned in passing, give rise to no color change. The opportunity for such an examination was offered soon after, and it was found that the fresh urine from the second case also turned a deep Burgundy on boiling with ninhydrin. In order to determine whether the reaction was due to the protein itself or to an associated substance or substances, a solution of the isolated Bence-Jones protein was treated in the same manner. There resulted a steel blue of moderate intensity without the slightest trace of a reddish tint. If, on the other hand, the Bence-Jones urine was dialyzed against running water, the reaction disappeared, while the dialysate was found to give the same reaction as the original specimen of urine.

Since the Bence-Jones protein itself is not dialyzable, we are forced to the conclusion that the color reaction must be due to the presence of a substance which accompanies the protein; and as this substance is absent in normal urines, as well as in cases of ordinary albuminuria, the question naturally suggests itself whether any relation exists between it and the Bence-Jones body. The fact that the reaction was observed in both cases of Bence-Jones proteinuria, which after all is of rare occurrence, and the only ones that have been available for study, coupled with the observation that a like color changes on boiling with ninhydrin, has not been encountered in other urines—either normal or pathologic—suggests that the coincident presence of the protein and the reacting body or bodies may not have been accidental.

From our knowledge of the character of the ninhydrin reaction in general, and the fact that none of the known constituents of normal urine give this reaction, and that the reacting substance in the Bence-Jones urine is readily dialyzable, we conclude that free amino-acids or relatively simple peptids must be present in such urines and responsible for the color change in question. In this connection, it is interesting to note that in the first Bence-Jones urine referred to above, which had been thymolized and kept for a number of years, the quantity of the Bence-Jones protein, as measured by the width of the protein ring on application of the cold nitric acid test, and the degree of turbidity which resulted on the application of heat, has gradually diminished, and at the time of writing only a slight reaction is obtainable, while the ninhydrin reaction has coincidently disappeared. This observation suggests, on the one hand, that the reacting substance is not stable, and on the other that if it is of peptid nature, its constituent amino-acids must be in part of the type which does not give the usual color reaction with ninhydrin.

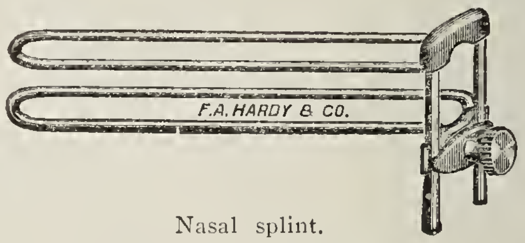
Since prolin gives a yellow color, and pyrrolidin carbonic acid no color reaction at all, these two would suggest themselves as possible components of a peptid of this order, possibly in combination with histidin, which appears to be the only amino-acid which gives a Burgundy color on boiling with ninhydrin. Or, if a single substance is responsible for the color change, the latter would appear to be the most likely.

Unfortunately, a more detailed study of this question has not been possible thus far, for want of material; but the observation in itself seems of sufficient importance to warrant its publication at this time, in the hope that it may attract the attention of some worker who is so fortunate as to have a Bence-Jones case at hand.

## A NEW NASAL SPLINT

Otto J. Stein, M.D., Chicago

The general practitioner as well as the rhinologist can find use for a good intranasal splint to hold cotton or gauze in contact with the septum. The cotton can be dusted with a powder, moistened with a liquid, or impregnated with a salve, and accurately held in contact with the membranes. It is useful in the treatment of fractures of the nose, epistaxis, ulcerations, etc. To the operating rhinologist, a strong and adjustable splint is indispensable. The splint here illustrated fills all of these needs. It is readily adjustable to any degree of pressure. It is made in two parts, making it very easy of introduction. When properly placed, it allows free breathing through the nostrils.



Nasal splint.

30 North Michigan Avenue.

## TRIPLETS TWICE IN ONE YEAR

Mark Hornstein, M.D., New York

A woman giving birth to triplets twice in less than one year is surely a phenomenon worthy of record. I had the fortune of attending the patient in childbirth, July 10, 1916, and again, June 30, 1917, with the same numerical result. The similarity of events as regards sex of babies, degree of prematurity and presentation contribute to render the case still more interesting.

### REPORT OF CASE

E. C., aged 33, decipara, who had given birth to eight children at full term, and had had one miscarriage at three months, and five of whose children were living, was born in Ireland; the husband, aged 52, was also born in Ireland. Her menstrual and previous history were irrelevant. On the evening of July 10, 1916, I was called and found the patient having moderately strong labor pains. Abdominal examination revealed no definite position, and twins were suspected. The fundus uteri rose to 3½ inches above the umbilicus, and from the statement of the patient that she had not menstruated since November, 1915, it was calculated that she was about thirty-three weeks pregnant. Vaginal examination revealed the os uteri fully dilated and the head engaged. The bag of waters was ruptured and, after a few severe expulsive pains, a small baby girl was born. After five minutes the second bag of waters was punctured, and the second baby was delivered, which proved to be a boy. The third baby, a girl, presented by the breech and was extracted without difficulty. There were three placentas, and they were separately expressed after sufficient time had been allowed for contraction of the uterus. The amount of hemorrhage was moderate, and the mother made an uneventful recovery. The infants, in spite of extraordinary care and precautions, all died, two during the following morning and one, the boy, after four weeks. The weight of the children was $3\frac{2}{5}$, $3\frac{1}{5}$ and $3\frac{3}{5}$ pounds, respectively.

On the evening of June 30, 1917, I was called to see the patient again. She was in the eighth month of pregnancy and in active labor. Abdominal findings were again indefinite, rendering the diagnosis almost certain of twins, possibly triplets. The first and third babies were girls, presenting by vertex; the second was a boy, presenting by the breech. There was one double and one single placenta. The weights of the babies were 3, $3\frac{3}{10}$ and $3\frac{2}{5}$ pounds. They all died during the night and next day. The mother was considerably exhausted during and after the puerperium, at the end of which she showed a loss of 30 pounds in weight.

1425 Madison Avenue.

## Military Medicine and Surgery

# LOCALIZED GAS INFECTIONS IN WAR WOUNDS TREATED BY MUSCLE GROUP EXCISION

KELLOGG SPEED, M.D., CHICAGO
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FRANCE

In the early part of the war, the mortality from gas infections in wounds acquired in the lowlands of France and Belgium was high. Delay in treatment, unclassified knowledge, and lack of intensive study of the early symptoms were partly responsible. When the bacteriology and pathology were investigated and their interpretation was applied to the clinical manifestations, surgeons rapidly came to differentiate between early localized gas infections and the massive invasions of whole limbs. It is my intention to set forth briefly a few of the points connected with early localized infection, and to attempt to disseminate knowledge of the value of immediate treatment.

The histologic studies of McNee and Dunn[1] have shown conclusively that the spread of these infections into living muscle is extremely rapid, so that in three and one-half hours after the reception of wounds the condition is established. If the causative wound involves the main blood vessel of a limb, we may expect a rapidly generalized infection of the extremity in its distal portion. Consequently, coincident vascular damage is a factor of intense importance influencing treatment. When the blood supply is intact, we may anticipate a vertical spread of the infection in both directions of the longitudinal axis of muscle groups injured by the passage of the missile. The intensity of the infection, however, is greater as a rule in that muscle which lodges the foreign body. If but one muscle belly is lacerated, we may fully expect the localization of the early infection in it.

Many anaerobic organisms are found in the cultures obtained from tissue juices and macerated muscles. Frequently cultures from rapidly advancing gas gangrene are sterile. The streptococcus is very often an accompanying organism. Most observers have noted *B. capsulatus-aerogenes* (*B. perfringens*), or Welch's bacillus. This organism attacks sugars by fermentative action, causing an evolution of gas; consequently it finds itself quite at home in the glycogen-laden muscle tissue, and wanders rapidly through this pabulum. The changes caused by this bacterial action produce gas and an intensely toxic fluid, both of which interfere with the circulation in the affected muscle and lead to a rapid spread of gangrene. The muscle fibers become swollen and deficient in contractile power, and the organisms are found penetrating far beyond the clinical limits of the gangrene in the interstitial spaces. Death of the muscle fibers results probably more from this toxic evolution than from pressure of gas formation, the latter product possibly being secondary. After the muscle bundles are overcome by the poison, the bacteria remaining in them feed on the muscle sugars and form the abundant gas. Moreover, the sheath around individual muscles (or groups, if several are involved) tends to hold the destructive infection localized and to favor recovery without spread after early radical excision. The micro-organisms are found for the most part at the advancing edge of the process, because when the fibers die they quickly break down, gas forms, and definite histologic muscle structure disappears. No leukocytes are present, a firm proof of the clinical fact that the presence of pus in areas suspected of gas infection is indeed laudable.

Symptoms are variable; the general toxicity from a localized infection may overshadow the local findings. A fast pulse, rapid respiration, dry tongue, lack of high fever, restlessness, and a slightly icteric tint of the skin are commonly seen. In the earliest instances, seen within a few hours after wounding, these symptoms may develop directly under the surgeon's eye. Locally, there is usually pain, swelling, apparent interference with normal circulation, and as a rule the discharge of a thin, greenish, foul-smelling fluid from the wound. The odor in a true Welch infection is quite characteristic. It is fetid and extremely penetrating, resembling that from the thin stools of an infant suffering from an extreme enteritis and acidosis. Early skin changes may be very slight, even over a whole group of destroyed muscles. They are for the most part circulatory — the area is swollen and the skin appears anemic, soon becoming yellower and later a dirty bronze color which is characteristic and means a well advanced stage.

The involved muscle early shows a brick red or salmon red, and gives off this penetrating odor when laid bare. To be appreciated, the condition has to be seen in the freshly opened extremity, or in such beautiful illustrations as those given in Wallace's article.[2] When one muscle in a group is affected, the surgeon readily picks it out by the color and other changes. Gas bubbles may be seen in the interstitial spaces; the muscle is noncontractile, and crepitates slightly to the touch.

If the condition has progressed for some hours, the muscles are a deeper mahogany red, merging into a greenish black, and are pultaceous. When cut out and laid on a smooth surface, the muscle tends to flatten like soft putty.

In 1916 we discovered the value of early roentgen diagnosis in incipient and localized gas infections. When the foreign body was being searched for with the roentgen ray, it was found that the gas around it cast a small dark shadow on the plate, and close scrutiny would often reveal similar linear shadows in the interstitial spaces of the long muscles involved. Davis made a report of this important fact at the time.

### TREATMENT

The treatment must consist of early radical operation, based on the facts mentioned. When the discharge from a gunshot wound simulates gas infection, when pain and swelling are out of proportion to the size of the wound tract, gas bubbles can be expressed by slight pressure, and the toxic condition is supervening. Then we must at least explore thoroughly the suspected gaseous area. Excision of the tousled tissue of the wound of entrance one-half inch from the margin is first performed. Constrictors should never be applied, because even a temporary arrest of the circulation may lead to a rapid spread of the infection. If wounds of exit and entrance are both present, they are treated alike regardless of location or extent. The affected tissue should then be laid open by a bold incision connecting the two wounds if present, or in the long axis of an extremity, if an entrance penetration wound alone exists. Damaged infected muscle is then removed either by sharp or finger dissection, through normal planes of cleavage as much as can possibly be done *without the opening of uninvolved muscles or fascial areas.* It is unusual to find all the muscles of a limb involved unless the main blood supply has been cut off. Nor does infection tend to travel into neighboring muscles, unless they have been damaged by the missile.

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[1] McNee, J. W., and Dunn, J. S.: Brit. Med. Jour., 1917, **1**, 727; abstr., The Journal A. M. A., July 14, 1917, p. 153.

[2] Wallace, Cuthbert: Brit. Med. Jour., 1917, **1**, 725.

These general instructions apply to those injuries that have not seriously interfered with the main blood supply of the limb. Very extensive dissections which disregard the future function of a limb are indicated when the patient's condition or other factors will not warrant amputation. In the presence of gunshot fractures, these excisions, followed by suitable splinting and extensions, lead to happy results. However, the surgeon must weigh all evidence of local findings and ultimate outcome, and if mutilation will lead to a limb functionally a nuisance, amputation is best if the patient's condition renders it possible. The use of spinal anesthesia (stovain) in lower extremity surgery must not be overlooked when amputation shock is to be avoided.

How far should muscle excision be carried? To the point at which the fibers remain uncolored by the advancing infection, until the muscle belly jerks under the cutting knife. That is, until normal contractility is found, and lastly until bloody oozing from the cut muscle bundles indicates a healthful blood supply. These operative steps are limb and life saving devices; they must be thoroughly, rapidly and anatomically performed. A small amount of tissue hemorrhage is not disturbed by the operator — large bleeding points must be ligated, but the amount of circulation present should be left undisturbed as much as possible by operative manipulation. These wounds should be left wide open without suture, and for the most part should be treated by the Carrel-Dakin method until danger of extension is past, or by warm baths of solutions selected by the surgeon. Free suppuration sometimes follows. The leukocytic infiltration and outpour of pus mean an end to the gas infection.

### NACCIARONE'S METHOD

Nacciarone[3] advocates a slightly different technic. The infected limb is incised lengthwise by long parallel incisions, which open all the involved muscles and expose the bone. Muscular and fascial planes are separated by digital dissection, with care to avoid vital vascular connections. Copious irrigation for ten or more minutes follows with an iodin solution until no more odor or gas is present. Delimitation against extension is provided by the use of the actual cautery or a subcutaneous injection ring of 2 per cent. iodized solution. Drainage tubes are inserted, and the irrigation is repeated three or four times in twenty-four hours. He reports twenty instances, and believes that the cures by this method will average 90 per cent. when treatment is begun within the first six hours. The author finds that gas infections of the buttocks give the poorest prognosis, possibly on account of the extensive dissection necessary, and the large area for absorption. In twenty-four instances of gas infection treated by a local muscle excision there have been two deaths, one from pneumonia five days after operation, the other from the general toxemia.[4]

### REPORT OF CASES

Case 1.—R. S., Private, 24247, ¼ Gloucesters, was admitted to my service at the Twenty-Third General Hospital, B. E. F., Aug. 23, 1916, twenty-eight hours after injury. A penetrating wound of the right leg on the outer aspect about 3 inches below the knee was present. Early the next morning the foreign body was localized by the roentgen ray lying against the tibia near the middle of the leg, and a small characteristic gas shadow surrounded the missile. Fainter shadows in the muscle of the outer side of the leg being also present, gas infection was diagnosed. Crepitation was felt in this area, gas bubbles were expressed from the wound, and an offensive odor was noticed. Operation was performed at once. The tract of the missile was explored from the wound of entrance down to the lower third of the tibia, and the whole tibialis anticus muscle was found necrotic, a soft, putty-like, dirty red, noncontractile mass, which was scraped out by the fingers. There was no hemorrhage from the muscle, as its entire length was removed. Two additional longitudinal incisions were made laterally on the leg, and all wounds were left open from knee to ankle. Seven hours after operation, a secondary hemorrhage was found which ceased when the moist dressings were removed. Two days later the foot and ankle appeared bluish red, but this condition cleared up, and a week later the patient's temperature reached normal. Healthy granulations followed after some sloughing, and an uninterrupted recovery resulted.

Case 2.—J. D. D., Private, 190625, First Canadian Labor. Company, was admitted to my service at the Eighteenth General Hospital, B. E. F., in October, 1917, with a gunshot wound of the thigh, fourteen hours after injury. The principal findings of a gas infection were present. Under ether the tract of the missile was explored, the foreign body was removed from the vastus medialis muscle, and on account of changed color, gas bubbles, and noncontractility, the sartorius vastus internus and medialis muscles were dissected and removed for about half their extent. This dissection exposed the sheath of the great femoral vessels, but they appeared undamaged. Three Carrel's tubes were inserted in the wide-open wound, and the Carrel-Dakin treatment was continued. One week later the wound was clean and granulated, the temperature was normal, and the man was fit to send to England. Cultures of the metal and cloth wadding removed, the discharge and muscle all gave Welch's bacillus.

Case 3.—G. T. C., Private, 303114, First Artists' Rifles, sustained shell wounds of the left arm and leg, Oct. 30, 1917, and on account of the rush of wounded, passed through both field ambulance and casualty clearing station without operation. When he arrived at the Eighteenth General Hospital, the 31st, his wounds were septic, and the one in the left calf was very tense and gave a gassy odor. He suffered much with referred pain in the knee joint from the through and through wound of the calf. The joint was found negative. His temperature ranged between 100.5 and 101.4 F. Late that night the calf wound was laid widely open; the edges were of a greenish brown, and the dead muscle crepitated. Nearly one quarter of the gastrocnemii and part of the soleus were excised in the cleansing excision. The posterior tibial vessels were fortunately spared. By November 4, the wound was clean after eusol treatment, and the patient's temperature reached normal. Within ten days he was sent to England in good condition.

Case 4.—B. McL., Private, 781871, Ninth Canadian M. G. C., received a shell wound, Oct. 27, 1917, through and through the right scapula, shattering the bone. The pleura was apparently intact. Wounds of entrance and exit were excised, but the main tract of the laceration was not troubled. Carrel-Dakin treatment was instituted. On his arrival at the

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[3] Nacciarone, A.: Rif. med., 1917, **33**, 790; abstr., The Journal A. M. A., Sept. 29, 1917, p. 1119.

[4] In addition to the references already given, the following will be found of interest:
Frankau, C. H. S.; Drummond, H., and Neligan, G. E.: Successful Conservative Treatment of Early Gas Gangrene in Limbs by Resection of Infected Muscles, Brit. Med. Jour., 1917, **1**, 729; abstr., The Journal A. M. A., July 14, 1917, p. 153.

Eighteenth General Hospital, early on the 29th, there was present a typical gas odor, bubbles could be expressed on slight pressure, and tissue crepitus was noticed. The entrance and exit wounds in the scapular region were connected by a long incision. Necrotic gaseous supraspinatus and infraspinatus muscles with much of the bone were excised, and Carrel's tubes were laid in for irrigation. By the 30th the wound appeared well, and suppuration was beginning under one edge. Suddenly, November 1, his temperature, which had dropped below 100, jumped to 103.4, and on the 4th he passed away with a lobar pneumonia. There was no further evidence of gas infection in the wound.

## THE EPIDEMIC OF MENINGITIS AT CAMP JACKSON

### PRELIMINARY REPORT

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The epidemic of meningitis at Camp Jackson will be reported in detail at a later time. It seems profitable to bring to general notice some of the peculiar features of the epidemic and some of the methods used to arrive at an early diagnosis, along with certain modifications of treatment that have proved valuable.

Over 140 cases have been observed and classified as abortive, ordinary and fulminating. The last have generally shown extensive purpura, with death in from four to ten hours, without the clinical or necropsy findings of meningitis.

The disease is not primarily a meningitis. It is a generalized systemic invasion by the meningococcus—a sepsis — with possible secondary involvement of the meninges, joints, pericardium, endocardium, testicles, conjunctiva, sclera, pleura, lungs, from all of which regions, in addition to the tonsils and pharynx, the micrococci have been isolated. In many cases the systemic symptoms appear from twenty-four to seventy-two hours before involvement of the meninges. These general symptoms are not at all characteristic. Moderate fever, weakness, mild apathy, coated tongue, pharyngitis or coryza, and mild digestive disturbances are most common. Headache and other cerebral symptoms are generally absent at this stage.

In about 75 per cent. of the cases in this epidemic, the earliest sign of value in diagnosis has been the petechial rash. In order of frequency this rash appears on the deltoid regions, hips, trunk, extremities, mucous membranes, and face. The purpura of the fulminating cases does not originate in these petechiae, but is apparently a separate lesion.

The meningococcus can usually be recovered in the spinal fluid withdrawn at the first or second lumbar puncture, and often from six to thirty-six hours before the characteristic clinical picture develops or cellular increase and cloudiness occur in the fluid. It is our impression that the cerebral precedes the spinal involvement. For this reason, in doubtful cases, the lumbar puncture should be repeated at intervals of from three to six hours in order to drain the meningococcus from the brain. Thorough centrifugation and careful examination of the sediment usually reveal one or more pairs of meningococci. At this early stage these organisms are extracellular and variable in size and appearance. The spinal fluid is clear, has a normal cell content, without polymorphonuclears, usually reduces Fehling's solution, and may or may not show a faint trace of globulin.

Diagnosis in the stage of meningococcic sepsis may be made many hours before the meningococcus has time to develop its characteristic selective action on the meninges. In the present epidemic, a rapidly developing petechial rash, fever and variable general symptoms and the findings of isolated meningococci in the spinal fluid have been the important factors in an early diagnosis.

The term "epidemic cerebrospinal meningitis" is misleading when applied to an epidemic of this character. "Spotted fever" is more satisfactory, but inadequate because a minority of the patients show little or no rash. "Meningococcus sepsis" is more correct.

In the light of the foregoing observations, the usual methods of treatment have been modified, and with success. In the stage of sepsis before meningitis has developed, routine intravenous administration of meningococcus antiserum in doses of 20 to 60 c.c. has been effective and has in many cases been followed by striking improvement. Such doses have been administered every twenty-four hours during the first three or four days of the disease. We feel that intravenous serotherapy should precede the intraspinal, and that in these cases of primary meningococcus sepsis it is probable that such intravenous serum administration is of more importance than the ordinary intraspinal treatment. The latter must not be neglected, but is probably best deferred in some cases until the spinal fluid becomes cloudy. It has been pointed out by Amoss and his co-workers that the injection of serum intrathecally increases the permeability of the choroid plexus for the virus of poliomyelitis. It is important that the same question be experimentally investigated in meningococcus sepsis.

## INTERPRETATION OF THE SCHICK REACTION IN RECRUITS FOR THE NATIONAL ARMY *

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Occasional outbreaks of diphtheria in military camps, and the possibility of preventing them by utilizing the more recent advances in the prophylaxis against this disease, have caused us to apply the Schick test to the recruits for the National Army on their admission to Camp Upton, Yaphank, L. I. Over 2,500 men have thus far been tested. Owing, however, to the assignment of the recruits, within forty-eight hours, to different regiments scattered over the camp, it was found necessary to discontinue making the test at the time of the primary physical examination. The test will be applied later, when it can be more conveniently done, to all the members of each regiment.

During the past four years an increasing number of hospitals and various institutions have adopted the Schick test as a routine procedure for determining the susceptibility or immunity of children and adults to diphtheria. In children the test is simple and extremely reliable, if properly made with a well ripened toxin. The pseudoreaction is only occasionally seen in children, but in adults it is frequently

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* Presented before the Section on Medicine, New York Academy of Medicine, Oct. 16, 1917.

noted and often gives rise to a wrong interpretation of the reaction. In applying, therefore, the Schick test to adults, one is confronted with the necessity of controlling the reaction so as to promptly separate the pseudo from the true reaction. The false reaction is due to the autolyzed protein of the diphtheria bacillus, and not to the soluble toxin which gives rise to the true reactions. This protein represents the body substance of the diphtheria bacilli, which have disintegrated and become dissolved in the broth culture used for making the toxin.

In order to determine whether a reaction was a positive or a pseudoreaction, the following procedure was adopted: Diphtheria toxin heated to 75 C. for five minutes was used as a control. By the heating of the test toxin, the soluble toxic fraction was destroyed, while the autolyzed protein was not appreciably affected. To allow, however, for any slight deterioration, we used in the control 50 per cent. more of the heated toxin. For the Schick test the toxin was used in the strength of 1 : 1,000 (the minimal lethal dose is 0.01 c.c.) ; for the control, the heated toxin in the strength of 1.5 : 1,000. The Schick test was made in the usual way on the right forearm, and at the same time the test for the pseudoreaction was made on the left forearm.

The reactions were read twice, once at the end of forty-eight hours and again at the end of ninety-six hours. The pseudoreaction, as is well known, develops more rapidly than the true reaction; for that reason the early reading is quite important for its identification. The scheme given in Table 1 will show the appearances of the reactions.

The positive reaction shows in forty-eight hours a moderate degree of redness at the site of the test, and none at the site of the control. At ninety-six hours the positive reaction appears well marked, the control remaining negative.

The pseudoreaction shows in forty-eight hours a well marked redness, at the site both of the test and the control. The reaction fades quite rapidly, so that at the end of ninety-six hours there is seen only a bluish-brown area of pigmentation on both forearms. This shows the necessity of making the early reading at the end of forty-eight hours.

TABLE 1.—APPEARANCES OF THE REACTIONS *

| | Positive | | Pseudo | | Combined | | Negative | |
|---|---|---|---|---|---|---|---|---|
| Time | Rt. | Lt. | Rt. | Lt. | Rt. | Lt. | Rt. | Lt. |
| Forty-eight hours .. | ± | — | + | + | + | + | — | — |
| Ninety-six hours ... | + | — | ± | ± | + | ± | — | — |

* The signs +, ± and ± indicate varying degrees of redness.

The combined reaction, representing a positive and a pseudoreaction, gives at the end of forty-eight hours an appearance similar to that seen with the pseudoreaction; but at the end of ninety-six hours the positive reaction at the site of the test stands out distinctly, while the control shows only the blotchy area of pigmentation.

The negative reaction shows no redness in either the test or in the control.

The positive and combined reactions indicate that the individual is susceptible; the negative and the pseudoreactions, that he is immune to diphtheria.

In children the pseudoreaction is not as frequent as in adults, and the Schick reaction as a clinical test is much simplified by omission of the control test, and by the making of a single observation at the end of seventy-two or ninety-six hours.

Table 2 shows the results noted among 2,648 recruits for the National Army.

It is interesting to note in the first increment that the number of pseudoreactions is about the same as that of the positive reactions. In this group the readings were made at the end of forty-eight and ninety-six hours. In the second increment the number of pseudoreactions is smaller, that of the positive reactions larger. This is explained by the fact that, owing to the rapid assignment of the recruits to the different regiments, it was often difficult to take more than one reading, and that, in many instances, not before the fifth or sixth day. In this way some of the pseudoreactions were missed altogether.

TABLE 2.—RESULTS OF SCHICK TEST AT CAMP UPTON, N. Y.

| Schick Test | Total | Per Cent. |
|---|---|---|
| First Increment, 1,165— | | |
| Negative | 848 | 72.8 |
| Pseudo | 143 | 12.2 |
| | | 85 |
| Positive | 154 | 13.3 |
| Combined | 20 | 1.7 |
| | | 15 |
| Second Increment, 1,483— | | |
| Negative | 1,072 | 72.3 |
| Pseudo | 143 | 9.7 |
| | | 82 |
| Positive | 262 | 17.6 |
| Combined | 6 | .4 |
| | | 18 |

It will not be difficult to carry out the work systematically after these men are grouped in units. The regimental surgeons should be able to make the tests, read the reactions, and have the results noted on the service record of each recruit. Such a record is of value, since it is probable that the individuals who give a negative Schick reaction or a pseudoreaction are protected for several years and possibly for life. Those who show a positive or a combined reaction are the only ones that need to be immunized with a dose of antitoxin during an outbreak of diphtheria. These individuals should also be actively immunized with diphtheria toxin-antitoxin, so as to develop a lasting protection against this disease.

## CONCLUSIONS

1. The Schick test on soldiers gathered in camps is a practical procedure, and can be accurately interpreted by using a simultaneous control with heated toxin.

2. The amount of heated toxin in the control solution should be 50 per cent. more than the unheated toxin in the test solution.

3. Observations should be made at the end of forty-eight and ninety-six hours, and the final results noted on the service records.

4. Those giving a positive Schick reaction should be actively immunized with diphtheria toxin-antitoxin.

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**Catgut Netting to Stimulate Granulation in Wounds.**—The *Nederlandsch Tijdschrift* summarizes an article on this subject by Neuhäuser in the *Berliner klinische Wochenschrift,* No. 34. He was impressed with the way the tissues grow exuberantly into the openings in a drain tube left long enough, and became convinced that the stimulus of a foreign body aids materially in regeneration. By taking catgut, the foreign body need not be removed when used for this purpose. He made a network of No. 3 or 4 catgut, and pressed it on the surface of the wound, carrying it down into all crevices. The experiences with this artificial mode of stimulating regeneration are reported as extremely favorable.

# THE PSYCHIATRIC EXAMINATION OF RECRUITS

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When psychiatric work was begun at a naval training station, a new work was being undertaken. No precedents had been established, and no approved method was in vogue. For this reason the first effort was to seek out and understand the special problem presented. Enough work had been done to show that nervous and mental diseases occur in the Naval Service, and that most of these probably antedate enlistment. An analysis of the reports of the Surgeon-General has been made, and the following facts gleaned from the 1916 report, showing the relation of neurology and psychiatry to the Medical Department for the year 1915:

Total men invalided from the service, 1,272, or 18.68 per thousand.

For nervous and mental diseases, 244, or 3.57 per thousand (by corrected classification, 270, or 21 per cent.).

That is, 19 per cent. of those invalided from the service were for nervous or mental diseases.

Total damage from all diseases, 2,914.55.

Damage from nervous and mental diseases, 213.7, or 7.3 per cent. of total damage.

Total sick days, all diseases, 776,203.

Sick days from nervous and mental diseases, 31,319, or 4 per cent. of total sick days.

Of the total of 44,743, 1,272, or 2.5 per cent., were invalided from the service.

In 621 nervous and mental cases, 244 men, or 39 per cent., were invalided from the service.

Thus, though the total sick days and damage is relatively small, as a cause for total loss from the service, nervous and mental diseases rank high.

In addition there were 21 suicides, constituting 6.8 per cent. of the total deaths during the year.

Of 104 recruits rejected at Norfolk, 21, or 25 per cent., were for nervous disease.

The foregoing figures should be contrasted with recruiting statistics:

Total number of applicants examined, 106,392.

Total applicants rejected, 74,280.

Total applicants rejected for mental diseases, 273, or 0.0025 per cent.

Nervous diseases are not mentioned in the list at all; but as all important causes are given, the number may be assumed to be lower than that for mental diseases.

The main types of nervous disease for which men were invalided from the service are given in Table 1, classified according to the probable time of onset.

The most striking thing about these figures is the almost entire lack of the feebleminded group. This is readily explained by examination of the annual report of the Judge-Advocate General of the Navy, for the year 1916, coupled with known facts regarding delinquency (Table 2).

King's analysis of causes of delinquency assign mental disease in 32.9 per cent. of the cases. If this percentage holds true in the Navy, the loss to the Navy per year on account of mental disease is greater for disciplinary reasons than for medical causes. Both combined would approximate 4 per cent. of the total personnel.

The fact that one was to deal with a medically selected group would indicate that those presenting grosser symptoms of mental disease would have been already eliminated. Certain military considerations limit and so simplify the problem. The vast majority of those to be examined were between 18 and 25 years of age, making alcoholic and syphilitic mental disease unlikely. Also educational requirements in large groups, such as hospital apprentices, and landsmen for yeomen and machinist's mates, could be expected to eliminate the feebleminded. Then, too, certain diseases, such as stammering and bed wetting, are more important handicaps than in civil life. In other branches, such as apprentice seamen and firemen, third class, educational requirements are nil.

The work, therefore, has been undertaken from the standpoint of the investigator, and an attempt made to determine, first, the incidence of nervous and mental disease among recruits, and secondly, the desirability of accepting or rejecting each class, as well as to eliminate those obviously unfit. The much discussed problem of malingering, of course, occurs, but as all naval recruits are volunteers who wish to enter the Navy, many to avoid draft in the Army, and so would cover up rather than produce symptoms, this problem has been a slight one.

TABLE 1.—MAIN TYPES OF NERVOUS DISEASE FOR WHICH MEN WERE INVALIDED

| | |
|---|---|
| Group 1. Diseases surely present at time of enlistment: | |
| Constitutional inferiority | 36 |
| Constitutional psychopathic state | 11 |
| Imbecility | 1 |
| Somnambulism | 1 |
| Stuttering and stammering | 4 |
| Total | 53 |
| Group 2. Diseases probably existing at time of enlistment: | |
| General paralysis | 5 |
| Dementia praecox | 46 |
| Epilepsy | 51 |
| Tabes | 1 |
| Incontinence of urine | 4 |
| Neurosis of bladder | 46 |
| Total | 153 |
| Group 3. Predisposing causes, probably existing at time of enlistment: | |
| Hysteria | 53 |
| Neurasthenia | 31 |
| Psychasthenia | 14 |
| Total | 98 |

TABLE 2.—DELINQUENCY IN THE NAVY AND IN THE ARMY

| | |
|---|---|
| Total number of men handled during the fiscal year | 72,885 |
| Discharged in honorable status at expiration of enlistment | 10,284 |
| Discharged as undesirable for inaptitude, or with ordinary discharge, not recommended for reenlistment | 756 |
| Dishonorable discharges | 1,000 |
| Bad conduct discharges | 2,296 |
| Total | 4,052 |
| Total desertions for the year | 1,681 |
| Also men coming before general court martial | 2% |
| Men coming before summary court martial | 12% |
| Men coming before deck court | 9% |

The last figures do not include mast cases, the most numerous of all. King* gives figures on Army delinquency as follows:

| | |
|---|---|
| 1908-1913, total enlistments | 250,704 |
| Bad conduct discharges | 30,000 |
| or | 12% |
| Desertions | 23,000 |

*King, Edgar: The Military Delinquent, quoted in Mental Hygiene, July, 1917, p. 433.

## METHOD

In general, psychiatric methods are cumbersome, and the machinery of a military establishment is rapid and precise; so it was obviously necessary to abandon clinical ideals, and find a method which was workable and effective if not ideal and which would not interfere with the routine of the station. Conservatism was demanded, and the application of known methods and facts, rather than the trial of new theories. The selection of cases for examination presented difficulties. One must either depend on others not especially trained or interested in psychiatry to refer suspects, or must see every man oneself. The latter alternative was chosen. This meant seeing a large number of men daily. The number has varied from 10 to 125, averaging 32.5 per day. Each man when accepted is given an outfit valued at $60 or more; thus the advantage of examination before outfitting is seen, as this outfit is the man's own property and is a total loss to the government, if he is accepted and subsequently discharged. Besides, these men must be seen quickly, as the routine of the first day is full. Frequently it has been necessary to see over sixty men in an hour.

Psychologic methods were considered and rejected for two reasons: First, they are too cumbersome. Second, the application of the findings is not specific enough, and applies largely to the feebleminded group.

The routine that has been established makes inspection, with school and social history, that is, the knowledge of the previous conduct of the individual, the basis of first judgment. On arrival, each man is interviewed, seated along beside the examiner's desk. Thus favorable conditions for getting the true history are present. In each case a card is filled out with data on the name, date, number, age, civil condition, rate, home, place of enlistment, physical examination, appearance, school, occupation, medical history, alcoholic history, arrests, symptoms and fitness (1, 2, 3). The patient's manner, general attitude, clothes and mental reaction are considered. The relation between the home and the place of enlistment is very important, especially among the younger recruits, for how could a dull, dirty boy of 18, living in New York, enlist in Denver without riding freights? Complete neurologic examination is not made, but signs like tremor, goiter, asymmetry or unequal pupils are noted. Only striking things are noted under appearance. As no illiterates are received, the school history is of the greatest importance in eliminating defectives. All who have less than eighth grade schooling are questioned carefully regarding the cause for this.

Occupation ranks next in importance. A man of neat appearance, who has just resigned a position as a bank cashier to enlist, quite obviously is not feebleminded or insane, while the man of odd jobs is always a suspect. Under medical history a general question or two regarding health and one or two questions attempting to rule out psychoneurosis, bed wetting, epilepsy and sleep walking are asked. Alcoholic or criminal histories are sought only when suspected. Positive symptoms are then recorded and the man graded in one of three groups. About 80 per cent. have shown nothing to arouse any suspicion of nervous or mental disease, and are put in Group 1. These are then ready to be given outfits, and are never seen again, unless subsequently referred to the psychiatrist, and the fact that only three patients in this group have been referred back with nervous or mental disease during three months and for a total of over 2,200 cases would indicate that nervous and mental diseases can be excluded in about 80 per cent. of the recruits after a one minute examination, with an error of about 0.05 per cent.

If there is some obvious nervous or mental disease present like stammering, a recent convulsion or severe psychoneurosis, the patient is held at the recruit house, and after conference with the medical officer in charge is discharged. This constitutes about 1 per cent., and is called Group 3. If some suspicion of nervous or mental disease arises, the recruit is put in Group 2 as doubtful. As the feebleminded are being accepted at present, they are all in this group. These doubtful cases are given outfits and sent to the detention barracks. One week later they are examined at leisure and an attempt made to put them either in the normal or abnormal group. Otherwise they are kept on the doubtful list. About one fourth of the doubtful group prove to be psychopathic. Any member of Group 1 who subsequently comes to the attention of the examiner is put in Group 2 or 3, as may be. If there are only a few recruits to be examined, a good deal of time may be taken for examination, and so Group 2 is kept small, while in the rush of busy days it may be expanded. All the cards of men in Groups 2 and 3 are kept filed, and an attempt is made to trace their career in the Navy. So, with the constant flow of men through a station, the whole population is soon completely classified. This initial examination can be made in about one minute. Seventy-five have been done in an hour. Usually four or five minutes are available for examination of each man.

Psychopathic individuals, after being given outfits, come to the attention of physicians, company commanders and disciplinary officers, so that the following program for psychiatric work at a naval training station is suggested:

1. Examination of all recruits as explained above.
2. Examination of all delinquents.
3. Examination of patients referred by physicians.
4. Examination of men referred by company commanders. To this might be added an attempt to interest and instruct recruiting officers in a district drained by the station to prevent first enlistment. This program can be well carried out by one psychiatrist, with the assistance of a trained man to do formal tests and some clerical work, provided arrivals do not exceed 100 a day.

## FINDINGS

The first 2,000 consecutive cases have been analyzed as in Tables 3 and 4.

Since this work was begun, forty-two men have been invalided from the service at this station, twenty-one, or 50 per cent., being for nervous and mental diseases. Diagnoses in the nervous and mental cases are given in Table 5, those in italics being from the 2,000 consecutive cases.

The number included in the 2,000 cases is sixteen, or 0.8 per cent. All of these, except the paralysis of the ulnar nerve, existed prior to enlistment, and all others were detected in the recruit house, except one epilptic and one instance of neurosis of the bladder. Several of the feebleminded have already been given bad conduct discharges, but complete data on this matter are not at present available.

By far the largest and most important group is the feebleminded. This number, comprising 2 per cent., is conservative, and does not include many very inferior but somewhat doubtful cases. This group rarely if ever comes to the attention of medical officers, but it appears from my own observation, as well as from the opinion of medical officers of many years' experience, that the members of the group are soon eliminated through desertion, inaptitude and bad conduct. Furthermore, this group does not represent the average feebleminded, but the restless, roaming, troublesome type. Many gave a history of vagrancy, and enlisted a day or two after landing in a town on freight trains. Most of them could have been eliminated if a school and short social history had been taken at the point of enlistment.

The psychoneurotic group, 0.85 per cent., comprises only those who gave a history of nervous trouble and who were actually treated within two weeks after arrival at the station. All were detected at the recruit house, for these men are rather anxious to tell their symptoms. Again, more history should be taken by medical officers on recruiting duty. The psychoneurotics present a pitiful picture in a military establishment, and are sooner or later eliminated.

TABLE 3.—FINDINGS IN TWO THOUSAND CASES

| | Per Cent. |
|---|---|
| Ages: | |
| Under 21 years | 32+ |
| From 21 to 25 years, inclusive | 48+ |
| From 26 to 30 years, inclusive | 13+ |
| From 31 to 34 years, inclusive | 4+ |
| Education: | |
| Less than 8th grade | 17 |
| Eighth grade or more | 83 |
| High school or more | 44 |
| College, not including business college | 11 |
| Ratings: | |
| Apprentice seamen | 49+ |
| Firemen, third class | 16+ |
| Hospital apprentices, second class | 13+ |
| Landsmen for yeomen | 7+ |
| Eighteen miscellaneous ratings | 15+ |
| Ratings with educational or special requirements other than physical examination. This group contained no feebleminded | 29 |

TABLE 4.—DIAGNOSES

| | Number | Per Cent. |
|---|---|---|
| Feebleminded | 40 | 2 |
| Psychosis neurosis | 17 | .85 |
| Psychosis | 2 | .1 |
| Epilepsy | 4 | .2 |
| Stammering | 5 | .25 |
| Enuresis | 2 | .1 |
| Chronic alcoholism | 2 | .1 |
| Psychopathic personality | 2 | .1 |
| Defective delinquents | 3 | .15 |
| Habit spasm | 1 | |
| Malingering | 1 | |
| Somnambulism | 1 | |
| Hermaphrodism | 1 | |
| Total | 81 | 4 + |
| Goiter | 33 | 1.65 |

TABLE 5.—DIAGNOSES IN NERVOUS AND MENTAL CASES*

1. Hypochondriasis
2. Hysteria
3. *Psychasthenia*
4. *Stammering*
5. *Psychosis, infectious*
6. *Constitutional inferiority*
7. *Imbecility*
8. Imbecility
9. *Epilepsy*
10. Hysteria
11. *Epilepsy*
12. *Imbecility*
13. *Neurasthenia*
14. *Epilepsy*
15. *Stammering*
16. *Neurasthenia*
17. *Epilepsy*
18. *Paralysis of nerve, ulnar*
19. *Atrophy of testicle (hermaphrodism)*
20. *Neurosis of bladder*
21. Imbecility

*The diagnoses in italics are from the 2,000 consecutive cases.

Three of the four epileptics gave a history of unconscious attacks at the recruit house, were held there until they had a fit, and were then eliminated from the service. The small number of cases of constitutional inferiority and psychopathic personality is probably due to nonrecognition rather than to their absence, as these persons come to one's attention only when they get into trouble. The large number of goiter cases, all probably of the simple type, is explained by the large number of recruits from Washington and Oregon. The lack of dementia praecox cases seems to show that present methods eliminate this group, though an occasional hebephrenic case would probably get by without being detected.

## CONCLUSIONS

1. About 4 per cent. of recruits as at present enlisted show some nervous or mental disease, the most important of which are mental defect and psychoneurosis.

2. Inspection, with brief school, social and medical history, will eliminate nervous and mental diseases in more than 80 per cent. of the cases. In the remainder, more extended psychiatric examination is necessary.

3. If recruits with a history of backwardness in school, low economic efficiency and delinquency were rejected, the troublesome, worthless group, including the feebleminded, would be eliminated. Recruiting officers should avail themselves of police records in doubtful cases.

4. It is my opinion that a brief history furnishes the most practical method of isolating the small group needing special psychiatric examination.

# THE BLOOD OF WORKERS IN TRINITROTOLUENE

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During the last few years, trinitrotoluene (T. N. T.) has taken its place among the important industrial poisons.

According to Panton,[1] the types of sickness that may occur from the absorption of trinitrotoluene are: (1) severe gastric disturbance, without jaundice or anemia; (2) anemia of the aplastic type, and (3) toxic jaundice. The jaundice patients may acquire the aplastic anemia also.

The symptoms complained of by workers in trinitrotoluene have been carefully investigated by Livingstone-Learmonth and Cunningham.[2]

From analogy, it was thought changes in the blood might occur after continued absorption of trinitrotoluene, as is the case with certain other benzene compounds, notably benzene (benzol, $C_6H_6$) and dinitrobenzene (D. N. B.).

Selling[3] and others have shown that a condition of aplastic anemia may result from benzene poisoning. The power of benzene to reduce the number of leukocytes has been made use of in leukemia.

Malden[4] gives a report of the blood findings based on the examination of twenty-one men employed and still at work in dinitrobenzene. He found that the red blood count was reduced. The red blood cells varied in size and shape, and constantly showed marked basophil granulation. Nucleated red blood cells were occasionally decreased, the color index being normal. The total white blood count was increased, but with considerable relative decrease in the polymorphonuclear cells. Eosinophil cells sometimes and the mast cells more often were relatively and absolutely increased.

The report of the British Ministry of Munitions,[5] discussing the effect of dinitrobenzene, states that on absorption it produces in all persons alike its chemical effect on the blood, varying in degree according to dosage. The report states also that blood changes in trinitrotoluene poisoning appear to be the same in kind as those for dinitrobenzene, though less in degree.

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[1] Panton: Lancet, London, 1917, **2**, 77.

[2] Livingstone-Learmonth and Cunningham: Lancet, London, 1916, **2**, 261.

[3] Selling: Bull. Johns Hopkins Hosp., 1910, **21**, 33.

[4] Malden: Jour. Hyg., 1907, **7**, 672.

[5] Ministry of Munitions: Lancet, London, 1916, **2**, 1026.

Panton,[1] who investigated the effect of trinitrotoluene on the blood of fifty women workers in England, says that the red blood count, the hemoglobin and the color index were not adversely affected. The morphologic character of the red blood cells throughout was normal. Not a single nucleated red blood cell nor a single cell showing granular degeneration was observed in fifty stained preparations. A very slight degree of poikilocytosis was seen in a few films. The white blood cells, in a large percentage of cases, were above normal in number. The relative proportions of white blood cells were not greatly altered, but many cases with high counts showed a distinct relative increase in the polymorphonuclear neutrophils. The eosinphil cells were in a large number of cases above the normal. Very few abnormal white cells were seen in any preparation. Panton thinks it probable that this leukocytosis, usually of the inflammatory type, is due to a stimulation of the hematopoietic system by the poison.

BLOOD FINDINGS

| No. | Age | Color | Time Employed | Color Index | Hemoglobin | Red Blood Cells | White Blood Cells | Differential Count | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Neutrophils | Basophils | Eosinophils | Mononuclears | | Transitionals |
| | | | | | | | | | | | Large | Small | |
| 1 | 32 | W. | 6 mo. | 0.76 | 75 | 4,952,000 | 6,700 | 56 | 2 | 2 | 35 | 4 | 3 |
| 2 | 35 | W. | 6 mo. | 0.87 | 90 | 5,296,000 | 8,600 | 84 | 0 | 1 | 10 | 4 | 1 |
| 3 | 23 | W. | 2 yr. | 0.75 | 78 | 5,208,000 | 7,100 | 75 | 0 | 1 | 15 | 5 | 4 |
| 4 | 23 | W. | 7 mo. | 0.98 | 85 | 4,392,000 | 6,850 | 55 | 0 | 1 | 36 | 3 | 5 |
| 5 | 64 | W. | 6 mo. | 0.76 | 75 | 4,960,000 | 6,700 | 47 | 1 | 3 | 33 | 8 | 8 |
| 6 | 53 | W. | 6 mo. | 1.00 | 88 | 4,416,000 | 5,500 | 53 | 2 | 0 | 40 | 3 | 2 |
| 7 | 52 | W. | 1½ yr. | 0.91 | 90 | 4,976,000 | 12,000 | 78.5 | 0.5 | 0 | 15 | 3 | 3 |
| 8 | 25 | W. | 6 mo. | 0.81 | 75 | 4,600,000 | 6,900 | 54 | 0 | 4 | 27 | 9 | 6 |
| 9 | 29 | W. | 3 yr. | 0.81 | 90 | 5,528,000 | 9,500 | 73 | 1 | 1 | 15 | 7 | 4 |
| 10 | 25 | W. | 4 mo. | 0.76 | 80 | 5,216,000 | 10,300 | 69 | 1 | 2 | 13 | 6 | 9 |
| 11 | 24 | W. | 7 mo. | 0.97 | 90 | 4,624,000 | 11,800 | 73 | 0 | 4 | 19 | 3 | 1 |
| 12 | 26 | W. | 6 mo. | 0.81 | 85 | 5,240,000 | 7,600 | 65 | 1 | 6 | 20 | 4 | 4 |
| 13 | 62 | W. | 3 yr. | 0.83 | 80 | 4,800,000 | 9,600 | 72 | 1 | 5 | 16 | 6 | 0 |
| 14 | 49 | W. | 1 mo. | 0.88 | 85 | 4,888,000 | 8,900 | 64 | 0 | 8 | 25 | 1 | 2 |
| 15 | 41 | W. | 5½mo. | 0.93 | 80 | 4,392,000 | 7,050 | 66 | 0 | 1 | 26 | 4 | 3 |
| 16 | 39 | B. | 3 mo. | 0.86 | 80 | 4,600,000 | 4,750 | 49 | 1 | 7 | 34 | 5 | 4 |
| 17 | 37 | B. | 3½mo. | 0.96 | 85 | 4,456,000 | 6,200 | 59 | 0 | 2 | 35 | 2 | 2 |
| 18 | 21 | B. | 4½mo. | 0.81 | 95 | 5,848,000 | 7,700 | 69 | 0 | 6 | 20 | 4 | 1 |
| 19 | 27 | W. | 3 mo. | 0.95 | 95 | 5,008,000 | 5,700 | 56 | 1 | 1 | 29 | 8 | 5 |
| 20 | 46 | B. | 4 da. | 0.95 | 95 | 5,024,000 | 8,500 | 47 | 0 | 6 | 35 | 7 | 5 |
| 21 | 42 | W. | 5½mo. | 0.93 | 90 | 4,840,000 | 8,050 | 60 | 1 | 8 | 22 | 8 | 1 |
| 22 | 42 | B. | 4 mo. | 1.00 | 90 | 4,576,000 | 9,750 | 52 | 1 | 2 | 26 | 12 | 7 |
| 23 | 28 | B. | 5 mo. | 0.98 | 85 | 4,376,000 | 8,000 | 61 | 0 | 1 | 24 | 9 | 5 |
| 24 | 21 | W. | 3 mo. | 0.89 | 88 | 4,992,000 | 11,100 | 63 | 0 | 2 | 25 | 3 | 7 |
| 25 | 30 | W. | 5½mo. | 0.80 | 85 | 5,312,000 | 9,650 | 67.5 | 0.5 | 7.5 | 19.5 | 3.5 | 1.5 |

The present report is based on the examination of twenty-five men who were employed where trinitrotoluene in its finely powdered form was used in the filling of shells.

These men had been working in the same room at various tasks from foreman to that of janitor. The air of this room was more or less constantly filled with trinitrotoluene dust. All the men were at work at the time of examination. A majority of the men had been at work for five months or longer.

None of the workers was sick at the time of examination, but a few had slight blueness of the lips, and several admitted having abdominal pains, "full feeling" in the epigastrium, constipation, and two or three had had skin rashes. Nearly all experienced the bitter taste, which they counteracted by chewing tobacco. A few had an irritative cough, lacrimation and smarting of the eyes. Many wore hats to keep their hair from turning to the characteristic orange-yellow color. No case of jaundice or of anemia was noted.

There can be no doubt that there was ample opportunity for the absorption of trinitrotoluene through the skin and by way of the respiratory tract.

The blood findings in the twenty-five men examined were for the most part negative. So far as the red blood cells and the hemoglobin were concerned, no such changes were found as noted by Malden among the dinitrobenzene workers. This, on the whole, agrees with the work of Panton, in his investigation of the effect of trinitrotoluene on the blood.

The hemoglobin, the red blood cells and the white blood cells were not markedly affected.

No poikilocytosis, anisocytosis, basophilic granulations, or nucleated red blood cells were observed.

The white blood cells, in a large percentage of cases, were somewhat above normal in number.

The differential counts showed some variation from the normal, the polymorphonuclear neutrophils being increased in many instances, and the eosinophilic cells slightly increased in about 40 per cent. of the cases.

The platelets appeared normal.

The accompanying table gives the blood findings in detail.

410 Chestnut Street.

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## Therapeutics

### WARTS

Warts need little description. For the most part they are simple affairs occurring most frequently on the hands. Although they may develop in certain diseased conditions and at times seem to develop in conjunction with disturbances of the internal secretions, it is coming to be believed that they are caused by micro-organisms and are probably auto-inoculable. A crop of warts may seem to resist every treatment, and suddenly without any known causative influence entirely disappear within a few days. For this reason, all sorts of absurd treatments have been suggested, and some of them have numerous adherents among the laity. At the same time numerous treatments have been described in medical literature, and many of these have achieved a following. Lately the long administration of lime in some form to increase the lime content of the blood and tissues is being revived as a method of treatment.

Local treatments directed to the warts are usually successful in removing these unsightly protuberances. Among the escharotics that have been suggested are painting with glacial acetic acid. Stronger caustics, such as nitric acid, potash, formaldehyd solutions of the strength of the official preparation, etc., should be used with great caution. The surrounding skin should always be protected.

Very efficient methods for the removal of warts are burning with the thermocautery followed by application of mild corrosive preparations, application of radium, or several treatments with the roentgen ray. The use of "carbon dioxid snow" is also efficient.

A time-worn prescription is salicylic acid in collodion:

| | | gm. or c.c. |
|---|---|---|
| ℞ | Salicylic acid | 2 |
| | Collodion | 30 |

The wart should be touched with this solution two or three times a day, each time the film of collodion being removed.

A more sedative and as efficient a preparation is:

| | | gm. or c.c. |
|---|---|---|
| ℞ | Chloral hydrate | 10 |
| | Salicylic acid | 2 |
| | Collodion | 30 |

Also the following is suggested:

| | | gm. or c.c. |
|---|---|---|
| ℞ | Calomel | 1 |
| | Salicylic acid | 2 |
| | Wool fat | 20 |

This should be applied to a wart two or three times a day:

A more active solution is:

| | | gm. or c.c. |
|---|---|---|
| ℞ | Chrysarobin | 2 |
| | Collodion | 30 |

## CARE OF FEET IN TRENCHES

The following extract from orders issued to the British army in France for the prevention of chilled feet and frostbite is taken from the *Army and Navy Journal.* As a result of this experience the same precaution will be followed by United States troops serving abroad:

### PREVENTION OF CHILLED FEET AND FROSTBITE

These conditions are caused by prolonged standing in cold water or mud, and the continued wearing of wet socks, boots and puttees. They are brought on much more rapidly when the blood circulation in the feet and legs is interfered with by the use of tight boots, tight puttees, or the wearing or anything calculated to cause constriction of the lower limbs.

They can be prevented or diminished by improvements to trenches leading to dry standing and warmth; by reducing the time spent in the trenches as far as the military situation permits; by regimental arrangements insuring that, so far as is possible, men enter the trenches warmly clad in dry socks, boots, trousers and puttees, and with the skin well rubbed with whale oil or antifrostbite greases; by provisions of warm food in the trenches when possible, by movement, when possible, so as to maintain blood circulation; by the provisions of warmth, shelter, hot food and facilities for washing the feet and drying wet clothes for men leaving the trenches.

In order to minimize the prevalence of chilled feet and frostbite, commanding officers will be held responsible that the following instructions are carried out unremittingly and under the strictest supervision: Before entering the trenches, feet and legs will be washed and dried, and then well rubbed with whale oil or antifrostbite grease, and dry socks put on. It is of the utmost importance that whale oil or antifrostbite grease should not merely be applied, but thoroughly rubbed in until the skin is dry. Unless the precaution is systematically carried out, the oil and grease become in a great measure valueless. A second pair of dry socks will be carried by each man and, where possible, battalion arrangements will be made for socks to be dried and reissued during each tour of duty in the trenches. While in the trenches boots and socks will be taken off from time to time, if circumstances permit, the feet dried, well rubbed and dry socks put on. On no account will hot water be used, or the feet held near a fire.

Where possible, hot food will be provided during tours of duty in the trenches. Where circumstances admit, long gum boots will be put on while the men's feet are dry, before entering wet trenches, in order that men start their tour of duty with dry feet. When gum boots are worn it is well to support the socks by some form of fastening, such as a safety pin, to prevent them from working down under the heel. On no account will anything in the form of a garter be worn.

When conditions are favorable, regimental rest posts will be instituted in proximity to the trenches, where men who show signs of suffering from exposure can be promptly attended to.

Under brigade arrangements, provision will be made for the washing and drying of feet in reserve billets, for the exchanging of wet socks for dry ones, and if possible, the sending of the latter to the trenches, and for drying and brushing clothes. Steps will be taken to insure that men make use of these arrangements.

Long gum boots are being issued to the fullest extent of the supply available, and every effort will be made to procure all that are necessary for men holding water-logged trenches. It is pointed out that the distribution of these boots depends on the necessity for their use according to the nature of the trenches held by divisions, brigades, etc., and that, therefore, the distribution will be made, not according to the numerical strength of formations, but according to the nature of the trenches which formations are required to hold. It has been noticed that men wear these boots in billets and localities a considerable distance behind the trenches. Long gum boots are solely for the use of men in the trenches, and will not be issued to or used by men under any other conditions.

## PERSPIRING AND FROZEN FEET

Following the publication "Sweating of the Feet and Axillae" (Therapeutics, The Journal, Jan. 12, 1918), several subscribers have volunteered further suggestions. Dr. Charles T. St. Clair, Bluefield, W. Va., writes:

I have found from personal experience that coal oil (kerosene) applied night and morning to old painful, itching frostbites of the feet gives almost immediate relief. It should be applied with a cloth and cotton soaked in the kerosene and allowed to evaporate, which it will do in a few minutes. If the sock is put on and the person goes to bed with the foot still wet with the oil, it may burn the skin.

Dr. Valentine M. Reichard of Fairplay, Md., writes:

I desire to add my experience, which has proved, by more than thirty years' trial, that ordinary powdered alum is a specific for sweating of the feet. For one who has suffered subjectively or objectively from perspiring or odorous feet, any decided relief is a great boon. Such relief does not come from bathing. It is not a matter of cleanliness alone. If the patient will simply dust the feet with powdered alum, also dusting some of it into stocking or sock before putting the stocking or sock on the foot, and will then dust some more of the powder into the shoe before putting it on, and will keep water off the feet, the relief will be prompt and most gratifying.

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**Nature's Laboratory.**—It is too often overlooked that for century after century Nature has been pitilessly performing her crude and cruel experiments and killing millions of human beings every year.—W. W. Keen.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

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*Contributors, subscribers and readers will find important information on the second advertising page following the reading matter*

SATURDAY, JANUARY 26, 1918

As a result of the congested and chaotic condition of the railroads which has prevailed for many weeks, there naturally has been a derangement of the postal service. This is especially true as it applies to second-class matter. Because of this condition some of our readers have not been receiving, and will not receive, their Journal as regularly, or as early, as they did during normal conditions. Now the necessity of closing each Monday is introducing further complications: This means the loss of one full working day each week, and may not only increase the delay in the delivery of The Journal, but also make it necessary occasionally to decrease its size.

A reminder: For the sake of economy we are delaying sending bills to Fellows and subscribers, hoping that the majority will remit without subjecting the Association to the expense of billing. Thus far the response to our appeal[1] has been extremely gratifying. But there still are many from whom we have not heard.

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[1] See yellow insert in The Journal, Dec. 29, 1917.

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## THE FOOD OF THE POORER CLASSES IN WAR TIME

Modern philanthropy has been contrasted with the more haphazard forms of charitable undertakings of the past by the designation "enlightened philanthropy." It aims not only to bring relief to the situations that demand help, but also to investigate the causes of the difficulties at issue, and to seek to avert or ameliorate them. It has often been said that the poor are always with us. The present war, however, has with unanticipated emphasis directed attention to those dependent for help on the public. The rapidly rising cost of living has tended to aggravate the hardships of all who are properly recipients of charity, so that they have in numerous instances been placed in most unfortunate situations. Now, more than ever before, it is essential to have helpful information which shall direct the policy of providing the necessities of life in an efficient and sympathetic manner. Food is foremost among the factors that determine human welfare. In times of stress it is of paramount importance, therefore, to have the expenditures for nutrients made in such a way as to secure the best return for the money spent. Indeed, this is equally true, whether the outlay involves the private purse or the funds of philanthropic agencies.

Sociologic workers and students of the nutrition of the people are well aware that consideration of changes in the dietaries of large groups must start with an understanding of their food habits. These form the basis for the initiation of changes in the dietary; they also underlie the question as to the adequacy of any regimen. Only by appreciating the purchasing habits of people can we hope to determine whether they are being suitably nourished, so far as present information will permit an answer to this problem, and, if not, what changes are indicated as desirable.

Two recent investigations have a peculiar timeliness in this regard. One of them, a study of the adequacy and economy of some city dietaries, conducted by Sherman and Gillett[1] under the auspices of the New York Association for Improving the Condition of the Poor, represents the exact records of the amount and cost of the food eaten by each of 102 families living in cities, for a period of seven days in 1914-1915. The data thus secured were subjected to critical analysis from the standpoint of the expert in nutrition. The second investigation, authorized by the League for Preventive Work[2] in Boston, presents a somewhat similar analysis of the food problem affecting a large number of families of limited means in a large city. Both reports agree in a general way in finding that these families depend chiefly on bread, cereals, potatoes and meat (with some fish and eggs), with a full allowance of sugar, a moderate supply of butter and other fats, and a small amount of milk, vegetables and fruits. The weekly distribution of expenditures for the various groups, classified by the incomes of the families, was found last July to be as follows:

| Family Income | Expenditures for | | | |
|---|---|---|---|---|
| | Meat, Fish and Eggs | Fruit, Fresh Vegetables, Legumes and Potatoes | Milk | Flour, Cereals, Bread, etc. |
| From $10 to $14.... | $2.92 | $1.43 | $1.41 | $2.36 |
| From 15 to 19.... | 3.32 | 1.82 | 1.53 | 2.28 |
| From 20 to 24.... | 4.12 | 1.94 | 1.45 | 2.52 |
| From 25 to 29.... | 3.30 | 1.85 | 1.95 | 3.52 |

The largest expenditure for any one type of food is always for meat, the outlay for this being very rarely less than two dollars in a week, and sometimes amounting to over five dollars. In the record of ninety-two families, an average of 33 per cent. of the expenditure for food was for meat and fish. We are not prepared to conclude as unequivocally as do the investigators quoted that more meat is purchased than is necessary. This much seems certain, however, that the greater the expenditure for meat, the more expensive the dietary for adequate energy. It was found in most cases that the calories decreased gradually with the increase in the total expenditure for meats.

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[1] Sherman, H. C., and Gillett, L. H.: The Adequacy and Economy of Some City Dietaries, Pub. 121, Bureau of Food Supply, New York Association for Improving the Condition of the Poor, New York, 1917.

[2] Food Supply in Families of Limited Means, a Study of Present Facts of the Food Problem in Boston Families, League for Preventive Work, Boston, December, 1917.

The figures for milk consumption are of special significance. From the Boston data it appears that over 40 per cent. of the families studied purchased only a quart a day or less. In a study of more than 1,200 persons, including about 500 children, in these families, only about half a pint, or a glassful a day, was the average allowance of milk for all purposes, including its varied culinary uses. Yet even the moderate allowance of two-thirds quart per day per child, and one-third quart for adults, would have required a doubling of the purchase of milk. The Journal has repeatedly emphasized the unique value of milk in the dietary, and the pressing need of maintaining and even extending the present supply. To mention a single element, over 57 per cent. of the total calcium intake in nearly a hundred families of the classes here considered was derived from milk and cheese. If calcium is admittedly important, especially when there are small children, in the light of the foregoing actual experiences, milk ought to be made more accessible. Davis[2] has pointed out, furthermore, that a vigorous and persistent educational campaign must accompany any practical steps to cheapen milk or to distribute it more economically, else the latter efforts may meet as disappointing a response as did the "skim milk" campaign last summer in Boston. People must be taught the value of milk as food, says Davis, and in particular to look on it as a necessary food for children.

In view of the present shortage of sugar, it is interesting to note that 123 Boston families of the poorer classes bought between 4 and 7 pounds of sugar per week, the amount per person being on the average about three quarters of a pound. This is surely a generous allowance, and bears out the assertions of the Food Administration regarding the extreme liberality in the use of this foodstuff in the United States. On the other hand, the use of fruits and vegetables is all too limited among the poorer classes. The use of more milk with its unique constituent fat might make it safer to reduce the amount of high priced butter in the dietary, and increase the amount of less expensive fats of the oleo class.

It is thus interesting and important to find, among the families of the less well to do, errors in selecting foods which would seem, as Davis puts it, to be corrected by the same recommendations as the war demands for military reasons. Less meat, less sugar, more local products, among which vegetables are prominent, the use of substitutes to lower the costs—these are the war-time demands. The individual and the military demands thus run together; but as the Boston investigators remind us further, to change the food habits of any particular family does not become much less difficult because of this coincidence.

## AN INTERPRETATION OF SOME INTESTINAL FACTORS IN EXPERIMENTAL SCURVY

We recently called attention to the changing point of view which several prominent investigators of that form of experimental scurvy which most closely resembles human scorbutus are taking toward the etiology of the disease.[1] The theory that scurvy is a representative "deficiency disease" caused by the lack of suitable "vitamins" or other so-called accessory food substances in the diet—a view originally encouraged by the well tested analogy of vitamin deficiency in the case of beriberi—is being supplanted by considerations of another sort. Thus it is being maintained that the lack of suitable "ballast" in the diet, especially in the case of individuals or species which are adapted to voluminous alimentary contents as an aid to the discharge of feces from the bowel, is a predisposing cause.[2] In explanation of the untoward results of a ration devoid of feces-producing factors, it is alleged that impaction of the cecum may cause mechanical injury to the intestinal wall.

Granting the validity of such an assumption, at least two serious consequences may be expected: An irritated bowel may permit access of bacteria to the tissues and thus become responsible for an invasion of micro-organisms, or injury may result from the continued absorption of toxic products of bacterial putrefactive changes in the pent up contents of the bowel.

At the University of Illinois, Karr and Lewis[3] have tested one of these possibilities. Reminding us that the phenols of the urine derive their origin largely from the bacterial decomposition of protein derivatives in the intestine,[4] Karr and Lewis have investigated the urinary output of phenols in animals that have developed the scurvy caused by the exclusive feeding of cereals. It is believed that any marked increase in the bacterial action would be manifest by an increased phenol excretion in the urine, especially since the retention of feces should afford optimal conditions for the absorption of the products of putrefaction. On the other hand, it was realized that phenols are not the only toxic products of bacterial action: that they are derived only from the putrefaction of the aromatic amino-acids, and are therefore not absolute indexes of the intensity of bacterial processes in the intestine.

The outcome of these studies was negative. No changes in the urinary elimination of phenols or in the degree of conjugation of the phenols was observed, provided the factor of partial starvation was ruled out. This outcome may exclude the probability of any increased bacterial action in the intestine of scorbutic subjects sufficient to ascribe the pathogenic factor to an intestinal toxin. At any rate, phenols are not involved. It does not preclude the other possibility of bacterial invasion, a feature recently emphasized in the case of infantile scorbutus by Hess,[5] and also by the bacteriologic findings of Jackson and Moore[6] in the case of scorbutic guinea-pigs. Evidently the theories of the origin of scurvy are to be subjected in the immediate future to searching criticism.

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[1] Vitamin Hypothesis in Relation to Alleged Deficiency Diseases, editorial, The Journal A. M. A., Dec. 15, 1917, p. 2040.

[2] McCollum, E. V., and Pitz, W.: Jour. Biol. Chem., 1917, **31**, 229.

[3] Karr, W. G., and Lewis, H. B.: The Phenol Excretion of Guinea-Pigs Maintained on an Exclusive Oat Diet, Am. Jour. Physiol., 1917, **44**, 586.

[4] Compare Folin and Denis: Jour. Biol. Chem., 1915, **22**, 309. Dubin: Ibid., 1916, **26**, 69.

## TESTS OF ALIMENTARY HYPERGLYCEMIA AND GLYCOSURIA

A prominent aim in the management of diabetes is the production of increased tolerance for carbohydrate (and presumably also for the other foodstuffs) by the patient. The degree of success in this direction has been measured as a rule by observing the effect of definite intakes of starch or sugars on a single symptom, glycosuria. A moment's consideration suffices to show that the results of this method may be determined by no less than two factors: one, a metabolic factor related to the actual capacity to utilize absorbed carbohydrate; the second, an alteration in renal permeability that might occur quite independently of any more general alteration in the capacity to oxidize or transform sugar.

Both of these factors deserve to be taken into consideration. In an elaborate study of blood sugar at the Medical Clinic of the Johns Hopkins Hospital, Hamman and Hirschman[7] have thus presented the problem: Sometimes otherwise normal persons have a low renal threshold and sugar appears in the urine, although the blood sugar is only a little raised; more commonly still, renal permeability is decreased and little sugar or none comes out in the urine, although the blood sugar mounts to a high level. Under such circumstances one would conclude erroneously, in the first instance, that the patient had a low sugar tolerance; in the second instance, a high sugar tolerance.

The Baltimore investigators point out that it would be a decided advantage if we could give a single and constant dose of glucose, and from a study of the patient's reaction satisfactorily determine the sugar tolerance. Woodyatt and his collaborators in Chicago have pointed out the shortcomings of methods of ascertaining sugar tolerance that are based on alimentary administration of the carbohydrate.[8] In many respects their contentions are decidedly valid. The difficulties of suitable intravenous injection in studies of tolerance are not insuperable, as the newly devised and highly ingenious technic of Woodyatt and others demonstrates; but they are nevertheless sufficiently formidable not to be minimized.

On the basis of extensive observations made in a considerable variety of cases, Hamman and Hirschman have suggested a combination test of alimentary hyperglycemia and glycosuria to obtain an insight into carbohydrate economy. The patient to be tested receives 100 gm. of glucose in a lemonade in the morning after a night fast. The blood sugar is estimated before the glucose feeding and at subsequent intervals of one-half, one, and two hours. The urine also is examined. The fundamental purpose of the plan is to note whether the "curve" of blood sugar content, which is known to rise in a characteristic way after ingestion of glucose, is altered in abnormal cases. Under the usual, normal circumstances, administration of 100 gm. of glucose produces only a moderate hyperglycemia that rapidly subsides, the blood sugar remaining below 0.15 per cent. and again reaching the fasting level or in many instances a still lower level in from one to two hours. The renal threshold for glucose in normal persons is between 0.17 and 0.18 per cent. of blood concentration, though occasional otherwise normal persons have a low renal threshold, that is, below 0.14 per cent.

The reaction of diabetics to the ingestion of glucose is very different from the reaction of normal persons. In patients with a lowered carbohydrate tolerance, notably in diabetes, according to Hamman and Hirschman, the hyperglycemia is more pronounced and more prolonged, the blood sugar usually exceeding 0.2 per cent. and the reaction lasting from three to five hours. They state that as far as may be judged from the alimentary test, the disturbance of glucose utilization is essentially the same in diabetes and in other conditions with low sugar tolerance, such, for instance, as is commonly found in nephritis and in deranged thyroid and hypophysial function. In speaking of diabetes, it is noted that apparently the duration of the hyperglycemia is more important than the height of the reaction as an index of the severity of the alteration of carbohydrate metabolism.

The observations show, further, that in many cases of nephritis there is a profound change in carbohydrate metabolism, the blood sugar curve after the ingestion of glucose resembling the "diabetic curve." When there is marked interference with renal function, very small amounts of sugar, if any, appear in the urine, although the blood sugar may go above 0.2 per cent. Mild cases of diabetes usually have a normal threshold; many severe cases have a lowered threshold. This lowered threshold may be a factor in the severity. As the kidneys excrete sugar there is a tendency for the threshold to fall so that although sugar may first appear when the blood sugar reaches 0.17 per cent., sugar may still be excreted after it has dropped to 0.1 per cent. How extensively the renal function may become impaired in diabetes has lately been demonstrated anew by Fitz.[9]

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[5] Hess, A. F.: Infantile Scurvy, V, A Study of Its Pathogenesis, Am. Jour. Dis. Child., November, 1917, p. 337.

[6] Jackson, Leila, and Moore, J. J.: Jour. Infect. Dis., 1916, **19**, 478.

[7] Hamman, Louis, and Hirschman, I. I.: Studies on Blood Sugar, Arch. Int. Med., November, 1917, p. 761.

[8] Woodyatt, R. T.: Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, The Journal A. M. A., Dec. 11, 1915, p. 2067.

Hamman and Hirschman believe that their combined test of hyperglycemia and glycosuria is particularly valuable for investigating patients with slight or occasional glycosuria. It decides at once whether the glycosuria is due to a metabolic disturbance, to a low renal threshold, or to a combination of both factors. If the renal threshold is high, it may indicate a more serious disturbance of glucose utilization than the slight glycosuria would suggest. Even if the essential features are no longer novel, any procedure of comparable simplicity which can give such important information cannot be devoid of clinical value.

## CEREBROSPINAL MENINGITIS IN THE ARMY

Unfortunate as it is that cerebrospinal meningitis has been disturbingly prevalent in some of the cantonments, it seems probable that our knowledge of the disease will be increased as a result of the intensive study that has been made possible by the outbreak. Competent men are actively engaged in the diagnosis and treatment of this malady, and new observations of importance have already been made. The discovery of still other facts may with confidence be predicted.

In the effort to arrive at a positive diagnosis earlier in the disease than has heretofore been considered possible, attention has been focused, as noted by Herrick,[10] on the petechial exanthem, which, when carefully looked for, is found to appear very early, indeed, earlier than either Kernig's sign or Brudzinski's sign, and before rigidity of the neck or recognizable changes in the cerebrospinal fluid. The old name for the disease, "spotted fever," has again come into its own.

Another discovery, apparently of considerable significance, is the observation that, at a very early period in the course of the disease, two successive lumbar punctures, made at intervals of a few hours, may lead to the positive demonstration of pus cells and meningococci in the cerebrospinal fluid obtained by the second puncture. The fluid obtained at the first lumbar puncture made at the time the petechial rash appears is often sterile, whereas the fluid obtained at a second puncture a few hours later (and at a time when a primary puncture would be negative) will contain both intracellular and extracellular meningococci. It has been suggested that this observation may be legitimately interpreted on the assumption that the meningeal infection begins within the skull, the spinal meninges becoming infected by direct extension only later, and that by the removal of clear fluid from the spinal subarachnoid space at a first puncture, the infected fluid from above reaches the spinal area earlier than would otherwise be the case, so that the second lumbar puncture permits the examiner to determine a few hours after the first puncture the occurrence of the meningeal infection and its meningococcal etiology.

A third contribution of no small consequence consists in the enumeration of the meningococcus carriers in the camps, and the determination of the relatively large number of carriers among those that have been in contact with meningitis patients, in contrast with the relatively small number discoverable among "noncontacts." The exact figures in the different camps will doubtless be compiled and reported later on; they should be of real value in clarifying our ideas regarding modes of infection, and in applying practical methods of prophylaxis. It seems probable that the methods now being used to disinfect the carriers will prove satisfactory for hosts in whom the meningococci are present only in the nasopharynx, though other methods will have to be devised to sterilize carriers in whom the meningococci are located in less accessible regions (such as the depths of the paranasal sinuses).

It is reported, too, that blood cultures made very early in the course of the disease reveal surprisingly often the presence of meningococci in the circulating blood. Heretofore, it has been assumed that the infection of the sheath of the nervous system occurs by direct extension from the nose to the cerebral meninges through the cribriform plate of the ethmoid. The result of the blood cultures referred to above would lend support to the view that the meningococci first enter the circulating blood, and are only secondarily deposited in the cerebral meninges by way of the blood vessels. If this discovery is confirmed, the Army physicians will have a fourth important observation to their credit. This conception of a hematogenous infection of the meninges would, of course, involve as its corollary the existence of some local susceptibility that determines the invasion, in at least the majority of the cases, of the cerebral before the spinal meninges.

Finally, it would appear that a new fact therapeutically useful in meningococcal meningitis is about to be established. Acting on the basis of the early meningococcemia that, it is asserted, has been demonstrated, some of the Army physicians have been treating meningitis patients by intravenous injections of large doses of antimeningococcus serum as soon as the diagnosis is made, with better results, it is maintained, than when intraspinal injections alone are used.

Time will, of course, be required adequately to test these new ideas. But from all appearances it seems likely that data of incalculable value for the diagnosis and the therapy of epidemic cerebrospinal meningitis are being brought to light by these investigations. If present expectations are realized, not only will the lives of many soldiers be saved, but also through these war-time studies the resources of the civil practitioner in times of peace later on will be definitely enriched.

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[9] Fitz, Reginald: Observations on Kidney Junction in Diabetes Mellitus, Arch. Int. Med., November, 1917, p. 809.

[10] Herrick, W. W.: The Epidemic of Meningitis at Camp Jackson, The Journal A. M. A., this issue, p. 227.

## Current Comment

### DENTAL CARIES

So little is definitely known regarding the metabolic or nutritional changes which the teeth experience in the course of their development that even the larger textbooks of physiology have little or nothing to say on this subject. It must be evident, however, that aside from the intrinsic interest in the knowledge of the processes of dental development as such, no fundamental understanding of the nature of dental caries can ever be expected until the physiology of the teeth has been extended in the field just indicated. For several years, Gies and his collaborators in the Biochemical Laboratory of the Schools of Medicine and Dentistry of Columbia University have been engaged in investigations of the problems of dental physiology, pathology and chemistry. Recently Gies[1] has pointed out that unless substances originating outside of the enamel can enter or superficially affect the cells involved in the production of this substance, it is scarcely justifiable to assume that such dental development can be influenced to any extent through products circulating in the blood. However, experiments have now shown that after intraperitoneal injection, a dye like trypan blue passes freely into the enamel of developing teeth, where the blue pigment seems to remain indefinitely; it does not pass from pulp through dentin into enamel of fully erupted teeth. Furthermore, after the oral administration of strontium salts daily for some time to young animals, this element accumulates in the solid parts (and is present in the pulp) of the first and second sets of teeth, apparently taking the place of calcium. In a further endeavor to ascertain whether "influences from the inside," as Gies terms those of a nutritional type and involving internal secretions, may be responsible factors in the incidence of dental caries, the effects of a withdrawal of normal nutritive influences possibly exerted by some of the endocrine glands were tested. As a result it is reported that there were no effects on dentition after thymectomy, thyroparathyroidectomy and castration; deficient calcification of the teeth (incisors) followed parathyroidectomy. When various gland products were fed to white rats, dental calcification appeared to be (*a*) regularly decreased by oral administration of lymphatic, salivary or thyroid gland; (*b*) regularly increased by oral administration of testicle, and (*c*) wholly unaffected by oral administration of corpus luteum, parathyroid, pineal, pituitary, spleen, suprarenal or thymus. If the decay of teeth is associated in any degree with local deficiency in the structure and quality of the enamel, experiments like these are likely to help in the interpretation of what is at best a complex problem. As Gies points out in connection with his findings, whether or not there is true nutritive or maintenance metabolism in normal enamel, there may be physiologic or pathologic exchange of materials in enamel by diffusion from blood through dentin and enamel to oral fluids, and vice versa. We must bear in mind, however, that decay may perhaps arise regardless of the normality of the enamel; for teeth are always liable to trauma and to local specific disintegrative influences capable of initiating or paving the way for harm quite independent of the composition of the teeth.

### THOSE ANTIVIVISECTIONISTS

Last week, in connection with the publication of a letter from medical officers in France relative to medical military research being conducted there and a suit brought in this country by certain notoriety seeking members of the Red Cross, The Journal quoted a statement from the Chicago *Herald* significant of the enlightened attitude of the American press on this question. As further examples we quote from the New York *Times*, which, heading its statement "A Monstrous Appeal to Court," says:

> It is hard to believe that anybody with enough of intelligence and patriotism to join the Red Cross would object to the appropriation by that organization of a reasonable amount of money to be used in research work by the men who are protecting the health of our soldiers in France and preparing to take care of them when wounded. That the Red Cross really is afflicted by the existence among its members of persons so lost to reason has been made lamentably evident, however, by an application that has been made in the Federal District Court for an injunction restraining the Red Cross from using money for what they describe as "a laboratory for experiments in vivisection."
>
> Such an expenditure—the amount involved is $100,000—they say will disrupt the Red Cross! If true, the injunction should issue and be made permanent, but surely not many members of the Red Cross are suffering from this form of madness, and it seems impossible that any court would interfere with the carrying out of a plan that has, as Henry P. Davison, chairman of the Red Cross War Council, has patiently explained, the explicit and enthusiastic indorsement of all the medical authorities whose personal knowledge of conditions and needs in France gives them a right to speak on the subject.

The *Courier-Citizen* of Lowell, Mass., calls attention to the fact that the present war is in some respects far more humane than any previous war, because the efforts of medical science have more than kept pace with the destructive ingenuity of man. Comparative statistics are cited proving its statement. The *Courier-Citizen* then goes on to say:

> Every advance that medical science has made in this line has had to fight its way against fanatical opposition. There are still people in the world who fairly foam at the mouth if one mentions vaccination, and many who argue vehemently against the inoculation against typhoid because it revolts them to think of pumping bacilli by artifice into a body that is for the moment innocent of disease. Hundreds of estimable people regard the advances made by medical and surgical science, so strikingly revealed by the figures in this war, as being no adequate return for that mysterious and awful form of research which is termed "vivisection," greatly preferring that the noble race of guinea-pigs should enjoy an untroubled existence regardless of what happens to mankind!

**Early Marriages.**—Nature fixes puberty at the age of 15, but the majority of men do not marry until 25 or 30. Thus for more than ten years Nature is reminding the man, day and night, of what she considers his duty.—A. Fournier.

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[1] Gies, W. J., and Collaborators: Studies of Dental Caries, with Special Reference to Internal Secretions in Their Relation to the Development and Condition of Dental Enamel, Proc. Soc. Exper. Biol. and Med., 1917, **15**, 5.

# *Medical Mobilization and the War*

## HEALTH OF AMERICAN SOLDIERS OVERSEAS AS COMPARED WITH CONDITIONS AT HOME

The accompanying figures on health conditions in the American Expeditionary Forces are from reports cabled to the Surgeon-General of the Army. Similar figures for comparison are given for all troops in the United States (except the Aviation Section of the Signal Corps). No report analyzing and summarizing the figures from the Expeditionary Forces is cabled, so no explanatory statement is available.

All "admission rates" in these figures are based on the number of new cases first reported during the week ending January 10 (week ending January 11 for troops in the United States) worked out at the rate per thousand men. The "noneffective rate" is arrived at by taking the total number of men excused from duty for any injury or ailment (whether or not ordered to hospital) and computing the ratio per thousand:

| | Expeditionary Forces | Troops in U. S. |
|---|---|---|
| Noneffective rate | 54.1[1] | 46.4[2] |
| Admission rate: | | |
| Injury and disease | 45.2 | 33.7 |
| Disease only | 42.0 | 32.2 |
| Pneumonia | 1.0 | 0.7 |
| Venereal disease | 1.1 | 1.4 |
| Measles | 1.5 | 2.0 |
| Meningitis | 0.05 | 0.09 |
| Scarlet fever | 0.5 | 0.1 |
| Typhoid fever | 0.01 | 0.001 |

1. January 10. 2. January 11.

The death rate for the Expeditionary Forces is not given because each death, with the cause and date on which it occurred. is published in *The Official Bulletin*, and these reports, together with the death rate for a given period, would make it possible to compute the strength of the American Expeditionary Forces.

## THE RESPONSE OF THE MEDICAL PROFESSION—AN IMPRESSION

Heretofore, in America, interest has centered in impressions gained in the war areas of Europe. Of even greater interest just now is an impression of the twilight of war in America. Since sailing from the States, there has run through my mind an impression—a strong impression gained during my very pleasant duty there.

It was the remarkably creditable response of the medical profession. Everywhere the professional man was earnest, grave, patriotic—ready for any sacrifice required in the performance of his duty. What an honor to the corps that the medical men were first in the field; the first wounded; the first killed in the field; the first to make up its full quota; the corps with the largest reserve, and the most completely organized corps of the Army.

What a tribute to the regular Army Medical Corps and the civilian Medical Corps that, despite the many differing points of view, complete harmony existed from the beginning up to the present. All this reflects honor on every physician, whether civilian or regular Army officer.

G. W. Crile, Major, M. R. C., U. S. Army.

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Jan. 11, 1918

1. Annual admission rate per 1,000 all troops in U. S. (disease only) (except aviation section, signal corps)............ 1,674.0
   Noneffective rate per 1,000 on day of report................ 46.4
2. National Guard Camps—
   Admission rate per 1,000 all divisions (disease only).........1,547.8
   Noneffective rate per 1,000 on day of report............... 48.2

Divisions showing admission rate for disease higher than average: Camps Wheeler, Beauregard, Kearny, Bowie, Shelby and Doniphan.

Divisions showing noneffective rate higher than average: Camps Beauregard, Wheeler, Bowie, Kearny, Doniphan and Shelby.

3. National Army Camps—
   Annual admision rate per 1,000 all divisions (disease only).. 1,942 1
   Noneffective rate per 1,000 on day of report (all divisions).. 48.9

Divisions showing admission rate for disease higher than average: Camps Travis, Pike, Dodge, Funston and Zachary Taylor.

Divisions showing noneffective rate higher than average: Camps Travis, Dodge, Pike, Funston, Lee, Jackson, Zachary Taylor and Gordon.

4. Venereal Diseases—
   Annual admission rate Regulars in United States............ 97.8
   Annual admission rate National Guard (Divisions in U. S.)... 89.9
   Annual admission rate National Army (Divisions in U. S.)... 54.4

National Guard camps having rate above average: Camp Logan.

National Army camps having rate above average: Camps Dix, Dodge, Jackson, Custer, Zachary Taylor, Upton and Lee.

5. Number of cases of pneumonia.............................. 829
   Highest number in any one camp (Travis).................. 94
   Number of cases of meningitis............................ 100
   Highest number in any one camp (Beauregard)............. 16

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING JAN. 11, 1918

| Divisions | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffective per 1,000 on day of report |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 11 | ... | 1 | 23 | .. | .. | ... | 1 | .. | 1 | 31.1 |
| Hancock | 4 | ... | ... | 22 | .. | .. | 2 | 3 | .. | 1 | 21.0 |
| McClellan | 5 | ... | ... | 23 | .. | .. | 34 | 3 | 5 | 2 | 35.2 |
| Sevier | 28 | ... | 2 | 27 | .. | .. | 4 | .. | .. | 8 | 34.5 |
| Wheeler | 47 | ... | 3 | 28 | .. | .. | ... | .. | .. | 11 | 85.2 |
| MacArthur | 45 | 1 | ... | 34 | .. | .. | 102 | .. | 12 | 7 | 45.1 |
| Logan | 5 | ... | ... | 66 | .. | .. | 42 | .. | 1 | 0 | 31.6 |
| Cody | 31 | ... | ... | 9 | .. | .. | 18 | 2 | .. | 6 | 45.2 |
| Doniphan | 50 | ... | ... | 27 | .. | .. | 80 | 10 | 1 | 17 | 57.0 |
| Bowie | 46 | ... | ... | 39 | .. | .. | 2 | .. | 2 | 7 | 72.7 |
| Sheridan | 8 | ... | ... | 5 | .. | 2 | 19 | .. | 1 | 0 | 25.3 |
| Shelby | 12 | ... | 1 | 27 | .. | .. | 2 | .. | .. | 5 | 56.1 |
| Beauregard | 36 | ... | 8 | 13 | .. | .. | 2 | 16 | .. | 18 | 95.0 |
| Kearny | 14 | ... | ... | 28 | .. | .. | 34 | .. | 15 | 5 | 70.4 |
| Devens | 5 | ... | ... | 23 | .. | .. | 57 | .. | .. | 0 | 32.8 |
| Upton | 16 | ... | ... | 40 | .. | .. | 1 | 1 | 1 | 1 | 29.0 |
| Dix | 10 | ... | 2 | 51 | .. | .. | 37 | 1 | .. | 1 | 38.1 |
| Meade | 22 | ... | ... | 18 | .. | .. | 32 | 3 | 3 | 1 | 28.9 |
| Lee | 24 | ... | ... | 35 | .. | .. | 74 | 1 | .. | 21 | 65.2 |
| Jackson | 19 | ... | ... | 41 | .. | .. | 10 | 13 | .. | 12 | 58.4 |
| Gordon | 22 | ... | ... | 15 | .. | .. | 269 | 4 | .. | 8 | 49.8 |
| Sherman | 3 | ... | ... | 6 | .. | .. | 105 | 3 | 15 | 4 | 36.4 |
| Taylor | 21 | ... | ... | 38 | .. | .. | 92 | 2 | 1 | 8 | 51.3 |
| Custer | 11 | ... | ... | 45 | .. | .. | 23 | .. | 2 | 2 | 38.5 |
| Grant | 9 | ... | ... | 18 | .. | .. | 97 | 1 | 7 | 4 | 32.5 |
| Pike | 41 | ... | ... | 32 | .. | .. | 116 | 1 | 47 | 41 | 71.0 |
| Dodge | 13 | ... | ... | 45 | .. | .. | 65 | 1 | 11 | 7 | 71.5 |
| Funston | 10 | ... | ... | 11 | .. | .. | 90 | 1 | 3 | 11 | 69.4 |
| Travis | 94 | ... | ... | 13 | .. | .. | 14 | 1 | 2 | 18 | 76.6 |
| Lewis | 4 | ... | ... | 30 | .. | .. | 75 | 4 | 17 | 6 | 47.9 |

7. ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

| | Regulars, U. S. Army, in U. S. only, 1916* | Regulars in U. S., Week Ending Jan. 11, 1918 | National Guard, All Camps, Week Ending Jan. 11, 1918 | National Army, All Camps, Week Ending Jan. 11, 1918 | American Expeditionary Forces, Week Ending Jan. 10, 1918 |
|---|---|---|---|---|---|
| Pneumonia | 2.59 | 27.7 | 48.1 | 40.2 | 52.9 |
| Dysentery | 3.97 | 0.8 | 0.1 | 0.0 | 1.7 |
| Malaria | 12.52 | 1.7 | 1.9 | 0.2 | 0.8 |
| Venereal | 91.23 | 97.8 | 89.9 | 54.4 | 57.5 |
| Paratyphoid | 0.31 | 0.0 | 0.0 | 0.0 | 0.0 |
| Typhoid | 0.21 | 0.2 | 0.3 | 0.0 | 0.0 |
| Measles | 20.28 | 107.4 | 57.1 | 136.7 | 77.5 |
| Meningitis | 0.29 | 5.4 | 4.8 | 4.1 | 2.6 |
| Scarlet fever | 0.59 | 5.8 | 5.1 | 12.6 | 27.7 |

* Enlisted men only, both white and colored.

## MEETING OF GENERAL MEDICAL BOARD

The General Medical Board met in Washington, January 13, twenty-six members being in attendance. Resolutions were adopted on the death of Drs. Theodore Janeway and Everett J. McKnight, and sanitary reports for the Army, Navy, Public Health Service and Red Cross were read. Col. Dean C. Howard discussed the recent epidemics of measles and pneumonia, and stated that these epidemics were under adequate control. He also stated that the status of the troops in regard to venereal problems was satisfactory. Admiral William C. Braisted furnished assurance that the health conditions in the Navy were all that could be desired, and expressed great gratification over the granting of a request for a meningitis segregation camp in Florida.

Dr. Joseph Schereschewsky stated that the Public Health Service had been doing satisfactory work in the various extracantonment zones which were in a state of good health. Dr. T. Clark reported the establishment of four sanitary units to cooperate with other sanitary forces of the government, and stated that the Red Cross was glad and willing to spend all that was legitimately necessary to accomplish any worthy purpose. Major William F. Snow reinforced the remarks of Colonel Howard and emphasized the need for continuous effort in regard to venereal disease curtailment. The Surgeon-General of the Army expressed satisfaction with the present state of health in the Army, and cautioned against the possible mistake of referring the pneumonia epidemics entirely to the cold weather, believing that the close housing is a significant factor. Major M. G. Seelig explained the principles involved in the daylight saving propaganda. A daylight saving bill has been passed by the United States Senate, and will come before the House of Representatives in the present session. The council adopted resolutions endorsing the plan. Dr. S. McC. Hamill reported that this committee has decided to center its attention on the preparation of a program covering the welfare of the mother, provision of intelligent obstetric care, and the protection of the life and health of the child during its first two years. He presented a resolution directed toward securing the cooperation of the medical schools of the country in this work. Dr. Francis D. Patterson presented a paper pointing out four distinct lines of effort essential in solving the problem of reconstruction. These are medical and surgical treatment of the injury and disease, vocational training, securing of employment, and maintenance of medical supervision of the man after he has gone back into industry. Dr. Joseph Schereschewsky reported the aims of the Committee of Industrial Surgeons in preventing industrial diseases. Dr. Edward P. Davis of Philadelphia submitted a report advocating the establishment of a medical service corps to utilize the services of those men disqualified from receiving a commission. Dr. A. Homer Smith reported on the drug situation, pointing out the urgent need of supply and conservation. Dr. Philip S. Doane, who has been assigned to duty with the Shipping Board, outlined the medical activities carried on in connection with this board. Dr. J. Bentley Squier read the report of the Committee on General Surgery, stating that progress is being made in classifying the surgeons of the country. Miss Ella Phillips Crandall reported that this committee has made inquiries into the question of suitable provision for the nursing care of returned soldiers and sailors in the reconstruction hospitals. Major John D. McLean reported that this committee had formulated and secured the approval of the Surgeon-General's Office for rules of procedure for medical advisory boards. All of the governors' aids have been appointed and have been received with hearty accord. Dr. Rosalie Slaughter Morton reports that this committee has registered 1,796 women physicians, and it is hoped that these women physicians may be used to help meet the need of interns, laboratory workers, roentgenographers and anesthetists. Dr. Vaughan emphasized the necessity of close cooperation between civilian authorities and military authorities in the regulation of health matters, and expressed the hope that such cooperation would be established.

## HEALTH REGULATIONS IN EXTRACANTONMENT ZONES

The states and municipalities are rallying promptly and willingly to the support of the United States Public Health Service in the protection of health in military camps and extracantonment zones. According to a recent bulletin issued by the United States Public Health Service (*Public Health Reports*, 1918, **33,** 4), cooperation of the local with the federal authorities has called forth a host of ordinances and regulations relating to the control of communicable and venereal diseases, the sale of foodstuffs, the production and sale of milk, the disposal of human excreta, and the sanitary condition of barber shops.

For the protection of the Camp Greene extracantonment zone, Charlotte, N. C., has recently passed an ordinance requiring every physician to make in writing a full report of all cases of communicable disease from diphtheria to syphilis, within twenty-four hours after he has been called or has made a diagnosis. In cases of gonococcus infection, chancroid and syphilis, the record kept by physicians are always open to inspection by the health officers of the city, but not to public inspection.

For the benefit of the Camp Lee extracantonment zone, Richmond, Va., has passed an ordinance requiring a permit of all merchants who expose foodstuffs for sale, and forbidding the maintenance of stables or dairy farms within the city limits for the production of milk. Special provision is made for the inspection of all places where food supplies are handled. If insanitary conditions are discovered, the permit may be suspended or even revoked.

On behalf of the Camp Sheridan extracantonment zone, Montgomery, Ala., has passed a series of ordinances requiring all residences and other buildings occupied by human beings to be equipped with sanitary vaults or similar receptacles for receiving human excreta.

Another example of sanitary regulations enforced by the United States Public Health Service in the neighborhood of cantonments is the supervision of barber shops in the civil zone around Camp Pike, near Little Rock, Ark., where soldiers are not permitted to patronize shops not certified by the federal authorities. Among the most important requirements for certification are the demands that every worker in the barber shop serving men in uniform shall be free from communicable disease or venereal disease in a communicable stage, and that all shaving paraphernalia shall be cleansed and sterilized by steam, boiling water or alcohol.

Within the last few months, the State Public Health Council of New York has amended the sanitary code, empowering the state commissioner of health to declare any territory near a cantonment a health zone, and to grant permits for the sale of food, which undergoes monthly inspection by the health officers. The commissioner or the local health officer, may revoke any permit, after giving its owner a chance to be heard.

## DISEASE INCIDENCE AMONG TROOPS IN THE UNITED STATES

The accompanying five charts show the disease incidence among troops in the United States for the period from Sept. 14 to Dec. 28, 1917.

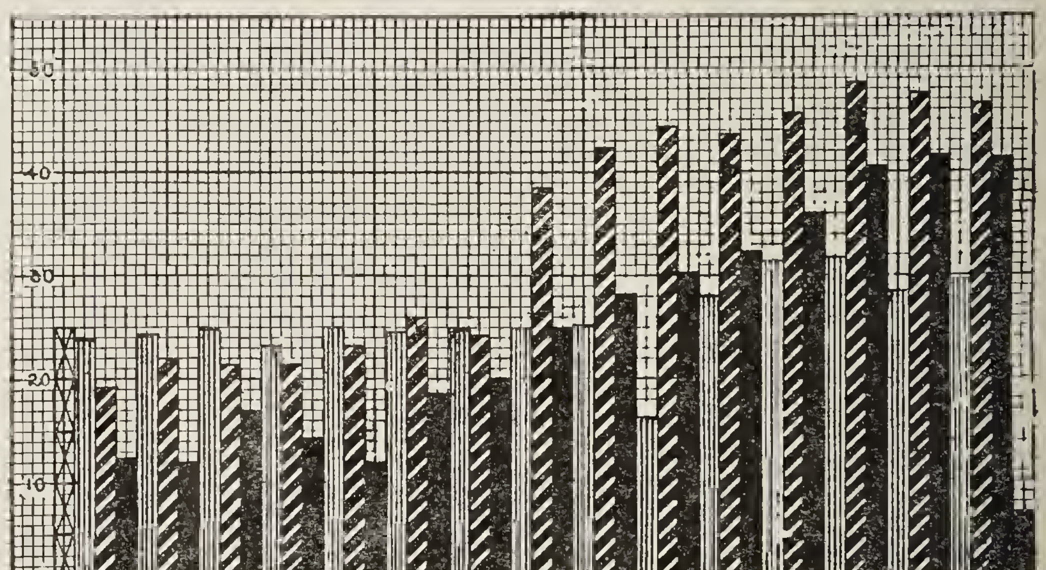

Chart 1.—Noneffective rate per thousand on day of report, 1917. In this and the accompanying charts, the data for the Regulars are represented by vertical blocks, for the National Guard by diagonal blocks, and for the National Army by solid black blocks.

TABLE 1.—NONEFFECTIVE RATE PER THOUSAND ON DAY OF REPORT

| Date, 1917 | Regulars | National Guard | National Army |
|---|---|---|---|
| Sept. 21 | 24.0 | 19.3 | 12.6 |
| Sept. 28 | 24.4 | 22.2 | 12.1 |
| Oct. 5 | 24.9 | 21.8 | 17.3 |
| Oct. 12 | 23.6 | 21.8 | 14.6 |
| Oct. 19 | 25.3 | 23.5 | 12.0 |
| Oct. 26 | 24.9 | 26.0 | 18.7 |
| Nov. 2 | 25.0 | 24.5 | 20.1 |
| Nov. 9 | 25.2 | 38.9 | 25.2 |
| Nov. 16 | 25.6 | 42.6 | 28.5 |
| Nov. 23 | 16.5 | 44.5 | 30.7 |
| Nov. 30 | 28.0 | 43.9 | 32.5 |
| Dec. 7 | 31.3 | 45.8 | 36.0 |
| Dec. 14 | 31.7 | 48.6 | 40.4 |
| Dec. 21 | 28.4 | 47.8 | 41.8 |
| Dec. 28 | 29.5 | 46.6 | 41.2 |

Chart 1 shows the noneffective rate per thousand on the date of report over the fifteen weeks mentioned. It is at once apparent that the noneffective rate of the National Guard (represented by blocks with diagonal stripes) over the first half of the period is about equal to that of the Regular Army (blocks with vertical stripes), and that beginning with the first week in November it rapidly rose. In the same way the noneffective rate of the National Army (solid blocks), which was on the average less than that of the regulars and of the National Guard during the first half of the period, rapidly rose, corresponding to the rise for the National Guard during the final half of this period. It is perhaps idle to speculate as to the cause for this phenomenon, but if we are to take cognizance of conditions at the various camps during the onset of cold weather, it may be related to the shortage in equipment noted in the report of the commission, headed by Surgeon-General Gorgas, which visited the various camps. Perhaps most important, because of its serious character, is the morbidity from pneumonia, which presented a threatening situation during the months of November and December.

TABLE 2.—ANNUAL RATE PER THOUSAND FOR PNEUMONIA

| Date, 1917 | Regulars | National Guard | National Army |
|---|---|---|---|
| Sept. 21 ....... | 1.4 | 5.7 | 0.6 |
| Sept. 28 ....... | 3.4 | 4.9 | 2.1 |
| Oct. 5 ....... | 3.6 | 3.1 | 4.5 |
| Oct. 12 ....... | 1.4 | 4.2 | 6.0 |
| Oct. 19 ....... | 5.4 | 8.2 | 12.2 |
| Oct. 26 ....... | 6.2 | 15.8 | 14.9 |
| Nov. 2 ....... | 6.1 | 14.0 | 9.7 |
| Nov. 9 ....... | 5.4 | 20.7 | 22.3 |
| Nov. 16 ....... | 5.6 | 28.0 | 23.6 |
| Nov. 23 ....... | 9.1 | 55.7 | 19.6 |
| Nov. 30 ....... | 9.3 | 36.5 | 17.6 |
| Dec. 7 ....... | 7.7 | 58.0 | 20.2 |
| Dec. 14 ....... | 6.8 | 41.6 | 34.6 |
| Dec. 21 ....... | 13.9 | 45.7 | 25.6 |
| Dec. 28 ....... | 14.4 | 47.1 | 33.0 |

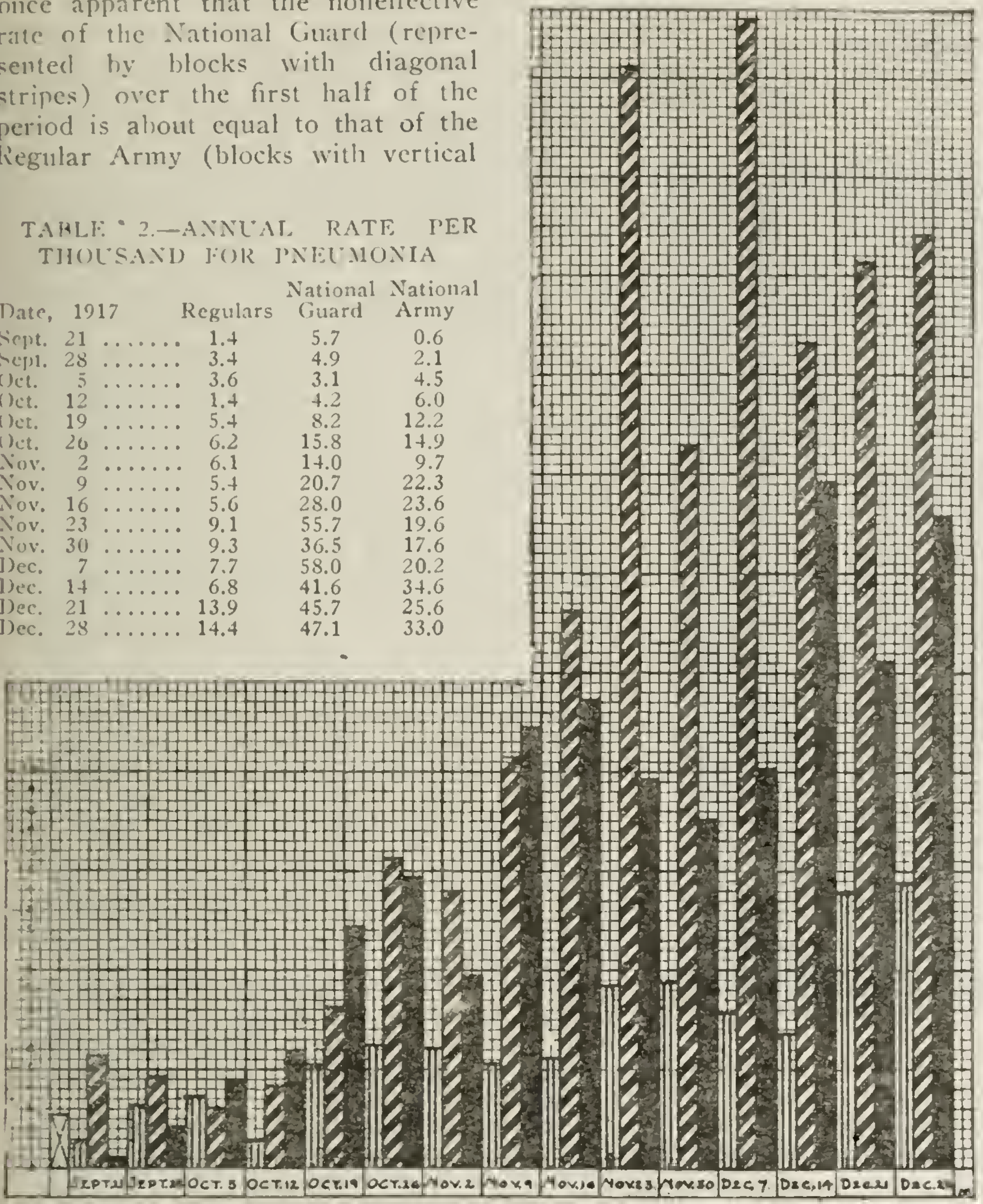

Chart 2.—Annual rate per thousand for pneumonia, 1917.

Chart 2, showing the annual rate per thousand for pneumonia during the fifteen weeks covered by the chart, indicates during September and October the incidence of pneumonia average to be the same for the three departments. Beginning with the last week in October, however, the rates for the National Guard and the National Army commence to rise rapidly, and the National Guard rate during November becomes conspicuous for its severity. During December the National Army rate unfortunately starts to overhaul this serious advance. There are, of course, numerous factors governing this morbidity; for example, it was possible to control the sending of new men into the National Army camps so that orders were sent out not to send new men to certain camps in which the disease incidence was high. There may be some criticism of the chart showing pneumonia. Pneumonia in the camps has been of the types classed pathologically as lobar and bronchopneumonia, both occurring as primary infections or as secondary to measles. It has been said that bronchopneumonia is more frequently secondary to measles, but as yet statistics on this point are not available.

### MEASLES

The rate for measles during September and October, shown in Chart 3, again averages about the same for the three departments of the Army. Beginning with the end of October and during November, the rate for the National Guard becomes exceedingly conspicuous, and during December the rates for the National Army, while not quite so high as those for the National Guard during November, are much higher than those for the guard during December.

Meningitis, as is obvious from Chart 4, was far more serious in the National Army camps than in those of the National Guard, which, in turn, were more serious than those in the Regular Army.

The venereal disease rate, in practically every instance, as shown in Chart 5, is higher in the National Army than in either the National Guard or the regulars. It is significant, however, that these rates, while very high during September and October when the new men were first called into camp, steadily diminish, so that during

TABLE 3.—ANNUAL RATE PER THOUSAND FOR MEASLES

| Date, 1917 | Regulars | National Guard | National Army |
|---|---|---|---|
| Sept. 21 ... | 15.0 | 16.0 | 9.7 |
| Sept. 28 ... | 22.0 | 30.5 | 4.9 |
| Oct. 5 ... | 18.0 | 20.7 | 13.2 |
| Oct. 12 ... | 21.2 | 31.9 | 12.8 |
| Oct. 19 ... | 17.2 | 32.8 | 11.5 |
| Oct. 26 ... | 19.8 | 78.8 | 44.6 |
| Nov. 2 ... | 37.3 | 150.8 | 98.2 |
| Nov. 9 ... | 35.6 | 451.2 | 164.4 |
| Nov. 16 ... | 27.3 | 539.9 | 250.0 |
| Nov. 23 ... | 51.7 | 533.6 | 167.2 |
| Nov. 30 ... | 24.0 | 299.5 | 123.4 |
| Dec. 7 ... | 37.4 | 368.0 | 162.7 |
| Dec. 14 ... | 38.6 | 149.8 | 265.5 |
| Dec. 21 ... | 52.6 | 115.9 | 207.8 |
| Dec. 28 ... | 66.5 | 81.5 | 189.5 |

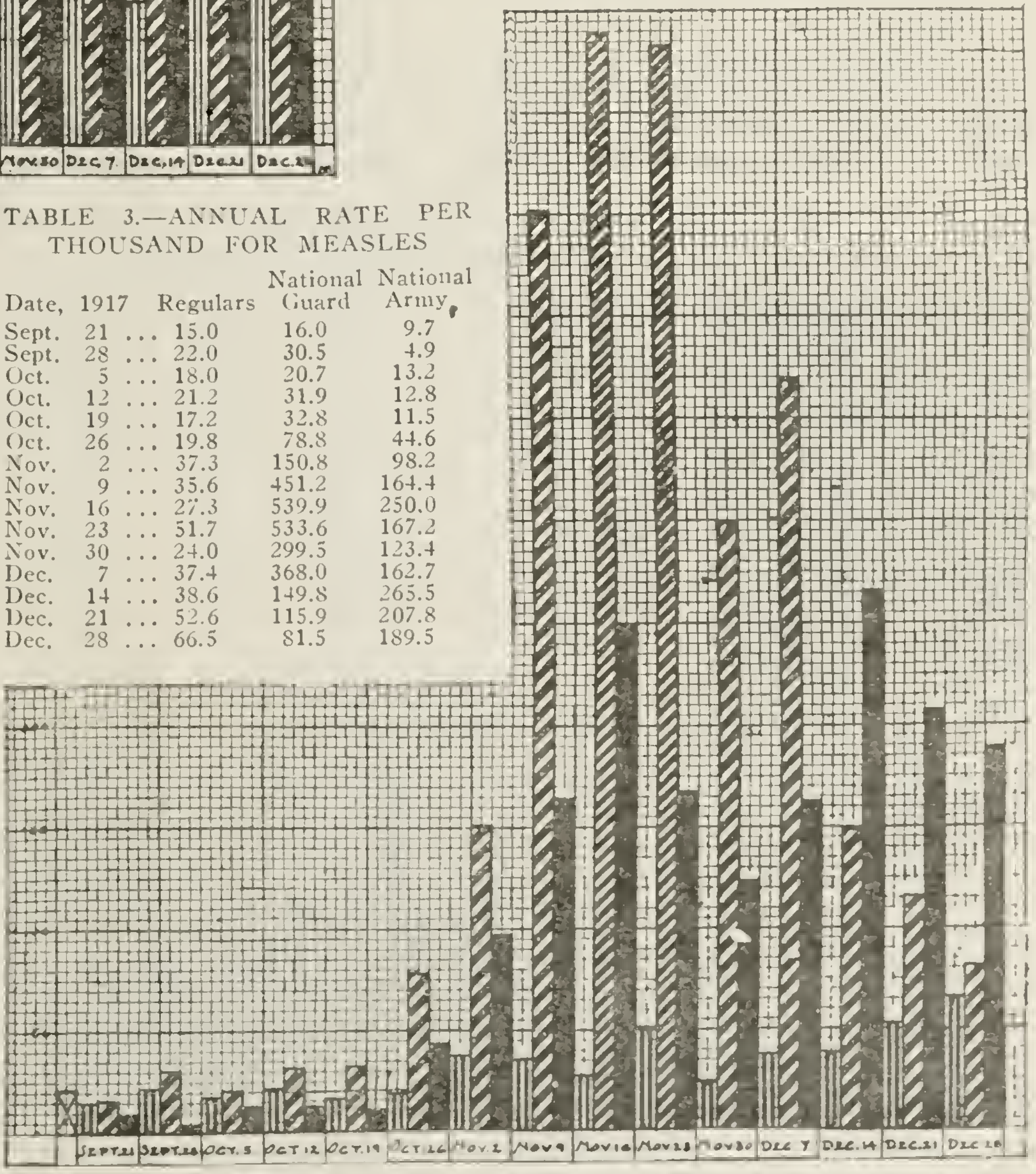

Chart 3.—Annual rate per thousand for measles, 1917.

December the average is about the same for the three departments of the service.

It is, of course, clear that of the diseases shown on the charts, the venereal diseases have caused the greatest morbidity, and that measles and pneumonia have been a most serious and threatening factor at all times. Readers who know the conditions which have had a bearing on disease incidence in our Army, may make various interpretations from the charts.

TABLE 4.—ANNUAL RATE PER THOUSAND FOR MENINGITIS

| Date, 1917 | Regulars | National Guard | National Army |
|---|---|---|---|
| Sept. 21 | 0.2 | 0.0 | 0.0 |
| Sept. 28 | 0.7 | 0.0 | 0.0 |
| Oct. 5 | 0.2 | 0.3 | 0.0 |
| Oct. 12 | 0.4 | 1.6 | 0.3 |
| Oct. 19 | 0.4 | 0.8 | 0.6 |
| Oct. 26 | 1.2 | 1.3 | 1.6 |
| Nov. 2 | 0.7 | 0.4 | 2.7 |
| Nov. 9 | 0.0 | 1.1 | 2.9 |
| Nov. 16 | 0.0 | 1.9 | 4.1 |
| Nov. 23 | 1.1 | 3.7 | 5.6 |
| Nov. 30 | 0.2 | 3.8 | 3.2 |
| Dec. 7 | 0.0 | 5.4 | 4.1 |
| Dec. 14 | 0.0 | 4.2 | 6.6 |
| Dec. 21 | 0.4 | 2.9 | 8.3 |
| Dec. 28 | 1.1 | 4.4 | 7.4 |

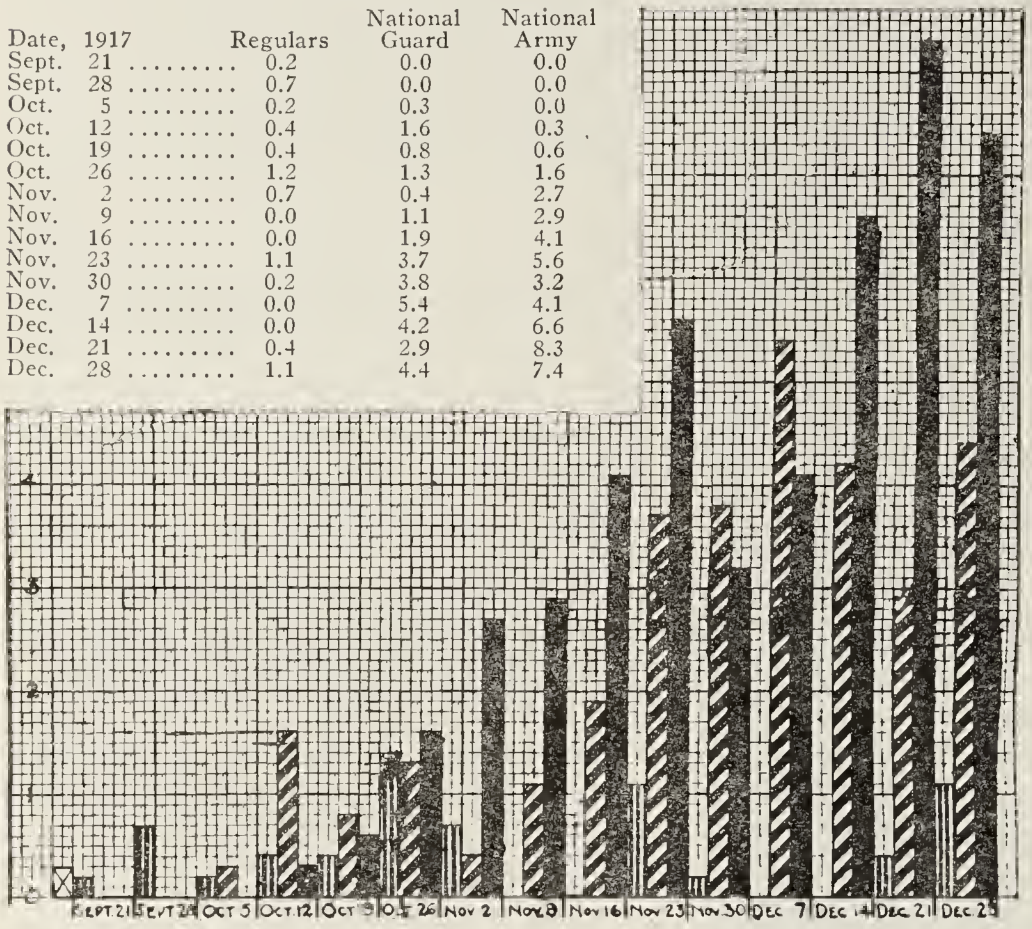

Chart 4.—Annual rate per thousand for meningitis, 1917.

TABLE 5.—ANNUAL RATE PER THOUSAND FOR VENEREAL DISEASES

| Date, 1917 | Regulars | National Guard | National Army |
|---|---|---|---|
| Sept. 21 | 83.3 | 143.9 | 193.5 |
| Sept. 28 | 80.5 | 149.3 | 387.6 |
| Oct. 5 | 84.4 | 155.3 | 276.5 |
| Oct. 12 | 51.6 | 106.2 | 204.8 |
| Oct. 19 | 77.8 | 118.8 | 146.4 |
| Oct. 26 | 63.0 | 134.5 | 138.7 |
| Nov. 2 | 90.4 | 93.6 | 135.6 |
| Nov. 9 | 83.5 | 151.5 | 115.3 |
| Nov. 16 | 94.3 | 74.0 | 95.3 |
| Nov. 23 | 165.1 | 68.0 | 69.0 |
| Nov. 30 | 97.4 | 100.7 | 104.3 |
| Dec. 7 | 85.2 | 77.1 | 80.1 |
| Dec. 14 | 69.7 | 44.6 | 74.3 |
| Dec. 21 | 88.6 | 46.0 | 66.9 |
| Dec. 28 | 82.3 | 43.8 | 67.1 |

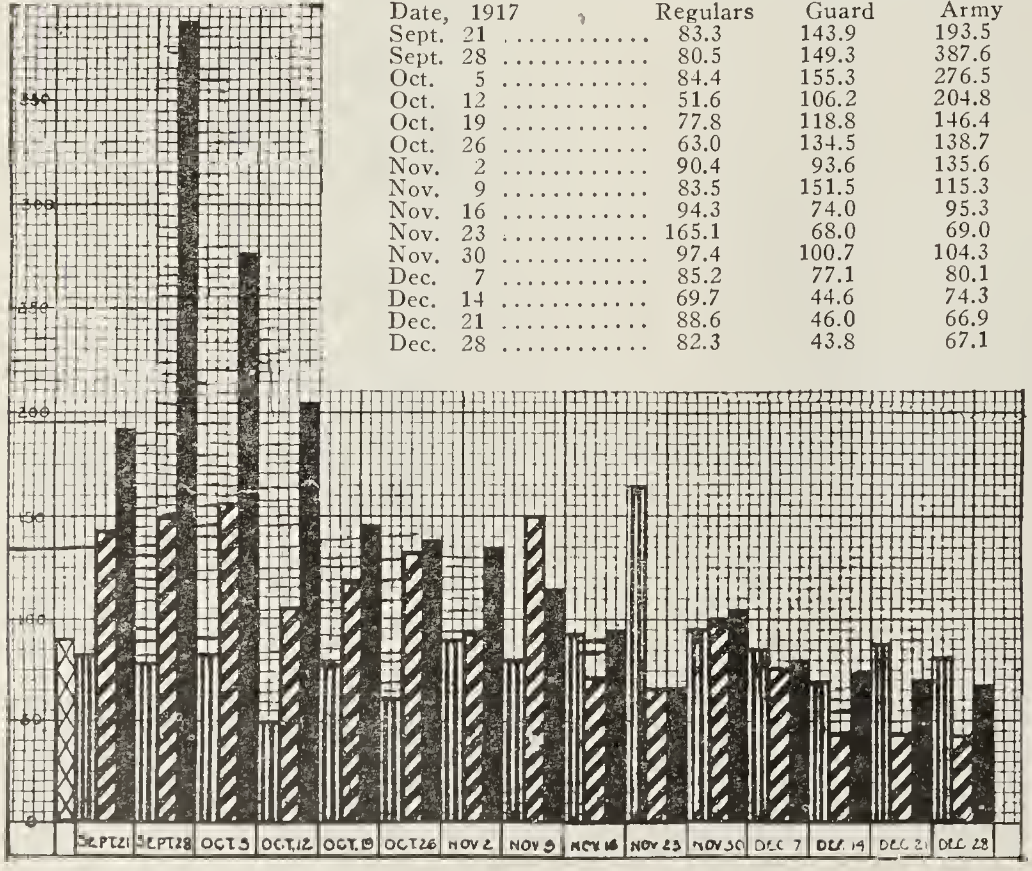

Chart 5.—Annual rate per thousand for venereal diseases, 1917.

## NEWS OF THE CANTONMENTS

### Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Jan. 15, 1918.

#### PERSONAL

The medical officers heard an interesting address Friday evening, January 11, on "History of Prostitutes." A lengthy discussion was opened by Major Stiles of the Public Health Service. Major Stiles will address the surgeons of the division at an early date on uncinariasis, and will present cases of pellagra.——The Twenty-Eighth Division surgeons made a creditable showing at their recent examination on the work covered so far.——Colonel Owens is scheduled to give a lantern talk on the present European war.——The One Hundred and Ninth Artillery won the first aid contest, in which thirteen teams competed.——Practical demonstrations of camp sanitation and inspection will be given the men by platoons.

#### HEALTH OF THE CAMP

Just six men out of every thousand are sick in Camp Hancock, where today 37,000 men, composing the Twenty-Eighth Division and the First, Second and Third Motor Mechanics Regiments, are encamped.

The sick rate of the camp here has been kept infinitely low since the division arrived. The Motor Mechanics Regiments, which are encamped here, were ordered here from every National Army cantonment in the country. Despite the fact that the men of these regiments came from camps where there was a prevalence of contagious diseases, in not one case was a disease that was brought here allowed to spread to any of the other troops on the reservation.

On the arrival of these men, they are immediately placed under quarantine and remain there until a thorough medical examination of them has been made. If some are found with contagious diseases they are immediately isolated.

It was on the advice of Col. W. J. Crookston, division surgeon, that the division commander ordered all tent doors left wide open while the men were sleeping. The fires in the tents must be out one hour before taps. During the day, if the weather is fine, the sides of the tents have been ordered lifted up, so as to give them a thorough airing. Strict regulations are in operation in connection with cleaning the tents and airing the bed clothing.

The nearest National Guard camp to Hancock in its health record is Camp Sheridan, Montgomery, Ala., where the Ohio troops are encamped. The sick rate at that camp is 12 cases per thousand. The nearest National Army cantonment approaching Hancock's record is Camp Custer, Mich., with 8.6 per thousand.

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### Thirty-First Division, Camp Wheeler, Macon, Ga.

Jan. 18, 1918.

This camp has had storms and changes of weather, from warm and wet to cold with high winds, causing a further increase in the already high sick report. Continued cold would be much more healthful.

#### INFECTIOUS DISEASES

Mumps is the principal disease in camp at present; 138 cases came in one day. The measles epidemic ran its course in one month, with 3,000 cases. The mumps epidemic has now gone on for six weeks, with more admissions now than one month ago. Altogether there have been 3,324 cases in about 21,000 men. The disease is spread about evenly throughout the division. No serious complications have appeared. While pneumonia killed 20 per cent. of its victims and caused discharge of at least 5 per cent. more, and measles had a death rate of 2 per cent. (from pneumonia) mumps has caused neither deaths nor discharges.

The Florida regiment still leads the sick report with nearly double the average sick rate.

So far the division has had few cases of meningitis. An examination by regiments is now being made for carriers, and all those found to be carriers, or to be suspicious, are placed in an isolation camp. These are treated with dichloramin-T sprays, and reexamined until free from meningococci. An experiment is now being made, by treating carriers with chlorid gas in the gas house. Throats are being examined for the pneumococcus at the same time, and these carriers are being treated with various experimental sprays.

Pneumonia still exists, but with fewer cases than formerly and comparatively few deaths. The pneumonia epidemic came earlier in this camp than in most others.

Camp Wheeler is classified as a guard camp, but it is neither guard nor National Army in composition. Almost precisely half the men of the Thirty-First Division are from the guard, and half are draft men.

Fumigating rooms are being built in all the infirmaries: small, tight rooms, with wires for hanging blankets, etc. A mixture of 75 parts of solution of formaldehyd and 25 parts of crude phenol (carbolic acid) is used. The mixture is placed in a coal oil can, outside the chamber, and when heated, the gas is carried into the chamber through a rubber tube leading from the spout of the oil can. This scheme proves fairly satisfactory, in lieu of the steam sterilizers that are to be received later.

Capt. Arthur Pendleton, M. R. C., has been relieved from duty at the base hospital and ordered to duty with the division, as division alienist and neurologist. It is expected that he can still serve on the disability board at the base hospital.

The division medical school has had some excellent lectures by Captain Cupper of the British army and Lieutenant Renard of the French army.

### BASE HOSPITAL NOTES

Twenty small lettered wards have been erected to take care of convalescent patients, and will, no doubt, be much more comfortable than the tents previously used for this purpose.

The wards were completed in the short space of three days, and will accommodate 400 patients, thus greatly relieving the congestion of the hospital.

The new building for the eye, ear and nose and throat department has been started, and will be ready for occupancy shortly, thus giving much needed room for the laboratory department.

The neuropsychiatric survey of the division has been completed, and 443 officers and enlisted men have been recommended for discharge for nervous or mental disability. A report of the survey was read at the officers' meeting, on the evening of January 18.

Contrary to the reports that seem to have found their way into the press, the recent storm did comparatively little damage at the base. The convalescent tents were blown down and much torn, but all patients and nearly all government property had been removed to other shelter before this happened. The commanding officer was in personal charge. No patient seemed to be made worse by the experience through which he had passed.

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## Eighty-First Division, Camp Jackson, Columbia, S. C.

Jan. 16, 1918.

### INFECTIOUS DISEASES

Camp Jackson, like many other localities, has been visited by mumps, measles, pneumonia and meningitis.

In a few weeks after the buildings were up, there were transferred to the base hospital about 700 or 800 patients from the field hospital and various other organizations.

The measles were imported; the pneumonia was a sequela. The meningitis was immediately diagnosed and vigorous action taken to combat the disease. Specialists were sent from Washington to assist in the work and to enlarge the laboratory.

Major George Draper, the epidemiologist of New York, arrived, and by his council and advice helped to clear the situation. Lieut. Edward H. McLean, Lieut. Allen H. Bunce, and Lieut. George C. Brunelle were assigned to Captain Baeslack's staff to assist in the examination of the carriers. The laboratory staff consists of Capt. Frederick W. Baeslack, chief of the laboratory; Lieut. J. S. Flemming, Lieut. Alfred V. Salomon and Lieutenant Klugh.

The plan of the laboratory in handling the situation is to make cultures of the immediate contacts, as well as the entire organization, from which suspected cases are found and admitted to the hospital, making cultures of from 500 to 600 men per day. It is due to this thorough and expedient work that the situation is now well in hand. A carrier camp has also been established.

When we consider that about 2 per cent. of the men in the English army proved to be carriers and that the men in this cantonment came from the farms, untrained in sanitary methods and the care of their health, and when we consider that 10,000 workmen came into this camp every day, it is not surprising that a healthful site should be visited by contagious diseases; but the percentage of sickness and death is less, not greater, than in civil life.

A quarantine was placed on the whole camp. Public assemblage in the Y. M. C. A. theaters and other places was forbidden. The carriers were isolated, and spraying of noses began and continued for two weeks with antiseptics, dichloramin-T, eucalyptol, etc.

The general quarantine has been lifted, and only infected areas are closely quarantined at present. Cases are few; carriers are placed in the carrier camp.

The difficulty of getting workmen has delayed the completion of the heating plant, but now everything is in good working order.

### PERSONAL

General McIver is commanding the Eighty-First Division, in the absence of Gen. Charles J. Bailey, who succeeded General French.——Major Henry Tucker received his commission, November 17.——Mrs. Henry Tucker and daughter are visiting Columbia.——Capt. Evan W. Meredith of Pittsburgh is acting chief of the surgical service.——Major Roberts, the internist of Atlanta, Ga., has rendered valuable aid in the medical service.——Colonel Vedder of Washington, D. C., paid a short visit to the camp.——Major Abbott, bacteriologist of Philadelphia, also visited the camp.——Dr. Welch, of Johns Hopkins, and Colonel Ashburne, recently in command of Fort Benjamin Harrison, visited the camp last week.——Lieut. George P. Pilling of Philadelphia has arrived at Camp Jackson, and has been assigned to assist in the genito-urinary work.——Captain McConnell, in addition to his work as chief of the nose and throat section, has been assigned as examiner for the Aviation Corps.

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## Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Jan. 14, 1918.

### ENLARGEMENT OF BASE HOSPITAL

Further enlargement of the base hospital and more barracks at Camp Zachary Taylor are contemplated at an estimated cost of $350,000. No official announcement of the contemplated enlargement of the cantonment has been made at the headquarters of the Lincoln Division, but news that such recommendations have been made to the War Department was obtained from an authoritative source at Washington, D. C. Authority has already been given military officials here to proceed with an extension of the Red Cross nurses' quarters at the hospital, and plans for the other buildings are under way. These include enlargement of the capacity of the hospital by 60 per cent. Accommodations for 700 more patients will be provided, barracks for the enlisted personnel of the hospital staff, quarters for medical officers, and enlargement of the heating plant. It is said that it will not be necessary for the government to procure more land for the proposed new structures, there being ample room on the site.

The enlargement of the base hospital does not indicate a present need, but the officers are preparing for the future. It is reasonable to suppose that when 17,000 more soldiers report here there will be an increase in sickness accordingly. The health of this command is considered excellent, the records in the Surgeon-General's Office showing it to be one of the healthiest of the cantonments.

Guide posts marking the recently named avenues and streets of the reservation have arrived and are being erected. The posts are 3 feet above ground and have cross arms bearing the name of the thoroughfares.

### PERSONAL NOTES

Capt. John W. Price, Jr., Medical Department, has been released from his duties at Taylor base hospital and sent to the University of Pennsylvania for a course of special instruction. On completion of his course he will return to Camp Zachary Taylor.——Major Wilder of Chicago has been placed on the inactive list, and has left for his home. Major Wilder has been in charge of the eye board for examination of selected men at the camp.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Camp Pike,* Little Rock, Ark., for duty as commanding officer of the base hospital, Col. POWELL C. FAUNTLEROY.

*To Fort McDowell, Calif.,* for duty, Major EUGENE L. SWIFT.

*To Edgewood, Md.,* as camp surgeon in addition to his other duties at that place, Major GLENN I. JONES.

*To Fort Sam Houston, Texas,* as commanding officer of the base hospital, Lieut.-Col. EUGENE H. HARTNETT.

*To Camp Fremont,* Palo Alto, Calif., with the 8th division, Major CLARENCE R. BELL.

*To Camp Fremont,* Palo Alto, Calif., for duty, Lieut. FRANCKS M. FITTS.

Honorably discharged from the service, Major W. L. ROBINSON, Capt. JOHN H. KAY.

*To Camp Beauregard,* Alexandria, La., for consultation with the Division Surgeon, that camp, and on completion *to his proper station,* Lieut.-Col. ROBERT M. BLANCHARD.

*To Camp Lee,* Petersburg, Va., base hospital, Col. LOUIS T. HESS.

*To Camp Beauregard,* Alexandria, La., *Camp Sheridan,* Montgomery, Ala., *Camp McClellan,* Anniston, Ala., *Camp Shelby,* Hattiesburg, Miss., *Camp Wheeler,* Macon, Ga., to make special inspections, and on completion *to his proper station,* Lieut.-Col. FRANK W. WEED.

*To Corpus Christie, Texas,* to inspect certain buildings and sites and report to the Surgeon-General as to the desirability of establishing a convalescent camp at that place, and on completion *to his proper station,* Col. WILLIAM F. LEWIS.

*To Hoboken, N. J.,* with the 52d Division, Major WILLIAM F. LORENZ, Capt. W. W. JOHNSTON, Lieuts. HENRY M. BLACKBURN, R. T. COOKSEY, WILLIAM C. LIEFERT, A. A. NITTEN, ORLANDO W. PICKARD, L. A. WOODLOCK.

*To Philadelphia, Pa.,* New York City, in connection with the Gas Defense Service, and on completion *to his proper station,* General HENRY F. BIRMINGHAM, Capt. E. W. DUDLEY.

*To Washington, D. C.,* in the Army Medical Museum, Major ROBERT W. SHAFELDT.

*To Fort Riley, Kansas,* for instruction, Lieut. GEORGE COOPER.

*To Camp Wheeler,* Macon, Ga., base hospital, Lieut. THOMAS H. STEWART.

*To New Haven, Conn.,* to inspect tuberculosis hospital, and on completion *to his proper station,* Col. GEORGE E. BUSHNELL.

Discharged from service on account of physical disability not in line of duty, Lieut. A. E. HARRISON.

*To Camp Fremont,* Palo Alto, Calif., for duty, Major HERBERT H. SHARPE, Lieuts. CHARLES E. SIMS, WARREN STIRLING.

*To Fort Riley,* for instruction, Lieut. GEORGE H. COOPER.

*To Washington, D. C.,* for instruction, and on completion *to San Juan,* Porto Rico, for duty in hospital, Major PHILIP B. CONNELLY.

*To Camp Doniphan,* Fort Sill, Okla., base hospital, in addition to his other duties, Col. FRANK H. KEEFER.

*To Camp Dix,* Wrightstown, N. J., to inspect the surgical equipment of the base hospital, and on completion *to his proper station,* Lieut.-Col. WILLIAM H. MENCRIEF.

*To San Francisco, Calif.,* and on arrival at that place to report by telegraph to the Adjutant-General of the Army for further orders, Cols. WILLIAM B. BANISTER, BENJAMIN J. EDGAR, JR.

*To Fort H. G. Wright, N. Y.,* and report in person to the commanding officer, for duty with Coast Defenses of Long Island, N. Y., Lieut. JOSEPH M. CANEY.

*To Washington, D. C.,* for duty, Col. ALBERT E. TRUBY.

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## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Camp Sheridan,* Montgomery, Ala., base hospital, from Camp Dix, Lieut. MAXWELL MOODY, Tuscaloosa.

*To Fort McPherson, Georgia,* Hospital Unit "Q," Lieut. CLYDE W. DEAVER, Cleveland.

*To Fort Oglethorpe,* for instruction, Lieuts. ERNEST C. HOGOOD, Birmingham; HUGH W. HILL, Carrollton; JESSE F. BRYARS, Eliska; JAMES H. DAVIS, Jasper; ALLEN B. WHEELIS, Marion; WADE H. ESSLINGER, Meridianville; JAMES H. SENTELL, Milan; EDWARD DAY, Orville; BENJAMIN J. LEWIS, Samson; WILLIAM McM. BOGART, Stevenson; GEORGE W. HALL, Uniontown.

*To Rockefeller Institute,* New York, for instruction and on completion *to Roosevelt Hospital,* New York, for instruction and on completion *to his proper station,* from Camp McClellan, Capt. THOMAS M BARNETT, Dothan.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. WILBUR L. HEARD, Mt. Vernon.

### Arkansas

*To Camp Joseph E. Johnston,* Jacksonville, Florida, Neuropsychiatric Board, from Washington, D. C., Capt. EDWIN P. BLEDSOE, Little Rock.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, Lieut. NOLIE MUNCY, Little Rock.

*To Fort Riley,* for instruction, Capt. SHELBY B. HINKLE, Little Rock; Lieuts. HUGH C. BROOKS, Casa; ROBERT M. HUNTER, Clinton; EDGAR L. LINDSEY, Fort Smith; BOULANGER GWALTNEY, Haskell; CINCINNATUS H. M. MASON, Huffman; HUGH B. HENRY, Hulbert; FOSTER JARRELL, Huttig; NICHOLAS W. REIGLER, ALVIN W. STRAUSS, RAYMOND C. WOLFE, Little Rock; WILBUR R. HARWELL, Osceola; CLAUDE W. DRACE, Piggott; JAMES W. SLAUGHTER, Wesson; WOODYE A. WINTER, Wideners.

### California

*To Camp Fremont,* Palo Alto, Calif., for duty, Capt. ROY A. BROWN Fresno; Lieut. JOHN N. BLOOD, McFarland. Base Hospital No. 47, Lieut JAMES K. HAMILTON, Jr., Alameda.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Myer, Lieut. GEORGE C. H. FRANKLIN, San Francisco.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Camp Kearny, Major RALPH L. BYRNES, Los Angeles. From duty as contract surgeon at Camp Kearny, Capt. LEWIS B. REMINGTON, Monrovia.

*To Camp Pike,* Little Rock, Ark., base hospital, from Camp Greene, Capt. GUSTAV J. BERGENER, San Francisco.

*To Fort Riley,* Hospital Train No. 37, from Fort Riley, Major HARRISON W. STUCKEY, San Francisco. For instruction, Lieut. WILLIAM R. THOMPSON, Los Angeles.

*To Morrison, Va.,* for duty, from Fort Leavenworth, Capt. CHARLES E. BROWN, Fresno.

*To San Diego, Calif.,* signal corps, aviation section, for duty, Lieuts. JOHN R. BUCKINGHAM, Big Pine; CHARLES S. BROOKS, El Centro.

*To Washington, D. C.,* aviation section, signal corps, medical research board, from Fort MacArthur, Capt. JAMES L. WHITNEY, San Francisco.

*To Western Department* as tuberculosis examiners, from Camp Kearny, Lieuts. OSCAR O. YOUNG, Garden Grove; JOHN E. FAHY, Los Angeles.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. GEORGE H. SCIARONI, Sutter Creek.

### Colorado

*To Camp Greene,* Charlotte, N. C., for duty, from Indianapolis, Lieut. WILLIAM W. JONES, Denver; from Takoma Park, D. C., Lieut. JOHN R. HALL, Ft. Logan.

*To Camp Jackson,* Columbia, S. C., base hospital, from Fort Riley, Lieuts. CHARLES E. LOCKWOOD, Olathe; JAMES R. EARLE, Somerset.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, Major EDWARD F. DEAN, Denver.

*To Philadelphia,* University of Pennsylvania, for instruction, from Camp Logan, Lieut. TOM R. KNOWLES, Colorado Springs.

*To South San Antonio, Texas,* Kelly Field, for duty, Lieut. WILLIAM E. DRISDALE, Silver Plume.

*Honorably discharged,* Lieut. CYRUS W. POLEY, Boulder.

### Connecticut

*To Boston, Mass.,* Harvard Medical School, for instruction in orthopedic work, from Camp Devens, Lieut. HAROLD L. BURR, Middletown.

*To Fort Oglethorpe,* for instruction, Capt. JOHN S. BLACKMER, Norwich; Lieuts. GRAHAM C. WELLMAN, East River; EDWARD A. BRACE, Ellington; THOMAS P. MURDOCK, Meriden; DANIEL A. NOLAN, Middletown; WALTER L. DOUGLASS, New London; CLARENCE G. BURLINGAME, South Manchester; ARTHUR S. GRANT, South Windsor; WILLIAM E. SMITH, Stamford; RICHARD J. LAWTON, Terryville; EDWARD J. GODFREY, HENRY R. HUNGERFORD, Waterbury; FREDERICK J. MORRISON, Westport.

### Delaware

*To Camp Joseph E. Johnston,* Jacksonville, Fla., base hospital, from Camp Pike, Lieut. JOHN R. ELLIOTT, Laurel.

*To Fort Oglethorpe,* for instruction, Lieut. RICHARD R. TYBOUT, New Castle.

### District of Columbia

*To Camp Meade,* Annapolis Junction, Md., for inspection and on completion *to his proper station,* Capt. HARRY H. KERR, Washington.

*To Hoboken, N. J.,* for duty, Lieut. GEORGE W. McKENZIE, Washington.

*To Army Medical School,* Takoma Park, D. C., as instructor in ophthalmology, from Walter Reed General Hospital, Capt. WILLIAM H. HUNTINGTON, Washington.

### Florida

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Major JOHN E. BOYD, Jacksonville.

*To Fort Oglethorpe,* for instruction, Lieuts. GROVER C. FRANKLIN, Larkins; JAMES H. BICKERSTAFF, Pensacola; ROBERT D. FERGUSON, Reddick; JOSEPH W. TAYLOR, Tampa.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. CLIFFORD M. MITCHELL, Welaka.

### Georgia

*To Camp MacArthur,* Waco, Texas, base hospital,. Lieut. EDWIN L. LAWSON, Sylvester.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Army Medical School, Lieut. JAMES J. MARTIN, Atlanta.

*To Fort Oglethorpe,* for instruction, Capts. WILLIAM C. HUMPHRIES, Acworth; FRED L. WEBB, Macon; Lieuts. JAMES L. BLAIR, SAMUEL L. MORRIS, Atlanta; ALVAH W. WHITE, Box Springs; JOHN C. TURNER, Jr., Camilla: DAVID H. PARLIAMENT, Covington; STEWART McBRYDE, Darien; MILTON WALTON, Lumpkin; EARL E. PATE, Macon; WILLIAM F. JENKINS, Midland; GEORGE B. SMITH, Rome; ALTON B. REDDICK, Sylvania; WALTER K. STEWART, Sylvester; SEARLE B. GILLESPIE, Willacoochee. *Evacuation Hospital No. 4,* from Fort Oglethorpe, Lieut.

EARL T. NEWSOM, Camilla. *Hospital Train No. 36,* from Fort Oglethorpe, Lieut. ALBERT F. BRAWNER, Atlanta.

*To San Francisco, Calif.,* for duty, from Presidio, Lieut. JAMES C. PHILLIPS, Lithoria.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. JAMES K. McCLINTIC, Monroe.

### Hawaii

*To Fort Sill, Okla.,* to be assigned permanently with that regiment, Capt. WILLIAM E. KRAMER, Schofield Barracks.

*To Honolulu, Hawaii,* for duty, Capt. YOUNG E. COLVILLE, Hawaii.

### Idaho

*To Fort Riley,* for instruction, Capt. WILLIAM H. TUKEY, Boise.

### Illinois

*To Army Medical School,* Washington, D. C., for preparation for nutritional survey, from Fort Oglethorpe, Lieut. THOMAS A. WAYLAND, Dallas City.

*To Camp Beauregard,* Alexandria, La., to examine the command in his specialty, from Ann Arbor, Lieut. WALTER C. COOK, Peoria.

*To Camp Dix,* Wrightstown, N. J., to inspect the surgical equipment at the base hospital and on completion *to his proper station,* Major ALLEN B. KANAVEL, Chicago.

*To Camp Dodge,* Des Moines, Iowa, base hospital, Lieuts. BION C. SYVORSEN, Chicago; HOWARD T. KNIGHT, Elgin.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Riley, Lieut. PERCY J. CARROLL, East St. Louis.

*To Camp Lewis,* American Lake, Wash., base hospital, from Camp Lewis, Lieut. FRANKLIN A. MARTIN, Tower Hill.

*To Camp MacArthur,* Waco, Texas, base hospital, Lieut. CHARLES K. STULIK, Chicago.

*To Camp Meigs,* Washington, D. C., for duty, from Army Medical School, Lieut. JOHN HRABIK, Murphysboro.

*To Camp Sherman,* Chillicothe, Ohio, base hospital, from Camp Grant, Capt. EMIL WINDMUELLER, Woodstock.

*To Camp Taylor,* Louisville, Ky., base hospital, from duty as a private at Camp Grant, Lieut. RALPH C. SULLIVAN, Chicago.

*To Camp Wheeler,* Macon, Ga., base hospital, from Camp Lee, Capt. ORA M. WILLIAMSON, Sullivan.

*To Chicago, Ill.,* as assistant recruiting officer and on completion *to Fort Riley* for instruction, Lieut. LEONARD F. ROBLES, Chicago. Presbyterian Hospital for instruction, Lieut. ROBERT E. SMITH, Springfield.

*To Fort Oglethorpe,* as instructor, from Camp Pike, Major MAURICE L. GOODKIND, Chicago. For duty, from Camp Sherman, Major JAMES A. HARVEY, Chicago. For instruction, Lieut. HAROLD A. PECKMAN, Chicago; from Naperville, Lieut. WALTER S. CONN, Naperville.

*To Fort Riley* to organize and command Hospital Train No. 35, from Fort Riley, Major JESSE T. McDAVID, Decatur. For instruction, from Ann Arbor, Capt. CARL G. RYDIN, Chicago. As a member of a board of medical officers to examine the command for mental and nervous diseases, from Camp Dodge, Capt. DAVID H. KELLER, Anna; from New York City, Capt. WILLIAM W. EICHELBERGER, Rockford; from Ann Arbor, Lieut. JAMES K. POLLOCK, Elgin. For instruction, Lieuts. RAYMOND E. DAVIES, Bement; JAMES ETERNO, CHARLES M. FOX, JOHN J. GEARIN, BRONISLAUS J. NIX, Chicago; DANIEL D. RABER, Gridley; JOHN H. FRANKLIN, Spring Valley.

*To Indianapolis, Ind.,* Aviation Section, Signal Corps, for duty, from Camp Sherman, Capt. ORVEL A. SUTTLE, Mt. Vernon.

*To Morrison, Va.,* for duty, Lieut. CLARENCE C. RENO, Chicago.

*To Peoria, Ill.,* for duty, from Fort Sheridan, Lieut. ARTHUR C. GILLAM, Chicago.

*To Philadelphia,* University of Pennsylvania, for instruction, from Camp Sherman, Lieut. ROBERT A. NOBLE, Bloomington.

*To Rockefeller Institute, New York City,* for instruction and on completion *to his proper station,* from Camp Dodge, Lieut. JOHN HIGGINSON, Chicago.

*To San Antonio, Texas,* Kelly Field, to examine the command for nervous and mental diseases, from Philadelphia, Capt. ROMNEY M. Ritchey, Elgin.

*To San Francisco, Calif.,* for duty, from Presidio, Capts. LEWIS M. FIELD, Brownfield; JOHN O. GASTON, Park Ridge; Lieuts. PAUL G. CAPPS, Herrin; ELZA F. TATE, Homer; GEORGE A. TAMKERSLEY, Owaneco; WILLIAM D. CHAPMAN, Silvis; FRANK B. IRELAND, Washburn.

*To Washington, D. C.,* for duty in the Surgeon-General's Office, from Fort Oglethorpe, Major JOHN A. HORNSBY, Chicago.

*To their homes* and honorably discharged on account of being physically disqualified for active service, Lieuts. WALTER D. HALL, Chicago; ANDREW J. BUTNER, Harrisburg.

*Honorably discharged,* Lieut. GEORGE A. McDONALD, Goldengate.

### Indiana

*To Camp Greene,* Charlotte, N. C., for duty, from Camp Greene, Lieut. BROWN S. McCLINTIC, Peru; from Camp Wheeler, Lieut. JAMES W. DUCKWORTH, Indianapolis.

*To Camp Travis,* Fort Sam Houston, Texas, for duty in orthopedic work, from Oklahoma City, Lieut. REAVILL M. WALDEN, Evansville.

*To Fort Oglethorpe,* for instruction, Lieuts. CARL E. ABELL, Evansville; WALTER D. MARTIN, Kramer.

*To Fort Riley,* for instruction, Lieuts. ALFRED A. HADLEY, Jasonville; MARTIN E. HARRELL, Kokomo; MERRILL S. DAVIS, Marion.

*To Morrison, Va.,* for duty, Lieut. WALTER F. VANDAMENT, Kennard.

*To Rockefeller Institute,* New York City, for instruction and on completion *to Bellevue Hospital,* New York City, for instruction and on completion *to his proper station,* from Walter Reed General Hospital, Lieut. ARVINE E. MOZINGO, Tipton.

*To San Francisco, Calif.,* for duty, from Presidio, Lieuts. HOMER H. TALLMAN, Culver; THOMAS B. JOHNSON, Jamestown; HENRY H. REEDER, Jeffersonville; IRVING A. WHITLATCH, Milan; HARVEY S. COOK, Worthington.

*To Vancouver Barracks,* Washington, for duty, from Presidio, Capt. FREDERICK L. DARROW, East Haven.

*To their homes* and honorably discharged on account of being physically disqualified for active service, Major FRANCIS M. WALL, Warren; Capt. ZERA M. BEAMAN, North Manchester.

### Iowa

*To Camp Beauregard,* Alexandria, La., to examine the command in his specialty, from Philadelphia, Lieut. FISHER B. E. MILLER, Cherokee.

*To Camp Gordon,* Atlanta, Ga., base hospital, Lieut. FREDERICK L. WAHRER, Fort Madison.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, Capt. EVARTS A. GRAHAM, Mason City.

*To Fort Leavenworth, Kan.,* for duty, Lieut. EARL C. REYNOLDS, Greenfield.

*To Fort Myer, Va.,* for duty, from Fort Myer, Capt. STEPHEN A. O'BRIEN, Mason City.

*To Fort Riley* for instruction, Capts. WILLIAM L. HEARST, Cedar Falls; CHARLES B. TAYLOR, What Cheer; Lieut. BEN TALLMAN WHITAKER, Boone; HERBERT H. GALLATIN, Fort Madison; THEODORE A. WILLIS, Iowa City; LEOMAN D. HUFF, Lenox.

*To his home* and honorably discharged, Lieut. WALTER A. SMITH, Donnellson.

### Kansas

*To Army Medical School,* Washington, D. C., for duty, Lieut. DONALD R. BLACK, Rosedale.

*To Camp Cody,* Deming, N. Mex., for duty in orthopedic work, from Oklahoma City, Lieut. MARION TRUEHART, Sterling.

*To Fort Logan H. Roots, Ark.,* for temporary duty, from Fort Riley, Lieut. WILLIFRED PAGE, McCracken.

*To Fort McPherson, Ga.,* for duty, from Fort Riley, Capt. ROSCOE T. NICHOLS, Liberal; Lieut. CHARLES J. CAHILL, Topeka.

*To Fort Riley,* for instruction, Capt. FREDERICK E. KRAFT, National Military Home; Lieuts. GEORGE W. B. BEVERLY, Alma; BERTICE A. ISENBERG, Alton; WILLIAM E. ORR, Arena; THOMAS E. HORNER, Atchison; LEWIS M. GORE, Calva; DANIEL A. HOLLAND, Cambridge; WILLIAM G. OUSE, Centralia; E. L. BOLTON, Chilton; GEORGE E. BRETHOUR, Dwight; ALONZO R. ADAMS, Easton; GUY H. WINSLOW, Grainfield; HARR J. HARKER, Horton; CYRIL E. SHEPARD, Larned; EDWARD A. MARRS, Moline; JOHN O. DINGUS, Mound City; WILLIAM S. FLEMING, Ness City; ROBERT G. KEGER, Norwich; CHARLES B. STEPHENS, Ottawa; ORVILLE O. MOORE, LEROY S. S. OTT, Topeka. Evacuation Hospital No. 7, from Fort Riley, Lieut. CLAUDE F. HAYES, Arlington. Hospital Train No. 37, from Fort Riley, Lieut. FREEMAN BRUBAKER, McPherson.

*To Morrison, Va.,* for duty, from Fort Leavenworth, Lieut. FLETCHER B. TAYLOR, Leavenworth.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, from Camp Doniphan, Lieut. ARTHUR B. OECHSLI, Stockton.

*To San Antonio, Texas,* Kelly Field, to examine the command for nervous and mental diseases, from Camp Bowie, Lieut. GEORGE E. HESNER, Topeka.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. HARRY H. HUDSON, Newton.

### Kentucky

*To Camp Jackson,* Columbia, S. C., base hospital, from Fort Riley, Lieut. NOTLEY C. WITT, Franklin.

*To Camp Meade,* Annapolis Junction, Md., to conduct examinations in his specialty, Lieut. THOMAS F. MILLER, Glasgow.

*To Camp Zone,* Panama Canal, for duty, from Bowling Green, Major ARTHUR T. McCORMACK, Bowling Green.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, Capt. EDWIN T. BRUCE, Louisville; Lieut. CHARLES E. VIDT, Russell.

*To Fort Oglethorpe* for instruction, from Camp Taylor, Major PHILIP H. STEWART, Paducah; from New York City, Capt. DALFERRAS P. CURRY, Jr., Bowling Green. For instruction, Capts. HUGH E. PRATHER, Hickman; GEORGE P. BEUTEL, Jr., JOSEPH G. SHERRILL, Louisville; Lieuts. HENRY A. HUGHES, Bond; JOE C. BUSSEY, Busseyville; WILL L. CALVERT, Carrollton; Leslie S. HAYES, Charley; JAMES M. MORRIS, Chestnutburg; WILLIAM F. PEEBLES, Clinton; HENRY SMITH, Cromwell; EARLE E. SMITH, Fristoe; CARL C. HOWARD, Glasgow; PRATHER B. CURLIN, Hickman; JOHN F. HAHS, LaCenter; JACKSON E. MILLION, Lexington; FRANCIS G. AUD, JACOB P. SHACKLETT, Louisville; JOHN G. SIDDENS, Lucas; DRUE McB. PURDOM, Lyndon; JAMES G. BENTLEY, Manchester; ELMORE B. BACKSMAN, Newport; CHARLES G. MORRIS, Paducah; OLDRON A. MITCHELL, Raywick; JOHN A. SNOWDEN, Right Angle; SAMUEL W. BATES, Shepherdsville; LEE ROSE, Wefford; LORENZO G. SMITH, Williamsburg.

*To San Francisco, Calif.,* for duty, from Presidio, Lieuts. UREY G. DAVIS, Hopkinsville; HUGH F. TAYLOR, Mintonville.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. PATTIE A. MOORE, Wingo.

*To his home* and the inactive list, Lieut. HARRY F. MANN, DeMossville.

### Louisiana

*To Fort Oglethorpe* for instruction, Lieuts. MILTON W. TALBOT, Brenice; JOHN C. CHAPMAN, Colfax; WALTER C. MIDDLETON, Cravens; WILLIAM P. BUCK, Jr., Evergreen; MATTHIAS N. COLLINS, Houston; CHARLES W. PHILLIPS, Lenzburg; WILLIAM McL. HAYES, Louisiana; GEORGE W. WRIGHT, Monroe; MONTE F. MEYER, New Orleans; JOSEPH F. CASAYAUX, New Roads; PHILIP H. NEVITT, Plain Dealing; ISIDORE B. ROUGAN, Shreveport.

*To Philadelphia,* University of Pennsylvania, for instruction, from Camp Shelby, Capt. KARL W. NEY, New Orleans.

*To Rockefeller Institute,* New York, for instruction and on completion *to Bellevue Hospital,* New York, for instruction and on completion *to his proper station,* from Camp Sevier, Lieut. THADDEUS I. ST. MARTIN, Houma.

*To San Antonio, Texas,* Kelly Field, to examine for nervous and mental diseases, from Camp Sheridan, Major ROY McL. VAN WART, New Orleans.

### Maine

*To Camp Meigs,* Washington, D. C., for duty, from Fort Slocum, Lieut. CHARLES E. COOK, Jr., South Berwick.

*To Camp Sevier,* Greenville, S. C., base hospital, from Camp Sherman, Major WARREN E. KESCHNER, Bath.

*To Fort Oglethorpe,* for instruction, Capt. HAROLD R. CRANE, Bangor; Lieuts. SETH S. MULLIN, Bath; PERCIVAL C. HOPKINS, Bingham; HAROLD F. ATWOOD, Buckfield; JOSEPH J. E. J. PELLETIER, HAROLD E. E. STEVENS, Lewiston; HENRY E. MARSTON, North Anson; ARTHUR W. WINCH, Portland; CHARLES W. KINGHORN, Searsmont.

### Maryland

*To Camp Greene,* Charlotte, N. C., for duty, from Camp Hancock, Lieut. PATRICK F. McGUIRE, Baltimore.

*To Camp Meigs,* Washington, D. C., for duty, Lieut. RALPH S. STAUFFER, Hagerstown; from Camp Meigs, Lieut. IRA C. TYNDALL, Berlin.

*To Camp Sevier,* Greenville, S. C., for duty, from Fort Barrancas, Lieut. RICHARD E. YELLOTT, Fallston.

*To Camp Wheeler,* Macon. Ga., for duty, from Washington, D. C., Lieut. EDWARD S. BEASLEY, Baltimore.

*To Fort Oglethorpe,* for duty, from Evacuation Hospital No. 4, Fort Oglethorpe, Capt. EDWARD E. LAMKIN, Vienna. For instruction, Lieuts. ALEXANDER M. EVANS, HUGH C. F. GILL, GEORGE E. PEIRCE, Baltimore; IRA BURNS, Havre de Grace; FRANCIS H. JAMESON, Newport; HENRY A. NAYLOR, Pikesville; FREDERICK N. HENDERSON, Rockville.

*To Rockefeller Institute,* New York, for instruction, and on completion *to Hoboken, N. J.,* for temporary duty, from Fort Riley, Major DON P. PETERS, Baltimore. For instruction and on completion *to Bellevue Hospital,* New York City, for instruction and on completion *to his proper station,* from Camp Sheridan, Lieut. EUGENE H. HAYWARD, Baltimore.

*To his home* and the inactive list, Major CLEMENT A. PENROSE, Baltimore.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. JOHN G. ALEXANDER, Baltimore.

### Massachusetts

*To Boston, Mass.,* for duty, Capt. BEN H. METCALF, Winthrop.

*To Camp Beauregard,* Alexandria, La., to examine the command in his specialty, from Boston, Lieut. FRANCIS S. CALDICOTT, Milford.

*To Camp Greene,* Charlotte, N. C., for duty, from Camp Pike, Lieut. NORMAN McL. SCOTT, Boston.

*To Camp Sevier,* Greenville, S. C., for duty, Capts. WILLIAM C. SHEEHY, FRANK E. STETSON, New Bedford.

*To Camp Shelby,* Hattiesburg, Miss., for the special examination of the command for tuberculosis, from Camp Gordon, Capt. FRANCIS E. BURKE, Quincy.

*To Fort Oglethorpe,* for duty, from Fort Oglethorpe, Capt. ISAAC S. F. DODD, Pittsfield. For instruction, Capt. CORNELIUS J. DACCY, Brockton; from Army Medical School, Capt. WILLIAM M. GAY, Sharon. For instruction, Lieuts. PERCY A. SHURTLEFF, Blandford; JOHN F. MARTIN, Boston; PEIRCE H. LEAVITT, ALFRED M. LEMAY, Brockton; WILLIAM S. MORRISS, LUTHER J. SHEPLEY, Fall River; GEORGE C. BLONDI, Framingham; JOSEPH J. COSGROVE, Hopkinton; THOMAS F. TIERNEY, Hudson; CLARENCE W. SEWALL, Jamaica Plain; ANDREW P. SHEA, Lawrence; FREDERICK C. SHULTIS, Leominster; HARRY G. SUMNER, Lowell; HENRY A. ROBINSON, Marlboro; ROBERT C. SELLEW, Mill River; ARTHUR L. BRUNELLE, RAYMOND E. SENECAL, New Bedford; JOHN G. SWEENEY, North Cohassett; ROBERT S. FLETCHER, Oxford; NATHANIEL M. COHEN, Roxbury; ELMER E. LIGHT, Springfield; CHARLES MOLINE, Sunderland; CHARLES W. DeWOLF, Tewksbury; BERNARD E. PLOUFFE, Webster; FRANK T. OBERG, Worcester.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, Capt. JOHN H. LAMBERT, Lowell. Neurological Institute, for intensive training in their specialty, Lieuts. BUELL L. ASHMORE, HARVEY M. WATKINS, Palmer.

*To San Francisco, Calif.,* for duty, from Presidio, Lieut. WILLIAM H. BLANCHETTE, Fall River.

### Michigan

*To Camp Grant,* Rockford Ill., for duty, from Peoria, Lieut. EDWARD P. WAID, Salem.

*To Camp Greene,* Charlotte, N. C., base hospital, from Fort Oglethorpe, Lieut. ALBERT S. BASS, Greenville. For duty, from Camp Greene, Lieut. ROBERT A. HALE, Ann Arbor; from Fort Omaha, Lieut. WAYNE R. BEARDSLEY, Jones.

*To Camp Taylor,* Louisville, Ky., as a member of aviation section, signal corps, in addition to his other duties, Capt. CHARLES BARTON, Detroit.

*To Fort Riley,* as president of a board of medical officers to examine the command for mental and nervous diseases, from Ann Arbor, Major FREDERICK H. NEWBERRY, Detroit. For instruction, Major SAMUEL E. CRUSE, Iron Mountain; Lieuts. ROBERT P. STARK, Allegan; RICHARD C. LYLE, Bridgeport; CLAYTON A. WHITE, Burnips.

*To Philadelphia,* University of Pennsylvania, for instruction, from Camp Dodge, Lieut. GROVER C. PEMBERTHY, Detroit.

*To San Antonio, Texas,* Kelly Field, to examine the command for nervous and mental diseases, from New York City, Lieut. NICHOLSON W. PINTO, Kalamazoo.

*To San Francisco, Calif.,* for duty, from Presidio, Lieuts. BENJAMIN T. GOODFELLOW, Clio; JAMES W. HAWKINS, Detroit; IRA J. STONER, Jonesville; THEODORE S. CROSBY, Wakefield.

*To his home* and honorably discharged, Capt. WILLIAM C. McCUTCHEON, Cassopolis.

*Honorably discharged* on account of being physically disqualified for active service, Lieut. FRANK W. STAFFORD, Detroit.

### Minnesota

*To Camp Beauregard,* Alexandria, La., to examine the command in his specialty, from Philadelphia, Lieut. EDWARD J. ENGBERG, St. Paul.

*To Camp Sheridan,* Montgomery, Ala., base hospital, from Rockefeller Institute, Lieut. WALTER E. CREMPLER, Minneapolis.

*To Fort Oglethorpe,* for duty, from Fort Oglethorpe, Lieut. ADOLPH M. HANSON, Faribault.

*To Fort Riley,* for duty, Lieut. JOSEPH C. MICHAEL, St. Paul. For instruction, Lieuts. MERRITT W. WHEELER, Glenco; THOMAS F. McCORMICK, Minneapolis.

*To Minneapolis, Minn.,* Aviation Section, Signal Corps, for duty, Lieut. GEORGE P. DEMPSEY, Shakepee.

*To New York City* for instruction and on completion *to Bellevue Hospital* for instruction and on completion *to his proper station,* from Fort Oglethorpe, Lieut. FRANK L. JENNINGS, Hopkins

*To Washington, D. C.,* for duty in the Surgeon-General's Office, Major CHARLES H. MAYO, Rochester.

### Mississippi

*To Camp Beauregard,* Alexandria, La., to examine the command in his specialty, from Philadelphia, Lieut. THOMAS G. CLEVELAND, Meridian.

*To Rockefeller Institute,* New York, for instruction and on completion *to Bellevue Hospital* for instruction and on completion *to his proper station,* from Camp Shelby, Major WALTER W. CRAWFORD, Hattiesburg. For instruction and on completion *to New York City* for instruction and on completion *to his proper station,* from Camp Wadsworth, Lieut. PAUL Z. BROWNE, Grenada.

*To San Antonio, Texas,* Kelly Field, for duty, Lieut. ROBERT A. STRONG, Pass Christian.

*Honorably discharged* on account of being physically disqualified for active service, Lieut. CANNING T. BELL, Dekalb.

### Missouri

*To Camp Dodge,* Des Moines, Iowa, for duty, from Brooklyn, Lieut. HUGH E. ROGERS, St. Louis.

*To Camp Doniphan,* Fort Sill, Okla., for duty, Capt. WINFRED A. POST, Carthage.

*To Camp Greene,* Charlotte, N. C., for duty, from Camp Dodge, Lieut. LEWIS E. J. BROWNE, Lewistown.

*To Camp Kearny,* Linda Vista, Calif., for duty, from Presidio, Major MAZYCK P. RAVENEL, Columbia.

*To Camp Merritt,* Tenafly, N. J., to assist in a nutritional survey of that camp and on completion *to his proper station,* Capt. DON R. JOSEPH, St. Louis.

*To Camp Shelby,* Hattiesburg, Miss., for the special examination of the command for tuberculosis, from Camp Gordon, Lieut. WILLIAM J. DAVIS, St. Louis.

*To Camp Sheridan,* Montgomery, Ala., base hospital, from Camp Custer, Lieut. ROY A. McGARRY, St. Louis.

*To Columbia, Mo.,* to complete the examination of men for enlistment and on completion *to the inactive list* of the Medical Reserve Corps, Lieut. OSCAR F. BRADFORD, Columbia.

*To Fort Oglethorpe,* for instruction, Lieut. HARVEY W. JOHNSON, Wytopitlock.

*To Fort Omaha, Neb.,* for duty, Lieut. AMOS T. FISHER, Kansas City.

*To Fort Riley,* for instruction, Capts. WILLIAM J. LYNN, Kansas City; JOSEPH B. UNSELL, Louisiana; CHARLES A. SMITH, Osceola; FRANCIS M. VESSELLA, Perryville; MORVELL W. SHARPE, St. Louis; Lieuts. CARL C. JANUARY, Centerville; LEWIS H. LONG, Denver; ROY C. SAMPLE, Fredericktown; WILLIAM B. McCLURE, Hale; GEORGE E. LOCKER, Iantha; WALTER F. HOLBROOK, JAMES W. OUSLEY, CLAUDE C. TUCKER, Kansas City; LOGAN L. LATHAM, Lathan; PAUL C. DAVIS, Madison; JOHN W. WILLIAMS, Nashville; URSA C. WESTON, Osgood; LOUIS B. KNECHT, Poplar Bluff; SCOTT COOK, Qulin; PAUL S. MABRY, Rocksport; HARRY L. SMITH, St. Joseph; JOHN A. FLURY, ANDREW J. GETTINGER, ALBERT J. GRIOT, JAMES W. HUFFMAN, BERNHARDT W. KLIPPEL, St. Louis; SAMUEL

W. HOLT, Steffenville; WALTER E. WEST, Trenton; HARRY E. PARKER, Warrensburg; LEWIS C. CALVERT, Weston.

*To San Antonio, Texas*, Kelly Field, to examine for nervous and mental diseases, from Philadelphia, Capt. WILLIAM A. EDLER, St. Louis.

*To San Francisco, Calif.*, for duty, from Presidio, Lieut. EUGENE HALL, St. Joseph.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. ROY C. DRIPPS, St. Louis.

### Montana

*To Chicago, Ill.*, Presbyterian Hospital, for instruction, Lieut. ALEXANDER M. MACAULEY, Great Falls.

*To Fort Riley* for instruction, Lieuts. HAROLD SCHWARTZ, Butte; ARTHUR A. HUSSER, Hingham; JOHN W. OLSON, Troy.

### Nebraska

*To Camp Dodge*, Des Moines, Iowa, base hospital, from Camp Dodge, Lieut. DANIEL FRANKLIN, Omaha.

*To Camp Meade*, Annapolis Junction, Md., for duty, from Army Medical School, Capt. HARRY M. BONNIWELL, Lincoln.

*To Camp Sheridan*, Montgomery, Ala., base hospital, from Fort Riley, Lieut. WILLIAM J. McCRAUN, Omaha.

*To Fort Monroe, Va.*, for duty, from Camp Custer, Capt. DANIEL B. STIDWORTHY, Homer.

*To Fort Oglethorpe*, Hospital Train No. 36, from Fort Oglethorpe, Lieut. VERNON V. TALCOTT, Omaha.

*To Fort Riley*, for instruction, Capts. JOHN R. BEATTY, Butte; HENRY R. MINER, Falls City; from Omaha, Capt. JOHN B. POTTS, Omaha; Hospital Train No. 35, from Fort Riley, Capt. GEORGE R. GILBERT, Omaha; Lieut. CARL A. MEYER, Newman Grove. For duty, from Fort Riley, Lieut. WILLIAM C. AKERS, Omaha.

*To Fort Thomas, Ky.*, for duty, from Army Medical School, Capt. WILLIAM W. DeWOLFE, Bennett.

*To Morrison, Va.*, for duty, from Fort Leavenworth, Capt. ELLIS H. WHITEHEAD, Osmond.

*To Omaha, Neb.*, Aviation Section, Signal Corps, for duty, Lieut. SAM D. COWAN, Falls City.

### Nevada

*To Fort Riley*, for instruction, Capt. CLAUDIUS W. WEST, Elko.

### New Hampshire

*To Fort Oglethorpe*, Evacuation Hospital No. 4, for duty, from Fort Oglethorpe, Capt. ERNEST L. BELL, Plymouth.

### New Jersey

*To Camp Greene*, Charlotte, N. C., base hospital, from Fort Oglethorpe, Lieut. ERNEST S. RAMSDELL, Camden.

*To Camp Meigs*, Washington, D. C., Repair Shop Unit 303, Lieut. HERMAN MALADAUF, Jr., Trenton.

*To Fort Oglethorpe*, for duty, from Evacuation Hospital No. 4, Lieut. GEORGE W. VANNATTA, Orange. For instruction, Lieuts. ARTHUR LaROE, North Amboy; BROOKE DODSON, Pennsgrove.

*To Fort Riley*, Evacuation Hospital No. 11, for duty, from Fort Riley, Lieut. LeROY L. COLSH, Maplewood.

*To Fort Williams, Maine*, for the special examination of the command for tuberculosis, and on completion *to Fort Constitution, N. H.*, for the same duty, and on completion *to Fort Warren* for the same duty, and on completion of these duties to report to the Adjutant-General and Surgeon-General of the Army for further orders, from Camp Devens, Lieut. SAMUEL R. FAIRCHILD, Penns Grove.

*To Philadelphia*, University of Pennsylvania, for intensive instruction in brain surgery, from Camp Dix, Capt. ANDREW F. McBRIDE, Paterson.

*To Rockefeller Institute*, New York City, for instruction, and on completion *to New York City* for instruction, and on completion *to his proper station*, from Camp Dix, Lieut. FILBERT R. CORSON, Atlantic City.

*To San Francisco, Calif.*, for duty, from Presidio, Lieut. STEPHEN CAMPBELL, WOODBURY.

*To Washington, D. C.*, Aviation Section, Signal Corps, for duty, Capt. ELBERT S. SHERMAN, Newark.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. GEORGE W. VANNATTA, East Orange.

*Honorably discharged*, Lieut. MORRIS R. FAULKNER, Vineland.

### New Mexico

*To Camp MacArthur*, Waco, Texas, for duty, Capt. GEORGE D. CARTER, Mesilla Park.

*To his home* and honorably discharged, Lieut. ORIN J. WHITCOMB, Raton.

### New York

*To Albany*, for duty, Capt. WILLIAM P. FAUST, Schenectady.

*To Army Medical School*, Washington, D. C., for instruction, Lieut. LAWRENCE D. REDWAY, New York City. For preparation for nutritional survey, Lieuts. ALLEN G. T. HIPPS, Brooklyn; ROY W. BURY, Philadelphia.

*To Boston*, Massachusetts General Hospital, for instruction and on completion *to Fort McHenry, Md.*, for duty, from Fort Oglethorpe, Lieut. WILLIAM M. ENNIS, Brooklyn.

*To Camp Beauregard*, Alexandria, La., to examine the command in his specialty, Capt. JOSEPH W. MOORE, Beacon; from New York City, Capt. EDWIN G. ZABRISKIE, New York City.

*To Camp Custer*, Battle Creek, Mich., base hospital, from Walter Reed General Hospital, Capt. CALVIN M. KESSLER, New York City.

*To Camp Greene*, Charlotte, N. C., for duty, from Camp Devens, Lieut. LEON H. CORNWALL, New York City; from Fort Oglethorpe, Lieut. LOUIS DeK. BELDEN, New York City; from Williamsburg, N. Y., Lieut. LOUIS F. BOYD, New York City.

*To Camp Joseph E. Johnston*, Jacksonville, Fla., base hospital, Lieut. HAL McC. DAVISON, New York City; for duty, from Camp Wheeler, Lieut. GEORGE S. SKIFF, Gainesville.

*To Camp MacArthur*, Waco, Texas, base hospital, Lieut. WALTER G. HAYWARD, Jamestown; EDMUND L. DOUGLAS, NATHAN C. SCHIFF, New York City.

*To Camp Meade*, Annapolis Junction, Md., as Division Psychiatrist from Camp Meade, Capt. MORTIMER W. RAYNOR, New York City; for duty, Capt. DANIEL M. WYNKOOP, Babylon; to conduct examinations in his specialty, Capt. CHARLES G. O'CONNOR, Brooklyn.

*To Camp Shelby*, Hattiesburg, Miss., for the special examination of the command for tuberculosis, from Camp Gordon, Lieut. JAMES W. PRICE, Saranac Lake.

*To Camp Travis*, Fort Sam Houston, Texas, for duty, from Washington, D. C., Capt. FRED M. MEADER, New York City.

*To Camp Upton*, L. I., N. Y., as a member of Aviation Section, Signal Corps, in addition to his other duties at that camp, Capt. OWEN R. O'NEILL, New York City; for duty, from Camp Upton, Lieuts. RALPH E. BRODIE, Albion; BURNETT B. BENSON, New York City.

*To Canal Zone*, for duty, from Fort McPherson, Capt. WILLIAM L. McFARLAND, New York City.

*To Fort Bayard, N. M.*, for duty, Lieut. ISIDOR KRAUSE, Williamsbridge.

*To Fort Monroe, Va.*, for duty, Lieut. BENJAMIN BRODIE, New York City.

*To Fort Oglethorpe*, Evacuation Hospital No. 4, for duty from Fort Oglethorpe, Capt. JOHN R. BRADLEY, Rochester. For instruction, Capt. JAMES H. McCORT, Sag Harbor; from New York City, Capt. JOHN J. COTTER, New York City. For instruction, Lieuts. HENRY M. SPEFFORD, Batavia; FRANK TANNENBAUM, Bronx; ARCHIBALD A. WALKER, SAMUEL E. WITT, Brooklyn; FLOYD P. BREESE, Elmira; WILLIAM L. MUNSON, Granville; ROBERT S. HAMILTON, THEODORE M. SANDERS, ALLAN E. VAN NESS, New York City; from Army Medical School, Lieut. FELIX GRABOFF, New York City; from Fort Ontario, Lieut. LYMAN J. SPALDING, New York City; from New York City, Lieut. VINCENT W. WEISS, New York City.

*To Fort Riley*, Evacuation Hospital No. 21, for duty, from Fort Riley, Lieut. EARL C. MacCORDY, Amsterdam; from Philadelphia, Lieut. THOMAS H. RAINES, East View.

*To Fort Rodman, Mass.*, for the special examination of the command for tuberculosis, and on completion *to Fort Adams, R. I.*, for the same duty, and on completion *to Fort H. G. Wright, L. I., N. Y.*, for the same duty, and on completion of these duties *to report by telegraph to the Adjutant-General and Surgeon-General of the Army* for further orders, from Camp Devens, Capt. BRUNO S. HOROWICZ, New York City; Lieut. ADELBERT C. ABBOTT, Syracuse.

*To Fort Williams, Me.*, for the special examination of the command for tuberculosis, and on completion *to Fort Constitution, N. H.*, for the same duty, and on completion *to Fort Warren*, for the same duty, and on completion of these duties to report to the *Adjutant-General and Surgeon-General of the Army* for further orders, from Camp Devens, Lieuts. HERMAN JUDKOWITZ, New York City; CLYDE D. OATMAN, Poolville.

*To Hoboken, N. J.*, for duty, from Fort Jay, Lieut. LOUIS J. LADINSKI, New York City.

*To Milwaukee, Wis.*, for duty, from New York City, Lieut. HARRY R. FOERSTER, New York City.

*To Morrison, Va.*, for duty, Lieut. ALBERT A. GETMAN, Syracuse.

*To New York City*, Cornell Medical College, for instruction in military roentgenology, Capt. MILES W. JOHNS, Utica. To report by telegraph *to the Adjutant-General and Surgeon-General of the Army* for further orders, from Panama Department, Lieut. RAY S. NELSON, New York City.

*To Philadelphia Pa.*, University of Pennsylvania, for instruction, from Camp Pike, Capt. GEORGE E. MAURER, New York City.

*To Rockefeller Institute*, for instruction, and on completion *to New York City*, for instruction, and on completion *to his proper station*, from Camp Taylor, Major JUNIUS H. McHENRY, New York City; from Camp Upton, Capt. FREDERICK P. HAMMOND, New York City. For instruction, and on completion *to Bellevue Hospital*, New York City, for instruction, and on completion *to his proper station*, from Camp Devens, Capt. EDWARD G. CLIFTON, New York City; from Camp Wheeler, Lieut. ARTHUR W. HUBBARD, Wyoming. On completion *to Fort Oglethorpe*, for instruction, Lieut. WILLIAM P. McCROSBIE, New York City.

*To San Antonio, Texas*, Kelly Field, to examine the command for nervous and mental diseases, from New York City, Capt. JOHN F. W. MEAGHER, Brooklyn; Lieut. JOHN T. MacCURDY, New York City; from Camp Bowie, Lieut. JOHN J. HUGHES, Mt. Vernon.

*To San Francisco, Calif*, for duty, from Presidio, Capt. THOMAS H. CHATTLE, Good Ground; Lieuts. PROSPER H. DE GREGORI, Brooklyn; JAMES H. VANMARTER, Groton; VINCENT V. McCABE, Millbrook; EDWIN M. JOHNSON, New York City; WILLIAM TROTTER, Troy.

*To Vancouver Barracks, Wash.*, for duty, from Presidio, Lieut. ARTHUR H. WHEELER, Albany.

*To Walter Reed General Hospital*, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. MILTON W. PLATT, New York City

*To Washington, D. C.*, for duty in the Surgeon-General's Office, Major EDWARD K. DUNHAM, New York City; from Camp Bowie, Lieut. FRANKLIN C. McLEAN, New York City.

*Honorably discharged*, Capt. WILLIAM A. DALTON, New York City.

*To their homes* and honorably discharged, Capts. ROBERT E. PETTIT, LEE E. SHONINGER, New York City.

*To his home* and to the inactive list, Lieut. WALTER M. KRAUS, New York City.

### North Carolina

*To Camp MacArthur,* Waco, Texas, base hospital, from Fort Oglethorpe, Lieut. LOUIS N. WEST, Raleigh.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from Camp Wheeler, Capt. ARTHUR S. PENDLETON, Raleigh.

*To Camp Travis,* Fort Sam Houston, Texas, for duty in orthopedic work, from Oklahoma City, Lieut. HUGH A. THOMPSON, Raleigh.

*To Camp Wheeler,* Macon, Ga., as division psychiatrist, Capt. ARTHUR S. PENDLETON, Raleigh. Base-hospital, from Camp Sheridan, Capt. EVERETT A. LOCKETT, Winston-Salem.

*To Fort Oglethorpe,* for instruction, Maj. CHARLES O'H. LAUGHINGHOUSE, Greenville; from New York City, Capt. EDWIN B. FEREBEE, Raleigh. For instruction, Lieuts. JOHN C. DYE, Statesville; BURTON B. STURDIVANT, Sunburst.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Lieut. EDMOND J. BRYSON, Fontana.

### North Dakota

*To Fort Riley,* for instruction, Capt. JOHN E. COUNTRYMAN, Grafton; Lieuts. JOHN A. D. ENGESATHER, Brockett; AXOL OFTEDAL, Fargo; ALEXANDER C. MacDONALD, Fingal; ANDREW J. HEIMARK, Finley; GEORGE MONTAITH, Hazleton; THOMAS L. DePUY, Jamestown; WILLIAM F. MOERTZ, Lidgerwood; RALPH DEMING, Mercer; WILLIAM LaF. COWPER, Michigan; JOHN R. PENCO, Minot; JOSEPH A. SMITH, Moon; FRED T. RUCKER, Mott; JAMES F. HANNA, North Fargo; CHARLES R. TOMPKINS, Oberon; CECIL C. SMITH, Stanton; HILMAR T. SKOVHOLT, Williston.

### Ohio

*To Camp MacArthur,* Waco, Texas, for duty, Lieut. ELMER E. LYNCH, Mt. Victory.

*To Camp Pike,* Little Rock, Ark., for duty, from Washington, D. C., Major EUGENE F. McCAMPBELL, Columbus.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, Capt. STARLING S. WILCOX, Columbus. For duty in orthopedic work, from Oklahoma City, Lieut. ZALMON O. SHERWOOD, Geneva.

*To Camp Sherman,* Chillicothe, Ohio, for duty, Lieuts. JACOB M. HOSKINS, Marion; HERMAN W. HONECK, Ridgeville Corners; CHARLES A. MOONEY, Youngstown.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, Capt. JOHN A. CALDWELL, Cincinnati. For assignment to duty, from Camp Sherman, Lieut. DELPHUS B. VIRTUE, Iberia; CHARLES C. HATFIELD, Kingston.

*To Fort Oglethorpe,* for instruction, Lieuts, JOHN P. TUCKER, Cleveland; WILLIAM B. ROGERS, Hamilton; WILHELM H. VORBAU, Lima; HENRY SNOW, Jr., Norwood.

*To Fort Riley,* for instruction, Capt. ERNEST R. BROOKS, Cleveland; Lieuts. RAY C. ASH, Ashland; CHARLES W. BEAMAN, Cincinnati; ULYSSES M. BACHMAN, PAUL C. GAUCHAT, HENRY C. PRILL, Cleveland; ROBERT P. BAUSCH, HENRY E. BROOKS, FRANCIS T. GALLEN, Columbus; EDGAR D. ALLEN, Crooksville; FRANK A. LAWRENCE, Elyria; BONAPARTE P. DAVIS, Fort Jennings; JUSTIN G. BALLOU, Graytown; SYDNEY J. HAVRE, Kenmore; IRWIN H. BOESEL, McClure; JOHN D. BOYLAN, Milford Center; ROBERT E. WELLS, Nashport; BYRON BING, Pomeroy; DONALD M. BLIZZARD, Portsmouth; CARL H. GRAF, Sciotoville; WILBUR E. BEACH, Somerville; J. CRAIG BOWMAN, Upper Sandusky; WALTER E. DAPP, Youngstown.

*To Philadelphia, Pa., and New York City,* for duty in connection with the Gas Defense Service, and on completion *to his proper station,* Capt. JAMES D. PILCHER, Cleveland. University of Pennsylvania, for instruction, from Camp Grant, Capt. JOSEPH E. PIRRUNG, Cincinnati. University Hospital, for instruction, Capt. WALTER B. TUNER, Youngstown.

*To Rockefeller Institute, New York City,* for instruction and on completion *to New York City* for instruction and on completion *to his proper station,* from Camp Green, Capt. HARRY T. MILLER, Springfield.

*To San Antonio, Texas,* Kelly Field, to examine the command for nervous and mental diseases, from Camp Sheridan, Lieut. JAMES A. BALYEA, Toledo.

*To San Francisco, Calif.,* for duty, from Presidio, Lieuts. CALVIN D. TODD, McComb; JESSE C. EDWARDS, Columbus.

*To Washington, D. C.,* American University, as assistant, from Washington, D. C., Capt. JAMES D. PILCHER, Cleveland.

*To his home* and honorably discharged, Lieut. FRANK E. SNIDER, Madisonville.

### Oklahoma

*To Camp MacArthur,* Waco, Texas, for duty in orthopedic work, from Oklahoma City, Capt. LEONARD S. WILLOUR, McAlester.

*To Camp Sherman,* Montgomery, Ala., base hospital, from Camp Meade, Major FRED H. CLARK, El Reno.

*To Fort Riley,* for instruction, Lieut. DAVID C. WILLIAMS, Luther.

*To his home* and honorably discharged, Lieut. Charles C. Gardner, Ashland; on account of being physically disqualified for active service, Lieut. WILLIAM B. NEWTON, Muskogee.

### Oregon

*To Camp Dodge,* Des Moines, Iowa, base hospital, from Camp Dodge, Capt. EDGAR H. BROWN, McMinnville.

*To Camp Greene,* Charlotte, N. C., for duty, from Army Medical School, Lieut. NIELS P. PAULSON, Portland.

*To Fort Riley,* for instruction, Lieut. LEONARD H. VINCENT, Crane.

*To Western Department,* as tuberculosis examiner, from Camp Kearny, Lieut. LEON G. HOLLAND, Portland.

### Pennsylvania

*To Camp Beauregard,* Alexandria, La., to examine the command in his specialty, from Philadelphia, Capt. WILLIAM W. RICHARDSON, Mercer.

*To Camp Doniphan,* Fort Sill, Okla., base hospital, from Camp Dix, Capt. JOHN A. RODDY, Jr., Philadelphia.

*To Camp Grant,* Chicago, Ill., on completion of course at Chicago, Lieut. EDGAR N. FOUGHT, Philadelphia.

*To Camp Greene,* Charlotte, N. C., to assume command of Laboratory Car No. 201 (Reed) in addition to his other duties at that camp, Capt. CLAUDE P. BROWN, Glen Olden. For duty, from Camp Greene, Lieuts. JOSEPH G. FERNBACH, Philadelphia; ROY L. SCOTT, Sayre; from Camp Taylor, Lieut. FRANCIS E. EVANS, Philadelphia.

*To Camp Hancock,* Augusta, Ga., as divisional psychiatrist, from Camp Hancock, Capt. EDWARD A. STRECKER, Philadelphia.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Fort Oglethorpe, Lieut. CLAUDE W. McKEE, Greensburg.

*To Camp McClellan,* Anniston, Ala., base hospital, Lieut. ARCHIBALD A. MacLACHLAN, Pittsburgh.

*To Camp Meade,* Annapolis Junction, Md., for duty, Lieuts. CLARENCE K. APPLE, Oak Lane Terrace; STUART H. BOWMAN, Philadelphia; MICHAEL J. McCARTHY, Pottsville; CYRUS W. TRUXAL, Wayne; from Army Medical School, Lieut. JULIAN F. MEYER, Philadelphia.

*To Camp Meigs,* Washington, D. C., for duty, from Army Medical School, Lieut. JOHN W. GOODSELL, New Kensington.

*To Camp Shelby,* Hattiesburg, Miss., for the special examination of the command for tuberculosis, from Camp Gordon, Lieut. ANDREW ANDERS, Philadelphia.

*To Camp Travis,* Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. CLAUDE W. McKEE, Greensburg.

*To Camp Wheeler,* Macon, Ga., to examine the command in his specialty, Lieut. RALPH L. HILL, Woodville.

*To Fort Oglethorpe,* for instruction, Major WILLIAM C. LeCOMPTE, Bristol; Capts. CHARLES J. SMYSER, New Wilmington; FRANK L. McCREADY, Sewickley; GEORGE E. ATWOOD, Valane; Lieuts. GEORGE W. LANG, Alicia; DANIEL BOHN, Altoona; FRED B. WILSON, Beaver; FRANK L. RICHARDS, Berwyn; JAMES R. GEMMILL, Canton; CHARLES E. HERMAN, Carnegie; CHARLES L. PRATT, Coatesville; WILLIAM J. BAILEY, Connellsville; FRANK H. LONG, Coopersburg; ROSS H. JONES, Coudersport; JOHN J. KOLSKI, Donora; SAMUEL B. ROSS, Dubois; ISAIAH C. MORGAN, Edwardsville; IVO E. ROWLAND, Elizabeth; BOYD W. SCHAFFNER, Ellwood City, WILLIAM G. SHEEHAN, Erdenheim; WILLIAM P. PATTERSON, Fairchance; HARRY E. LYONS, Fairview; WALLACE R. McCLELLAN, Garrett; ARTHUR E. BROWN, Greenville; ADAM S. KEPPLE, Hannastown; MELVILLE M. PALMER, Homer City; GARDNER A. SAYRES, Lancaster; FRANCIS J. KING, Lansdowne; FRANK L. SHENK, Linglestown; SLOIS F. SEIFRIS, Mars; JOHN L. MESSMORE, Masontown; HUBERT J. GOODRICH, McKees Rock; FRANCIS M. QUINN, Minersville; JAMES R. MORROW, Mount Union; HERBERT B. SHEARER, Norristown; FRANKLIN W. MATHEWSON, Oakdale; WILLIAM D. BAUN, JAMES W. BODLEY, CLARENCE D. DANIELS, ROLLA B. FORE, VICTOR J. B. FRIES, MARSHALL B. MORGAN, Jr., HARRY F. ROEPKE, EUGENE RUSH, FRANCIS P. SHANNON, PHILIP S. STOUT, THOMAS H. WALKER, Philadelphia; CHARLES R. BRENNER, SHAUL GEORGE, EDWARD C. LESLIE, Pittsburgh; CHARLES F. NETZEL, Plymouth; LEON C. DARRAH, EDWARD K. GOLDING, Reading; ABRAHAM J. KAISER, Saltsburg; DAVID E. GRIFFITHS, Scottdale; CLARE H. HANLEY, Scranton; BENJAMIN A. FRYE, Sharpesville; FRANCIS B. GRYCZKA, Simpton; MALCOLM D. KOLBEN, Slatington; JAMES B. McAVOY, South Bethlehem; EXRA P. DICKINSON, St. Michael; ARTHUR B. FLEMING, Temaqua; FRANK M. POGUE, Trafford; JOSEPH L. McGINLEY, WILLIAM T. PALCHANIS, Wilkes-Barre; OSCAR A. DELLE, York, New Salem; from Camp Wheeler, Lieut. REUBEN A. E. PETERSON, Allentown. To organize and command Hospital Train No. 36, from Fort Oglethorpe, Lieut. JAMES H. PAUL, Philadelphia.

*To Fort Riley,* for duty, from Chicago, Capt. LOUIS J. C. BAILEY, Greensburg; from New York City, Lieut. DAVID B. HAWKINS, Curwensville.

*To Fort Rodman, Mass.,* for the special examination of the command for tuberculosis, and on completion *to Fort Adams, R. I.,* for the same duty, and on completion *to Fort H. G. Wright, L. I., N. Y.,* for the same duty, and on completion of these duties to report to the *Adjutant-General and Surgeon-General of the Army* for further orders, from Camp Devens, Lieut. HARRISON M. STEWART, Mount Alto.

*To Fort Worth, Texas,* Signal Corps, Aviation Section, for duty, from Garden City, Major WALTER S. CORNELL, Philadelphia.

*To Lakewood, N. J.,* for duty, Major JOHN B. McGREARY, Shippensburg; Capts. DAVID C. VOSLER, Ellwood City; JOSEPH C. KEELER, Philadelphia; Lieuts. ETHAN A. CAMPBELL, Chester; WILLIAM N. JOHNSON, Philadelphia.

*To Morrison, Va.,* for duty, Capt. NATHANIEL ROSS, Wilkes-Barre; Lieut. WILLIAM G. BARRYHILL, Washington.

*To Philadelphia, Pa.,* for duty, Capt. MICHAEL A. BURNS, Philadelphia; from Camp Devens, Lieut. JOHN A. BERTOLST, Philadelphia, University of Pennsylvania, for instruction, Lieuts. ROFIN C. BUERKI, WILLIAM C. CHANEY, Philadelphia.

*To Rockefeller Institute,* New York, for instruction, and on completion *to his proper station,* from New York City, Major WILLIAM W.

BABCOCK, Philadelphia; for instruction, and on completion *to New York City,* for instruction, and on completion *to his proper station,* from Camp Jackson, Lieut. WILLIAM T. PYLE, Swissvale.

*To San Antonio, Texas,* Kelly Field, to examine the command for nervous and mental diseases, from Camp Sherman, Lieut. EMORY L. DRAVO, Warren.

*To San Francisco, Calif.,* for duty, from Presidio, Lieuts. ROY C. MEALS, Columbus; JOHN D. DONOVAN, Renova.

*To Walter Reed General Hospital,* Washington, D. C., for duty, from Fort Oglethorpe, Lieut. JAMES S. TAYLOR, Altoona.

*Honorably discharged,* on account of being physically disqualified for active service, Capt. JOHN J. GILBRIDE, Philadelphia; Lieuts. PERCY H. SHAW, Germantown; WILLIAM W. WATERS, Manticoke; EMLYN T. DAVIES, Old Forge; PAUL E. HASKETT, SAMUEL W. WOODHOUSE, Philadelphia; FRED H. HARRISON, Pittsburgh.

### Rhode Island

*To Fort Oglethorpe,* for instruction, Lieuts. PATRICK A. DURKIN, ARTHUR J. FALCON, Pawtucket; CHARLES M. COLLINS, SIMON G. LENZER, Providence.

### South Carolina

*To Camp Custer,* Battle Creek, Mich., base hospital, from Camp Wadsworth, Lieut. LINDSEY PETERS, Columbia.

*To Fort Logan H. Roots, Ark.,* for duty, from Fort Moultrie, Capt. JOHN WALLACE, Easley.

*To Fort Oglethorpe,* for instruction, Capt. FRENCH A. SMITH, Mullins; Lieuts. GROVER C. BOLIN, Neeses; WILLIAM S. LYNCH, Scranton; THOMAS H. SYMES, St. Matthews; THEODORE MADDOX, Union.

*To Philadelphia, Pa.,* for instruction in orthopedic surgery, Lieut. JAMES W. DAVIS, Statesville.

### South Dakota

*To Fort Riley,* for instruction, Lieuts. FRANK D. WILSON, Armour; LORENS A. HAUG, Canton; JAMES H. CRAWFORD, Castlewood; LESTER R. HERMAN, Conde; JAMES D. EDGAR, Henry; DICKENSON O. WHEELOCK, Kampeska; HARLEY D. NEWBY, Parker; JAMES G. CARNEY, Parkston; EUGENE H. BOON, Tyndall.

*Honorably discharged,* on account of being physically disqualified for active service, Lieut. JAMES F. VALBY, Viborg.

### Tennessee

*To Camp Beauregard,* Alexandria, La., for duty in orthopedic work, from Oklahoma City, Lieut. BENJAMIN L. SCHOOLFIELD, Memphis.

*To Camp Kearny,* Linda Vista, Calif., as a member of Aviation Section, Signal Corps, in addition to his other duties at that camp, HUGH T. MOORE, Chattanooga.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Army Medical School, Lieut. ANDREW B. JONES, Nashville.

*To Camp Meigs,* Washington, D. C., for duty, from Camp Meigs, Lieut. WILLIAM V. PRUETT, Brownsville.

*To Camp Sevier,* Greenville, S. C., for duty, Lieut. BEVERLY T. NOLAN, Franklin.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Camp Travis, Lieut. CLYDE McK. BECK, Memphis.

*To Fort Oglethorpe,* for instruction, Capt. WILLIAM F. CLARY, Memphis; Lieuts. HARRY L. LOTT, BEECHER L. OGLE, Knoxville; CHARLES H. KYKER, Oliver Springs.

*To Fort Riley,* for instruction, Lieuts. PERCY D. BIDDLE, Columbia; GREEN W. McCONATHY, Eads; BEVERLY T. NOLEN, Franklin; JOHN E. SILVER, Jellica; SALVADOR L. BOCCELLATO, LYMAN H. CHAPMAN, Memphis; CHARLES S. MORROW, Nashville; SAMUEL N. ANDERSON, South Pittsburg; WILLIAM P. LAW, Westmoreland; HENRY C. ANDERSON, Williamsburg; from Fort Riley, Lieut. EUSTACE C. MASON, Bon Air.

*To his home* and honorably discharged, on account of being physically disqualified for active service, from Camp Sevier, Lieut. PIATT H. ANDERSON, Memphis.

### Texas

*To Camp Doniphan,* Fort Sill, Okla., for duty in orthopedic work, from Oklahoma City, Lieut. MARION M. BROWN, Mexia.

*To Camp Gordon,* Atlanta, Ga., for duty in orthopedic work, from Oklahoma City, Lieut. FREDERICK E. HUDSON, Anson.

*To Camp Logan,* Houston, Texas, for duty in orthopedic work, from Oklahoma City, Capt. WILLIAM B. CARRELL, Dallas.

*To Camp MacArthur,* Waco, Texas, base hospital, Capt. CARMOTTE A. COBB, Beaumont; Lieuts. SAM R. GRIFFIN, Canyon; WILLIAM E. CAMPBELL, Cedar Creek; JOSEPH H. HICKS, Denton; WILLIAM L. CULPEPPER, Goose Creek; VERNER L. BAUGH, Grafton; SILAS G. CAIN, Haskell; HOWARD C. CURTIS, McKinney; WALTER PURVIANCE, Pampa. For duty, Lieut. DANIEL H. BROCK, Travis.

*To Camp Travis,* Fort Sam Houston, Texas, for duty from Camp Travis, Capt. THEODORE H. HARRELL, Gonzales; Lieut. JAMES S. BUIE, Hillsboro.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, Capts. BERNARD F. SMITH, San Antonio; WILLIAM L. CROTHWAIT, Waco; Lieut. FRANK G. SANDERS, Fort Worth.

*To Everman, Texas,* for duty, LEITUS V. BESCOM COZBY, Grand Saline; LEAH D. CARTER, Robstown.

*To Fort Oglethorpe,* for instruction, Lieut. WREN E. SMITH, Dallas.

*To Fort Worth, Texas,* for duty, Capt. ARTHUR K. BOYD, San Angelo.

*To Penbrook, Texas,* for duty, Lieuts. ROBERT BAILEY, Coleman; STERLING P. BOTHE, Westhoff.

### Utah

*To Camp MacArthur,* Waco, Texas, base hospital, Lieut. LeROY PUGNIRE, Ogden.

*To Fort Riley,* Hospital Train No. 35, from Fort Riley, Lieut. WOODWARD B. MAYO, Salt Lake City.

### Vermont

*To Fort Oglethorpe,* for instruction, Capt. EMMUS G. TWITCHELL, Burlington; Lieuts. FRANCIS J. ENNIS, Burlington; FRANK H. EVERETT, Castleton; PERCY E. BUCK, Glover; BERT D. GEORGE, Hardwick; MITCHELL D. CAREY, CHARLES P. CHANDLER, JULIUS E. DEWEY, FREDERIC W. HARRIMAN, Montpelier.

*To Hoboken, N. J.,* for duty, from Army Medical School, Capt. FREDERICK E. CLARK, Burlington.

### Virginia

*To Camp Greene,* Charlotte, N. C., for duty, from Camp Sheridan, Lieut. HERBERT W. ROGERS, Nassawadox.

*To Camp Meigs,* Washington, D. C., for duty, Lieut. CLIFFORD A. FELKES, Roanoke.

*To Camp Sheridan,* Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. DORSEY G. TYLER, Richmond.

*To Fort Oglethorpe,* for instruction, Lieuts. WILLIAM S. PETERS, Jr., HARRY R. SMITH, Appalachia; WILLIAM T. WIMBISH, Clarksville; ERNEST B. MILLER, Elkton; CARROLL S. HOWELL, Franklin; JOHN T. RAMSEY, Glamorgan; WILLIAM WILSON, Greenwood; LEWIS S. HERNDON, MacMeadows; OSCAR E. HEDRICK, Museville; GEORGE W. SCHENCK, Norfolk; JOHN B. FOSTER, Ocean View; CHARLES F. DAVIS, Jr., Pleasant; CHARLES E. DYER, Pulaski; JOHN O'BRIEN, Jr., ROBERT G. WILLIS, Richmond; JAMES T. NEEL, Shawyer Mill; EARLY B. DOVELL, Somerset; LOUIS S. HAYNES, Taylor's Store.

*To Newport News, Va.,* for duty, Lieut. SAMUEL DOWNING, Wicomico Church.

*To Rockefeller Institute,* New York City, for instruction, and on completion *to Bellevue Hospital,* New York City, for instruction and on completion *to his proper station,* from Camp Lee, Major SAMUEL B. MOORE, Alexandria.

*To San Francisco, Calif.,* for duty, from Presidio, Lieut. JOHN H. HARE, Newland.

### Washington

*To Camp Lewis,* American Lake, Wash., base hospital, from Camp Lewis, Capt. ALBERT C. STEWART, Fort Steilacoom.

*To Rockefeller Institute,* New York City, for instruction, and on completion *to his proper station,* from Camp Custer, Lieut. JOHN M. HENDERSON, Seattle.

*To Vancouver Barracks, Wash.,* for duty, Lieut. SHELBY O. SHURICK, Seattle.

### West Virginia

*To Camp Greene,* Charlotte, N. C., for duty, from Camp McClellan, Lieut. CHARLES R. IRVING, Hansford.

*To Morrison, Va.,* for duty, Lieut. WILLIAM M. COOK, Algoma.

### Wisconsin

*To Fort Riley,* for instruction, Capts. HARRY A. JEFFERSON, Clintonville; PATRICK R. MINAHAN, Fond du Lac; ROBERT S. STERNBERG, Milwaukee; VERNON ROBERTS, National Soldiers Home; FRANK S. TUFFLEY, Roscobel; CLIFFORD W. ANDREWS, Waupaca; Lieuts. GEORGE W. GROSWOLD, Alma Center; EARLE F. McGRATH, Appleton; HAROLD McM. HEIM, Beloit; HAROLD N. O'BRIEN, Darion; JOSEPH C. BAIRD, Eau Claire; FLOYD E. SHEARER, Edgerton; CLARK L. CAIN, Elmwood; JOHN E. SIMPSON, Endeavor; CHARLES F. REHLING, Fremont; PAUL M. CLIFFORD, Green Bay; WILLIAM E. BUCKLEY, Hartford; DANA B. DISHMAKER, Kewaunee; GEORGE R. REAY, LaCrosse; EDWARD C. PFEIFER, Loyal; FRANCIS T. H'DOUBLER, Madison; WILLIAM E. DONOHUE, Manitowoc; RUSSELL R. HEIM, Marinette; ORLANDO F. PARTRIDGE, Mattoon; LEONARD J. BACHINSKI, JOHN R. SHEEHAN, JOHN W. SMITH, WILLIAM F. WEINGART, Milwaukee; HOMER D. LUDDEN, Mineral Point; EDWIN H. FEDEMAN, Montello; ALEXANDER J. BERGER, New Holstein; JUDSON S. ALLEN, CLIFTON A. COOPER, Norwalk; OLE A. NELSON, Park Falls; HIRAM A. BUELL, Prairie Farm; WADE H. FORTNER, Princeton; CARL C. SCHAEFER, Racine; JOHN R. HUGHES, Rodgeville; CARL C. BIRKELO, Rosholt; LLOYD D. CUTTING, VINCENT J. SHIPPY, Stevens Point; ALFRED L. OLSON, Stoughton; JOHN C. KYLLO, Superior; WILLIAM T. MURPHY, Waukesha; THOMAS F. LAUGHLIN, Winneconne.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, and then *to Hoboken, N. J.,* Base Hospital No. 22, Capt. EUGENE A. SMITH, Milwaukee.

*To San Francisco, Calif.,* for duty, from Presidio, LLEWELLAN H. TREGLOWN, Livingston.

### Wyoming

*To Camp Kearny,* Linda Vista, Calif., base hospital, Lieut. HAROLD M. BROWN, Sheridan.

*To Fort Riley,* for instruction, Lieut. LUTHER E. MITCHELL, Kaycee.

## CORRECTION

Under "Orders to Officers of the Medical Reserve Corps":

Issue of January 12: *To his home* and honorably discharged, on account of being physically disqualified for service, Capt. JOHN R. WALKER, of Fort Madison, Ia., instead of JOHN H. WALKER of Alvord, Texas.

# Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

## CALIFORNIA

**New County Officers.**—At the annual meeting of the Stanislaus County Medical Society, held in Modesto, Dr. Elwin F. Reamer, Modesto, was elected president; Dr. Fred W. McKibbon, Oakdale, vice president, and Dr. Fred R. De Lappe, Modesto, secretary-treasurer.

**Personal.**—Dr. Sidney R. Dannenbaum has resigned as professor of medicine of the College of Physicians and Surgeons of San Francisco.——Dr. Jean V. Cook, professor of pathology in the University of California, has been appointed head of the pediatric department of Washington University, St. Louis.——Dr. Arthur D. Houghton, Los Angeles, was operated on for appendicitis at the Clara Barton Hospital, December 30, and is reported to be convalescent.——Drs. Albert H. Taylor and Edward S. Salomon have been given temporary appointments in the emergency service of the San Francisco Board of Health, succeeding Drs. Cuthbert M. Fleissner and J. F. Rogers, resigned to enter the military service.——Dr. Thomas N. Sample, Fresno, who was operated on recently in the Adler Sanitarium, San Francisco, is reported to be doing well.——Dr. Alfred R. Rogers has been appointed assistant health commissioner of Los Angeles.

## DISTRICT OF COLUMBIA

**Health of the District in 1916.**—The annual report of the health officer of the District for 1916 and the first half of 1917 gives an exhaustive textual and tabulated analysis of vital and morbidity statistics for the period named, compared with previous years. The birth rate for 1916 was 20.16 per thousand, higher than any rate since 1906-1910, when the average was 20.48, and equal to the year 1914, when the rate was also 20.16. The stillbirth rate was 1.15, which was lower than previous years back to 1901. The death rate was 18.04, which was somewhat higher than for any year back to 1911, except in 1915, when the rate was 18.18. As usual, the rates for births, stillbirths and deaths were higher for the colored population than for the whites. An interesting tabulation is that of the most potent causes of death. The annual average death rate per hundred thousand for the periods 1906-1910, 1911-1915, and for the years 1915 and 1916, respectively, were, for the chief causes of death, as follows: organic heart disease, 169, 208, 204, 199; for pulmonary tuberculosis, 222, 194, 195 and 179; for pneumonia, all forms, 163, 155, 188, 168; Bright's disease, 131, 153, 171, 163; for acute nephritis, 18, 19, 22, 20; for typhoid fever, 35, 17, 12, 13. There were, during the 1916 epidemic of poliomyelitis, thirty-nine cases of the disease from March 6 to October 5, with six deaths. It is interesting to note from the report that following the judgment of the health officer the simple, unburdensome regulations in force in the district regarding poliomyelitis previous to the epidemic were continued, those of the conference of state and provincial health officers, much more drastic in character, not being put into effect, with results equally good, as the health officer insists. Separate reports of each department are given.

## ILLINOIS

**Dr. Wells Returns.**—Dr. H. Gideon Wells has returned from Roumania to which country he was sent as a member of the American Red Cross Mission.

**Hospital Chief Resigns.**—Dr. Charles Joseph Swan, Evanston, chief of the staff of the Evanston Hospital, resigned, January 15, to enter the medical service. He has been assigned to duty at the base hospital, Camp Wheeler, Macon, Ga.

**New Officers.**—At the annual meeting of the Winnebago County Medical Society, held in Rockford, January 8, Dr. Robert C. Bourland was elected president, Dr. John E. Tuite, vice president, and Dr. William H. Cunningham, secretary-treasurer, all of Rockford.

**The State Centennial.**—The Illinois State Medical Society has begun the preparation of a comprehensive history of medicine during the one hundred years of statehood of Illinois. Dr. William O. Ensign, Rutland, is chairman of the special subcommittee appointed to prepare a history of the Illinois State Medical Society; Dr. E. Fletcher Ingals, Chicago, is to undertake the preparation of a history of hospitals and medical schools of Chicago, and Dr. Mortimer Frank, Chicago, will write a medical history of the medical journals and libraries. It is also purposed to prepare an exhibition, which will be held in May.

### Chicago

**Ophthalmologists Elect Officers.**—At the annual meeting of the Chicago Ophthalmological Society, January 21, Dr. Heman H. Brown was elected president; Dr. Thomas O. Edgar Dixon, vice president; Dr. Alfred N. Murray, secretary, and Dr. Jacob F. Burkholder, treasurer.

**Antitoxin Controversy.**—Dr. C. St. Clair Drake, Springfield, state director of public health, charges that the city health department has been lax in handling antitoxin supplied by the state department of health, and has drawn more than its share of the free supply. He states, furthermore, that 843 packages of antitoxin furnished to the city health department between Jan. 1, 1916, and June, 1917, have been unaccounted for. Health Commissioner Robertson has requested an emergency appropriation of $2,500 for diphtheria antitoxin.

## KENTUCKY

**Midland Physicians Meet.**—The Kentucky Midland Medical Society held its quarterly meeting in Paris, January 10, under the presidency of Dr. Sidney J. Anderson, Midway. Dr. Charles A. Vance, Lexington, was elected president; Dr. James L. Toll, Lawrenceburg, vice president, and Dr. John D. Maguire, Lexington, secretary-treasurer.

**Venereal Clinic at Louisville City Hospital.**—For the protection of soldiers at Camp Zachary Taylor, a venereal clinic will be established at the Louisville City Hospital, under recommendations made to the United States Public Health Service by Surg. Lunsford D. Fricks, in charge of sanitary conditions in the extracantonment zone, who has secured the cooperation of the local health authorities, the American Red Cross and the City Hospital.——Dr. Henry Enos Tuley, superintendent of the City Hospital, has arranged for the enlargement of the existing venereal clinic at the hospital and the extension of the hours to include a night clinic. Free treatment will be given to all soldiers, as well as civilians, who are afflicted with venereal diseases.——The government will provide medicine and nurses, the latter to work especially in conjunction with the newly established social service department of the hospital, under the supervision of Miss Mary Alexander.——The superintendent of the hospital has appealed to the commanding general of the Eighty-Fourth Division to remove the hospital from the restricted zone, as outlined by the provost marshal of the camp, to enable officers and men to visit the hospital. Officers at present cannot visit the Jefferson County Medical Society meetings held in the hospital amphitheater, nor consult the county medical library which is housed there. The Board of Public Safety and Surgeon Fricks have been asked to join in this request.

## MARYLAND

**University of Maryland Medical Department Open to Women.**—The University of Maryland, by a recent ruling of the faculty, beginning the next October term, will accept women students in the medical department. This ruling admits women to every department of the university, as they have been accepted in the dental, pharmacy and law departments for some time.

**Personal.**—Dr. Charles A. Reifschneider, senior resident surgeon at the University Hospital for the last year, has been appointed superintendent of the institution in place of Lieut. Harry M. Stein, M. R. C., who has been ordered to Camp Meade.——Dr. Edward J. Cummings, for the past six months medical superintendent of St. Agnes' Hospital, who recently received a commission of junior lieutenant in the United States Navy, has left for duty at a naval training station.——Dr. John G. Long has been appointed superintendent at the hospital to succeed Dr. Cummings.

**Meetings.**—At the meeting of the Baltimore County Medical Society, January 16, at Osler Hall, Baltimore, the following officers were elected: Dr. J. Percy Wade, president; Dr. Frank W. Keating, vice president; Dr. Samuel J. Fort, secretary, and Dr. Alfred Gundry, treasurer.——A symposium on "The Modern Treatment of Wounds" was held at a meeting of the Baltimore City Medical Society in Osler Hall, January 18. Major George A. Stewart, M. R. C., spoke on "Work at the War Demonstration Hospital," and Dr. George Loewy, French Army Medical Corps, of the Rockefeller Institute, addressed the meeting on "The Carrel-Dakin Method of Wound Treatment." The discussion was opened by Drs. William S. Halstead and Alexius McGlannan.

## NEW YORK

**Smallpox.**—Sanitary Supervisor Sears has warned residents of Syracuse to keep away from Utica and Frankfort, where there are said to be ninety cases of smallpox.

**Farewell to Base Hospital.**—The Rochester Medical Association tendered a farewell dinner to the Rochester Base Hospital No. 19, at the Genesee Valley Club, January 2. Dr. Elmer J. Bissell presided; 150 guests were present.

**Daylight Saving.**—A bill to carry a daylight-saving plan into effect is under consideration by the committee on interstate commerce of the house of representatives. In substance it provides that the clock be advanced one hour in April and moved back in September. The Health Department of New York City has expressed its approval of this measure in the interests of public health, believing it will promote outdoor life.

**Plan for the Prevention of Venereal Diseases.**—The state department of health announces in the December *Bulletin* that it purposes adopting a plan for the control of venereal diseases somewhat similar to that of the Social Hygiene Society of Oregon. A committee has been appointed to take charge of this particular branch of public health work, composed of four members of the departmental staff and the secretaries of the American Social Hygiene Society and the New York Social Hygiene Society.

**Bill to Make New York Dry.**—The Anti-Saloon League has introduced a bill into the legislature which would make New York state bone dry from Oct. 1, 1918, for the period of the war and for a demobilization period for one year thereafter. The bill provides for the manufacture and sale of alcoholic liquor for medical, mechanical, scientific or sacramental purposes, where such manufacture and sale are not now excluded by the vote of the people. Governor Whitman has indicated that he will sign the bill.

**Clinics for After-Care of Infantile Paralysis.**—The third series of clinics for the after-care of infantile paralysis victims is now being held throughout the state under the auspices of the state department of health. The clinical staff of the traveling unit consists of Dr. LeRoy W. Hubbard, Mount Vernon, and four specially trained nurses. Since undertaking this enterprise, 160 clinics have been held at various centers of population at which 3,800 individuals have been examined and treated. To date seventy-six operations have been performed, and braces or some form of apparatus have been furnished to 527 cripples. All of the cases have been seen repeatedly by state supervising nurses.

### New York City

**Jurors Make Contribution to Hospitals.**—The first panel of the sheriff's jury, at its recent dinner at Delmonico's, gave the $5,000 which it is accustomed to spend on expensive souvenirs to the various hospitals of the city.

**Harvey Society Lecture.**—The next in the present series of the Harvard Society lectures is to be delivered by Prof. John Gordon Wilson, Chicago, February 9. The subject is "The Effect of High Explosives on the Ear."

**Personal.**—Dr. J. Lewis Amster of the Bronx has been appointed commissioner of health of New York City, to succeed Dr. Haven Emerson, who has been commissioned major in the Medical Reserve Corps, and has been assigned to duty in the Surgeon-General's Office, Washington, D. C.——Dr. George Gray Ward, Jr., has been appointed chief surgeon and surgical director of the woman's hospital, succeeding Dr. Clement Cleveland, who has resigned.——Dr. Isidore H. Goldberger has been reappointed chairman of the Bronx County Milk Commission, and has associated with him Drs. Samuel Rosenzweig, Vincent S. Hayward, Stella Shaffer-Epstein and William L. Rost.

**Massage Operators Must Be Licensed.**—The *Bulletin* of the New York City Health Department calls attention to the fact that few physicians know that there is a city ordinance requiring that every person giving massage treatment, either manual or mechanical, with the exception of physicians, osteopaths and registered nurses, must have a license from the department of licenses. In addition to the license, those giving massage treatment must have a certificate from the health department showing that the applicant is free from communicable disease. Both the license and the health certificate must be shown to any one on demand, and physicians should demand to see both from any one whom they intend to employ to give massage. The ordinance also requires that a massage operator before giving treatment to a patient of the opposite sex in his or her office must receive a written order from the physician, stating the number of treatments to be given, not to exceed ten on any one order.

## OHIO

**Personal.**—Dr. Irwin W. Sherwood has been elected president of the West Side Board of Trade, Columbus.——Dr. Michael A. Bartley, Columbus, is reported to be seriously ill at Mount Carmel Hospital.

**Protest Tax Legislation.**—At the regular quarterly meeting of the Council of the Ohio State Medical Association, held in Columbus, January 7, the following resolution was adopted:

> *Resolved*, By the Council of the Ohio State Medical Association, after a careful investigation of Section 209 of the War Revenue Law: That that provision is entirely unfair, and works a serious injustice to professional men, this injustice being more particularly marked in the case of physicians, who without exception have always done a large amount of charity work, and who in particular as the result of the war have had increased work with lessened incomes:
>
> That the tax is particularly obnoxious because it imposes a special burden upon men who earn their incomes, while it exempts from that burden owners of inherited wealth, who earn nothing but are simply parasites:
>
> That we, therefore, call upon our representatives in Congress to use their utmost endeavors to secure a repeal of this unjust and onerous tax which, so far as we can learn, has not been imposed, or even contemplated, in any of the other countries engaged in the present war.

### Cincinnati

**Academy Election.**—At the annual meeting of the Cincinnati Academy of Medicine, January 7, the following officers were elected: president, Dr. J. Ambrose Johnston; vice presidents, Drs. Gordon F. McKim and Nora Crotty; secretary, Dr. William R. Abbott, and treasurer, Dr. Alex G. Drury.

**Personal.**—Dr. Charles A. Robins has resigned from the resident staff of the General Hospital, to accept a position in Chicago.——Dr. George A. Fackler was elected president, and Dr. Edward W. Walker, vice president, of the Cincinnati Board of Health, at its meeting for organization, January 9.——Dr. Samuel R. Geiser was elected president of the Bethesda Hospital, at the annual meeting of the board of directors, January 9.——Health Officer Landis was elected chairman, and Dr. Martin H. Fischer, vice chairman, of the Public Health Council of Cincinnati, at its meeting, January 4.

## PENNSYLVANIA

**Personal.**—Dr. George E. Benninghoff, Oil City, was operated on at the Bradford Hospital for the removal of gallstones, January 9, and is reported to be doing well.——Dr. Philip Y. Eisenberg has been elected president of the Charity Hospital, Norristown.

**New Officers.**—Allegheny County Medical Society at Pittsburgh, January 8: president, Dr. Ellis S. Montgomery; vice president, Dr. Adolph Krebs; secretary, Dr. William H. Mayer, and treasurer, Dr. William C. Bryant.——Lehigh County Medical Society, twenty-first annual meeting, at Allentown, January 8: president, Dr. Calvin J. Otto; vice president, Dr. Victor J. Gangewere, Rittersville; secretary, Dr. William C. Masonheimer, and treasurer, Dr. Willard D. Kline. Officers on duty at the Allentown Camp were guests of honor on this occasion.

### Philadelphia

**Health Board Appointments.**—Dr. Sylvester J. Deehan has been appointed assistant diagnostician in the bureau of health, and Israel Cohn has been appointed assistant inspector.

**New Section of College of Physicians.**—The College of Physicians has organized a section on industrial medicine and public health, which will hold meetings in October, December, February and April of each year.

## SOUTH DAKOTA

**New State Board Officers.**—The state board of health and medical examiners, at a regular meeting held in Pierre, reorganized, electing Dr. Hampton R. Kenaston, Bonesteel, president; Dr. Charles E. McCauley, Aberdeen, vice president, and Dr. Park B. Jenkins, Waubay, secretary. The other members of the board are Drs. Arthur S. Jackson, Lead, and Charles A. Bower, Mitchell.

**District Society Meetings.**—Yankton District Medical Society, at Yankton, December 20: president, Dr. Frank C. Smith, Yankton; vice president, Dr. Frank V. Willhite, State Hospital, and secretary-treasurer, Dr. James Roane, Yankton.——Watertown District Medical Society, at Watertown, December 11: president, Dr. Paul Hendriksen, Vienna ;vice president, Dr. Olaf A. Haraldson, Watertown, and secretary-treasurer, Dr. Mathew J. Hammond, Watertown.

## VIRGINIA

**Physician Convicted.**—Dr. Asa W. Chamberlin, Goochland, charged with the murder of his brother, Albert P. Chamberlin, formerly a lawyer of Des Moines, Iowa, is said to have been found guilty of murder, January 8, and sentenced to imprisonment for life.

**New State Society Officers.**—At the forty-eighth annual meeting of the Medical Society of Virginia, held in Richmond, the following officers were elected: president, Dr. Ennion G. Williams, Richmond; vice presidents, Drs. Smelt V. Dickinson, Marion; Harry T. Marshall, Charlottesville, and Frederick P. Sutherland, Halifax County, and secretary-treasurer, Dr. Paulus A. Irving, Farmville.

**Southside Physicians Meet.**—At the annual meeting of the Southside Medical Association, held in Petersburg, December 12, the following officers were elected: president, Dr. Paulus A. Irving, Farmville; vice presidents, Drs. D. Lemuel Harrell, Suffolk; Frank N. Mallory, Lawrenceville; William B. Daniel, Disputanta, and Arthur Hooks, Blackstone, and secretary-treasurer, Dr. Rufus L. Raiford, Sedley.

**Academy Election.**—At the annual meeting of the Richmond Academy of Medicine and Surgery, the following officers were elected: president, Dr. Thomas W. Murrell; vice presidents, Drs. Wyatt S. Beazley; George C. Woodson, and Ramon D. Garcin; secretary, Dr. Mark W. Peyser (reelected for the twenty-fifth term); assistant secretary, Dr. Emmett H. Terrell (reelected), and treasurer, Dr. Howard Urbach.

## WISCONSIN

**Oshkosh Gets Laboratory.**—The state board of health, January 4, selected Oshkosh as the location for a joint cooperative hygiene laboratory.

**State Board Election.**—At the annual meeting of the state board of health, held in Madison, January 4, Dr. William F. Whyte, Madison, was reelected president; Dr. Edwin F. Hayes, Eau Claire, vice president, and Cornelius A. Harper, Madison, state health officer.

**Personal.**—Dr. David V. Meiklejohn has been appointed oculist, aurist, rhinologist and laryngologist for the Soo Line at Fond du Lac.—Dr. Walter F. Seymour, Reedsburg, has returned to his work as a medical missionary of the Presbyterian Board in China, after a vacation of a year.

**New Officers for Milwaukee Society.**—At the annual meeting of the Milwaukee Medical Society, January 8, the following officers were elected: president, Dr. Richard Dewey; vice presidents, Drs. Charles H. Stoddard and Albert W. Myers; secretary, Dr. Oscar Lotz, and treasurer, Dr. Joseph P. McMahon.

**Staff Election.**—At the annual meeting of the medical staff of the Emergency Hospital, Milwaukee, it was urged that the county hospital be removed to the city in order to eliminate the transportation of patients, which is now necessary. Dr. Daniel Hopkinson was elected president of the staff; Dr. Chester M. Echols, vice president, and Dr. Oscar Lotz, secretary.

## CANADA

**Combined Inquiry Into Venereal Diseases and Feeblemindedness.**—Mr. Justice Hodgins, Toronto, the commissioner who has been making an exhaustive inquiry into the practice of medicine in Ontario with a view to a new medical act, has been commissioned by the Ontario government to make another inquiry into the extent of feeblemindedness in the province, and at the same time the extent and prevalence of venereal diseases in Ontario. At the first session, several prominent medical men were present, representing various medical and social bodies, and his lordship took down the names of all present, and promises to make a thorough investigation for the benefit of the legislature, which will shortly convene in Toronto.

**Social Diseases in Ontario.**—Dr. Charles K. Clarke, superintendent of the Toronto General Hospital, and dean of the Faculty of Medicine, University of Toronto, has penned a series of letters to the public press on the social diseases. The following recommendations have been made for the help of the government in devising any legislation to meet the situation: 1. Registration without name and address. 2. Public registration and isolation of recalcitrants. 3. Free treatment of all who apply for it. 4. Free bacteriologic and blood tests. 5. Supervision of mental defectives. 6. The administration of the plan by a Dominion body through or in cooperation with provincial boards of health. It is believed that this will involve in the near future a Dominion Board of Health for all Canada.

## GENERAL

**Roentgenologists Meet.**—The annual scientific meeting of the Western Roentgen Society was held in Chicago, January 24 to 26, under the presidency of Dr. Miles B. Titterington, St. Louis.

**Coming Retirements in Army and Navy.**—During 1918, four members of the Medical Corps of the Army and two medical officers of the Navy arrive at the retiring age of 64. These are as follows: Brig.-Gen. Henry P. Birmingham, M. C., U. S. Army, March 15; Col. William O. Owen, M. C., U. S. Army, July 6; Col. Rudolph G. Ebert, M. C., U. S. Army, August 29; Med. Dir. William R. DuBose, U. S. Navy, September 12; Major.-Gen. William C. Gorgas, Surgeon-General, U. S. Army, October 23, and Med. Dir. Francis S. Nash, U. S. Navy, November 23.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Altoona (Pa.) Hospital, $50,000, by the will of Mrs. Harriet Prevost.

University of Maryland, the medical library and surgical instruments of the late Dr. Charles F. Bevan.

Jewish Hospital, Louisville, a donation of $100,000 from I. W. and B. Bernheim, Louisville, in memory of their father.

Oshkosh County (Wis.) Tuberculosis Sanitarium, $20,000, by the will of Col. John Hicks.

Babies' Hospital, New York, $4,000, the proceeds of a benefit concert

Hahnemann Hospital, Philadelphia, $5,000 to endow a free bed ward in memory of her parents, by Elizabeth W. Semple.

Philadelphia College of Pharmacy, a bequest of $10,000, by the will of Joseph P. Remington, with the direction that the income of this trust fund to be used "to assist worthy and deserving students in the payment of their tuition fees."

**Porto Rico Physicians Meet.**—At the annual meeting of the Porto Rico Medical Society, held in San Juan, December 22 and 23, under the presidency of Dr. Jorge Del Toro, the following officers were elected: president, Dr. Jose S. Belaval, San Juan; vice president, Dr. Rafael Lopex Nussa, Ponce; secretary, Dr. Augustin R. Langier (reelected), San Juan, and treasurer and delegate to the American Medical Association, Dr. Borrero Jacinto Avilés (reelected), San Juan. Ponce was selected as the next place of meeting. On the evening of December 21, the association held a public conference in the city hall, San Juan, at which the care and feeding of children were discussed. On the evening of December 22, a smoker was given at the social hall of the Y. M. C. A. The final session of the association was a patriotic meeting at the Porto Rico Casino, where a large audience gathered to hear speeches by prominent men of San Juan, and to witness the showing of the work done by the American Red Cross.

## FOREIGN

**Red Cross Festa.**—A unique celebration was held in Rome on Christmas Day, commemorating a new record of American enterprise in relief work. On this occasion the national surgical dressings branch of the American Red Cross turned over a million surgical dressings which had been completed by 100 Italian women in four weeks.

**Physician Imprisoned in Germany for Publishing Book.**—According to the *Progrès médical* of Paris, Professor Nicolai of Berlin has been imprisoned. It says:

"The correspondent of the *Observer* at Berne announces that Prof. G. F. Nicolai, formerly physician to the imperial family and professor of physiology at the University of Berlin, has just been condemned to imprisonment in a fortress and his property confiscated.

"This measure was taken in consequence of the publication of a book entitled 'The Biology of War' in which Professor Nicolai pointed out the warping of the conceptions of German scientists and military men in the course of the hostilities. Among other things, he said:

> "The military personage who is numbered among the most prominent, but whose name I shall not mention, enquired of me whether it might not be possible to fix shells with cholera germs or plague bacilli so that the shells could be sent back of the front firing line.
>
> "As I replied to him that I did not think it would do to use procedures so lacking in humanity, he answered me in a tone tinged with contempt. 'Humanity is not to be considered in this war, and Germany has a right to do everything she pleases.' "

"Professor Nicolai added that in Germany millions of people are reasoning the same way as this man, who in other ways has manifested marked superiority of character. Others, he continues, have even more cruel ideas. He describes how a medical officer on the general staff inquired of him whether it would not be possible to inoculate the Russians with bacteria, saying, 'With such cattle, everything is legitimate.'"

The *Progrès médical* of a later date goes on to relate that Professor Nicolai, author of the book "Biology of War" has been condemned to five months' imprisonment by the court at Danzig for "refusal of civilian service." It adds, "We recall that Professor Nicolai refused energetically to have anything to do with making of bombshells to contain the germs of cholera or plague bacilli, and to inoculate Russian prisoners with bacteria."

## LONDON LETTER

London, Jan. 1, 1918.

### Medical Tests for Recruits: A New Departure

A new departure in the medical examination of recruits consists in the recognition of an efficiency standard in addition to the so-called standard of health. In future, what a man can do is to be one of the chief tests of his fitness or unfitness for military service. Mere "abnormalities" which do not incapacitate will be accorded little weight, though, of course, experience will be made use of to determine how far an abnormality is likely to interfere with working capacity. Often the man's occupation, such as that of blacksmith, navvy or miner, or the exercise he takes, such as football, cycling, walking or the distance he covers by walking or cycling in a day's work, will show that he is able to do the physical work of Grades 1 or 2. But sometimes the examiners will have no such guides. They will then see how he responds to such exertion as can be performed before them. A man is no longer to be condemned merely bcause of cardiac murmurs or because slight irregularities are present. "That is sound which works" is the underlying idea of the new instructions. This doctrine is further emphasized when it is laid down that "in a young subject, albumin in the urine is not in itself a disqualification for Grade 1;" though the need for careful examination to make sure that no organic disease is present is enjoined. In the case of epilepsy it is recommended that "if a man states that he is the subject of this disease but no attacks have occurred for seven years and there are no marked symptoms of instability of the nervous system, he may be placed in the grade for which he is otherwise suited. If the symptoms of instability are present he is at best fit only for Grade 3." Diseases of the heart are dealt with in accordance with the most recent teaching. If no organic disease known to advance to incapacity is present, efficiency, as shown by the man's ability to do work and perform the duties of his life, is to be the test of fitness. Application of the same rule excludes a number of disabilities which are not in themselves serious, but which render a man of small use as a soldier on active service. Among these are chronic bronchitis, cleft palate, clubfoot, corns associated with deformities of the feet, eczema, flatfoot, hammer toes, and hernia. Each case will be judged on its merits, but sufferers from these conditions will in all probability be graded low. Men showing mental weakness or instability will be rejected. In the case of infectious disease, special precautions will, of course, be taken. The examinations will be carried out in circumstances which should inflict the minimum of discomfort. Recruits will be seen at some stage of their examination by each member of the board. When opinions are equally divided, the chairman will have the casting vote.

### The First American Red Cross Train Constructed in England

The Midland Railway Company has just completed the first of a series of ambulance trains for the American expeditionary forces. The train has been built to the designs and specifications of the ambulance subcommittee of the railway executive. It is the last word in ambulance trains, and both in its general arrangements and in many of its details embodies the experience gained during three years' warfare. It consists of sixteen cars, is 913 feet long over buffers, and its weight unloaded, apart from the engine, is 435 tons. It has accommodations for 393 cot patients, in addition to a staff of fifty-seven. There are nine ward cars, one infectious ward car, a pharmacy car, a staff car, a personnel car, two kitchen cars, and a brake and stores car. Each car is 54 feet long, is mounted on four-wheeled bogies, and is equipped with a Westinghouse brake. The coupling, draw hooks, steam connections, and side chains are on the international standard. Each car is built of well seasoned timber, the exterior color being khaki without any relief save two large red crosses on a white ground on each side. For identification purposes the number of each car and the distinguishing letter are marked conspicuously on each side, and the train number is painted on the extreme ends of the train. The train is vestibuled, and is fitted throughout with electric lights and fans. All the roofs are semielliptic, with lofty and airy ceilings.

The interior construction of the car is such that it can be kept thoroughly clean with the least effort. The floors are covered either with linoleum or with lead painted with aluminum paint. Each car contains thirty-six folding cots in three tiers, the folding device enabling the cars to be used, if desired, for sitting patients. The sides and roofs of the cars are painted in glossy white enamel, and there is an ample supply of drinking water and conveniences, such as paper racks, ash trays, etc., for each patient. Apart from the drinking water, there is an abundant supply of water for general purposes—2,835 gallons—carried in tanks built on the roofs of the various cars. In this way each of the ward cars has a supply of 150 gallons, the pharmacy has a supply of 300 gallons, one of the kitchens 375 gallons, and the other 300 gallons, the infectious ward 195 gallons, and the other cars proportionately less, according to their requirements. The infectious ward car at one end of the train contains four wards, each fitted with six beds. There is also an attendants' compartment, with lavatory and toilet accommodation, and a guard's compartment. The staff car contains dining rooms and sleeping compartments for the medical officers and sisters, and lavatory, toilet and bath accommodation. The car is furnished with wardrobes, cabinets and book racks, and is finished and paneled throughout in polished mahogany. One of the kitchen cars contains an officers' pantry and cooks' room, with sleeping berths, dining table and seats. The kitchen is a spacious compartment fitted with an Army Dixie range, a Soyer stove, a hot water supply, and refrigerator. This car also contains a comfortably furnished sick officers' compartment, with wood lining and tables of polished mahogany. There is also a bath room. The other kitchen car contains, in addition to the kitchen accommodation already described, a large kit store, a mess room with folding table for the men, and a smaller mess for the noncommissioned officers fitted with two beds so that the senior noncommissioned officers may sleep there if they desire.

The personnel car is arranged similarly to the ward car, except that the mattresses of the beds are covered with American cloth, so that the beds can be used as seats by the staff during the day. Kit racks are provided, and there are small lockers under the beds. The pharmacy car comprises a dispensary and treatment room, medical officers' office, a linen room, a pantry for medical comforts, and an emergency compartment. The corridor in this car, like that between the tiers of beds in the ward cars, is wide enough to allow of the free passage of an army stretcher. The dispensary is fitted with cupboards and racks, and part of the car is partitioned off and provided with berths in which bad cases can be treated.

The train has been inspected by the American Ambassador and a number of American officers including Vice Admiral Sims and Major-General Bartlett; and also by British officers, Col. Sir Robert Jones, Sir William Osler, Surgeon-General Keogh and others.

### The Hours of Employment of Munition Workers

In previous letters to The Journal, the report of a committee appointed to investigate fatigue among the munition workers was given. It was found that the excessive hours worked in the early stages of the war, with the object of producing as much as possible, had not the desired effect, but, on the contrary, reduced output. A further report has now been made which has the advantage of dealing with the effect of labor prolonged not through months but through years. Previous reports have shown that a point will always be reached in the work at which longer hours spent in the factory fail to increase output, and at which, if the hours of labor are made longer still, the productiveness of the worker will actually be diminished. Fuller and more accurate data have confirmed this opinion. The committee is now able to report with particular reference to the week as distinguished from the day. A reduction varying from seven hours to twenty in no case caused more than an insignificant diminution of total output, while on the average it produced a substantial increase. Alterations of hours may have different effects in different operations, and experience must decide in each case the exact limit which cannot safely be exceeded; but that the hours worked weekly can, as a rule, be reduced with advantage to a total of from fifty to fifty-five is a general conclusion. In connection with production, account has to be taken, not merely of the slackness of work, voluntary or involuntary, the natural result of long and continuous toil, but also of the loss of time caused by absence through sickness, and by bad timekeeping. Moreover, the sickness of the worker may diminish earning capacity during future years. Long hours also are responsible not only for actual physical breakdown, but also for nervous irritability tending to increase industrial unrest and to produce such undesirable social conditions as are likely to affect those whose homes become merely sleeping places for overweary persons.

## PARIS LETTER

Paris, Dec. 20, 1917.

### Treatment of Wounds of Kidney and Ureter at the Front and Behind the Lines

This topic was the subject of a lengthy discussion by the service chiefs of the urologic centers at a meeting held at the military hospital Val-de-Grâce. Dr. Nogues, late chief of clinic at the Faculté de médecine de Paris, reported on the treatment employed at the front in cases of kidney and ureter trauma. His conclusions are: 1. Immediate intervention is indicated only in the presence of a hematoma, profuse or prolonged hematuria, and an intrarenal projectile. Discharge of urine from the wound is not, of itself, an indication for an immediate nephrectomy. 2. Any intervention to be made must be as restricted as possible, and a nephrectomy should be done only in cases of absolute necessity. 3. When doubt exists as to the existence of a ureterorenal lesion, the patient should be hospitalized and the case studied and recorded in detail so that a diagnosis can be made ultimately.

#### TREATMENT BEHIND THE LINES

Dr. Rochet, adjunct clinical professor of genito-urinary diseases in the Lyons faculty of medicine, studied the same question from the standpoint of the treatment to be adopted in these cases behind the lines. He believes that the principal operations that must be performed behind the lines are: (*a*) extraction of foreign bodies, even very small ones, not removed at the front; (*b*) closure of fistulas, not urinary (drainage, removal of fungosities, scrapings of bone lesions, etc.); (*c*) operations for urinary fistulas, into kidney or ureter, having failed to yield to expectant treatment, with or without ureteral catheterization; the operation to be considered at this time appears to be nephrectomy; (*d*) in cases of severe pyuria, treated unsuccessfully by ureteral or pelvic lavage, one could perform a nephrotomy. As to the future military fitness of those men who have sustained a renal trauma or wound, their cases should be studied carefully according to modern urologic methods.

Dr. Pasteau, chief of clinic at the Necker Hospital, stated that in these cases the surgery at the front is essentially urgent surgery, whereas the surgery behind the lines is really conservative and réparative surgery. At the front or in the absence of all signs one cannot make a diagnosis of gross concomitant lesions. The number of cases of kidney and ureter wounds occurring among penetrating wounds of the lumbar region is small (ten out of sixty-eight personal cases). When one does intervene, one must perform a nephrectomy only in case of necessity. At the rear, however, the kidney should be conserved, but no projectile known to be in or near the kidney should be left.

#### LEGUEU'S EXPERIENCE

Dr. Legueu, clinical professor of genito-urinary diseases in the Faculté de médecine de Paris, has observed about fifteen cases of kidney wounds, to which can be added ten necropsies reported by his students at the front. On the battle line, hemorrhage may be a reason for nephrectomy, but Legueu does not believe that the discharge of urine from a lumbar wound is of itself a sufficient indication for an urgent nephrectomy. Behind the lines, prolonged oozing of urine may justify nephrectomy when the kidney is much altered. A late secondary hemorrhage, due to the presence of an infarct, may perhaps be an indication for nephrectomy. Finally, nephrectomy may be indicated when foreign bodies are present. Even one small foreign body may cause serious disorders. Legueu observed a case of persistent and grave hematuria due to the presence in the kidney of a small piece of metal weighing 11 mg. Legueu does not believe that trauma of one kidney has any effect on its fellow. An infected kidney may have some effect on the other kidney, but in cases in which the wound remains aseptic, the connection between the well and the traumatized kidney remains doubtful.

### Urethral Fistulas

At this meeting were also discussed the autoplastic procedures applicable to the treatment of fistulas of the urethra secondary to war wounds. Dr. Cathelin, chief surgeon of the urologic hospital, read a report on this subject, which led to a spirited discussion and the adoption of the following resolutions: 1. Abnormalities or mutilations of the external genital organs, the result of war wounds, should be corrected, and normal conditions restored for moral, esthetic, economic and social reasons. 2. These patients should be transported to the urologic centers in the interior, where they may be given the necessary preoperative treatment and such surgical treatment as indicated. 3. The various medical formations of the interior should immediately send these patients to the reparative or reconstructive urologic centers. 4. There does not seem to be any special method of treatment of urethral fistulas. Although the method of inversion gives excellent results, especially in the case of small fistulas, the various methods of division, autoplasty with flaps, or transplantation of mucous membrane should not be forgotten, particularly when there is much destruction of the urethral wall. 5. Experience having demonstrated the superiority of diverting the urine or intermittent catheterization, these methods should be given preference over continuous urethral catheter drainage. 6. It is useful to send later, if necessary, these patients back to the center where they have been treated, so as to unify methods of treatment. 7. For cases of severe mutilation, or almost complete division of the penis, every possible conservative treatment should be applied first; a primary amputation should never be done. 8. In cases requiring urgent surgery at the front, one should incise, but never excise, as the smallest skin tag may be of great usefulness for the performance of a subsequent autoplasty. 9. In the great majority of cases of this type in which autoplastic work is done, the patient again becomes fit for military duty. The only exceptions are cases in which the fistula is situated in the posterior urethra.

### The Union of Foreign Colonies in France

The Union des colonies étrangères en France was formed for the assistance of war victims, to help the mutilated to be reeducated in some vocation, and to secure employment. A meeting was held recently under the presidency of M. Walter Berry. Reports read by M. J. Ascher, secretary-general, and Van Hemert, treasurer, detailed some very interesting data on the functioning of the union and the five establishments it has created and maintains for the work of reparation and reconstruction. There are now 900 members, and 2,291,575 francs ($458,315) have been collected; 963,181 francs ($192,636) from the American committee, presided over by Mme. Edmund Baylies; 435,150 francs ($87,030) from two Americans, M. and Mme. Stotesbury; 102,212 francs ($20,442) from the American Clearing House; 170,000 francs ($34,000) from the Norwegian Committee, presided over by M. Arthur Knagenhjelm, and 137,048 francs ($27,409) from the Holland Committee, presided over by M. Labouchère.

From May 1, 1916, to Aug. 31, 1917, 3,693 mutilated soldiers have been given vocational training in the five divisions of the Grand Palais, the quai Debilly, the Invalides, the Maison-Blanche at Neuilly-sur-Marne, and at the Ferme de Champagne at Juvisy-sur-Orge, where thirty-two trades are taught. Already 623 of these reeducated soldiers have been placed in self-supporting, and honorable situations. Mr. and Mrs. Stotesbury, who at first guaranteed only the expense of equipment and maintenance of the school at Maison Blanche, have again given further financial assistance. Thanks to American generosity, the union has been able to lease for twelve years the 212 hectares (21,200 acres) of the Ferme de Champagne. After the war, when the mutilated are reeducated, the union intends to receive war orphans here, and teach them agriculture. The expense of this enterprise has been met by the assistance given by the American Clearing House and the American Red Cross, from whom a donation of 400,000 francs ($80,000) has been received.

At its last meeting, the Académie de médecine elected as vice president (who becomes president in 1919), Prof. Samuel Pozzi, a member of the academy since 1896. He was elected by fort-four out of fifty cast.

# Deaths

**Capt. Robert Tracy Gillmore, M.D., M. R. C., U. S. Army,** iicago; died at Camp Greenleaf, Fort Oglethorpe, Ga., nuary 20, from a virulent streptococcus-influenza infection, ter an illness of four days. Dr. Gillmore was a native of iicago, and was 50 years of age. He was a graduate of e Northwestern University Medical School in 1892, and was inical instructor in gynecology in that institution. He was Fellow of the American Medical Association, and had rved acceptably as secretary of the Chicago Medical Society. e was also surgeon for the South Side Elevated Railroad mpany. He only recently accepted his commission as ptain in the Medical Reserve Corps, and was ordered on tive duty. He left Chicago for his new station, January 10. he funeral services were held and the body was interred at e National Cemetery, Chattanooga, Tenn., January 22.

**Gilbert Prout Girdwood, M.D.,** Montreal, Que.; McGill niversity, Montreal, 1865; M.R.C.S. (Eng.), 1854; aged 85; rmerly assistant surgeon, R. A. M. C., and assigned to ity with the Grenadier Guards; from 1869 to 1872 lecturer in actical chemistry in his alma mater; from 1872 to 1879 ofessor of practical chemistry; from 1879 to 1902 professor i chemistry, and since that time emeritus professor; for velve years surgeon to the Mon- eal Dispensary and Montreal eneral Hospital, and later con- ilting surgeon to both institu- ons and to the Children's Memo- al Hospital; consulting physi- an to the roentgen-ray depart- ent of the Royal Victoria Hos- ital; chief medical officer of the anadian Pacific Railway; for- erly president of the Roentgen ociety of America; a fellow of ie Chemical Society and Chem- al Institute of Great Britian, and n original fellow of the Royal ociety of Canada; one of the iost eminent scientists of the ominion; died at his home, ctober 2.

**Flavel Benjamin Tiffany, M.D.,** ansas City, Mo.; University of lichigan, Ann Arbor, 1874; aged 1; a Fellow of the American ledical Association; formerly resident of the Missouri Valley ledical Association, and Tri- tate Medical Association; a iember of the Mississippi Valley ledical Association; professor of phthalmology and otology, and ter president of University Med- al College, Kansas City; a eteran of the Civil War; oculist r the Missouri, Kansas & Texas id Burlington systems; a spe- alist on diseases of the eye, and a prolific writer on topics nnected with his specialty; died in St. Luke's Hospital, ansas City, January 4.

Capt. Robert Tracy Gillmore, M.D., M. R. C., U. S. Army, 1867-1917

**Lieut. Henry Salem Pascal, M. R. C., U. S. Army;** New ork City; New York University, New York City, 1896; ged 43; a Fellow of the American Medical Association; sistant instructor in physiology in his alma mater for two ars, and later instructor in histology in Cornell University edical College; attending physician to the Loomis Sani- rium from 1898 to 1902; is reported to have died, Novem- r 17.

**Abraham Stout, M.D.,** Bethlehem, Pa.; University of Penn- lvania, Philadelphia, 1855; aged 86; a member of the Medi- l Society of the State of Pennsylvania; major and surgeon the One Hundred and Fifty-Third Pennsylvania Volunteer fantry, during the Civil War; for several terms president the Northampton County Medical Society; local surgeon the Lehigh Valley Railroad; died at his home, January 9.

**Charles Wheeler Boughton, M.D.,** Youngstown, O.; North- estern University Medical School, Chicago, 1901; aged 44; Fellow of the American Medical Association; died in a spital in Youngstown, January 4, from the effects of an erdose of morphin, believed to have been self-administered, th suicidal intent, while despondent.

**Frederic Powers, M.D.,** Westport, Conn.; College of Physicians and Surgeons, in the City of New York, 1870; aged 75; a Fellow of the American Medical Association; for more than forty years a practitioner of Westport, and for a long time health officer and medical examiner (coroner) of Fairfield County; died at his home, January 12, from cerebral hemorrhage.

**Samuel William Torrey, M.D.,** Beverly, Mass.; College of Physicians and Surgeons in the City of New York, 1868; aged 74; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; founder of the Beverly Hospital; for several years a member of the local school committee; died in the Beverly Hospital, January 1.

**Chauncey Sherrick, M.D.,** Monmouth, Ill.; Missouri Medical College, St. Louis, 1881; aged 59; a Fellow of the American Medical Association, and a member of the American Association of Railway Surgeons, and Mississippi Valley Medical Association; local surgeon of the Iowa Central Railway; died at his home, December 28.

**Lieut. Stephen Ballard Rybolt, M. R. C., U. S. Army,** Troy Mills, Iowa; St. Louis University, 1913; aged 44; a Fellow of the American Medical Association; assigned to duty with the Three Hundred and Fifty-First Infantry, N. A., Camp Dodge, Iowa; died at the Base Hospital, Camp Dodge, January 10, from heart disease.

**Thomas James Taylor, M.D.,** Kenbridge, Va.; New York University, New York City, 1860; aged 80; a member of the Medical Society of Virginia, and for several terms its vice president; surgeon in the Confederate service during the Civil War; died in Richmond, January 7.

**Clinton Cullen Jones, M.D.,** Greenville, S. C.; Bellevue Hospital Medical College, 1882; aged 58; formerly a Fellow of the American Medical Association; a member of the South Carolina Medical Association; mayor of Greenville in 1903-1904; died at his home, January 6.

**Carroll Cassius Smead, M.D.,** Newton, Iowa; Rush Medical College, 1880; aged 63; a Fellow of the American Medical Association; health officer of Newton; local surgeon of the Chicago, Rock Island & Pacific Railroad; died at his home, January 7, from cerebral hemorrhage.

**James O'Donnell, M.D.,** Paterson, N. J.; Bellevue Hospital Medical College, 1892; aged 50; a Fellow of the American Medical Association; visiting physician and assistant gynecologist to St. Joseph's Hospital, Paterson; died in that institution, January 6, from nephritis.

**John M. Evans, M.D.,** Evansville, Wis.; Rush Medical College, 1882; aged 59; a Fellow of the American Medical Association; for many years consulting surgeon for the Chicago and Northwestern Railroad; died in St. Mary's Hospital, Madison, Wis., January 7.

**Archibald Alexander Howell, M.D.,** Philadelphia; University of Pennsylvania, Philadelphia, 1908; aged 36; a member of the Medical Society of the State of Pennsylvania; formerly a well known athlete; died in the Presbyterian Hospital, Philadelphia, recently.

**John Joseph Flynn, M.D.,** Mount Holly, N. J.; University of Pennsylvania, Philadelphia, 1893; aged 50; formerly a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; died at his home, January 2, from endocarditis.

**Ellis Wadsworth Storms, M.D.,** Falconer, N. Y., University of Buffalo, N. Y., 1900; aged 49; a member of the Medical Society of the State of New York; formerly coroner of Chautauqua County; died at his home, January 10, from cerebral hemorrhage.

**John A. McKay, M.D.,** Buies Creek, N. C.; Medical College of the State of South Carolina, Charleston, 1857; aged 87; formerly a member of the Medical Society of the State of North Carolina; died at his home, October 25, from cerebral hemorrhage.

**Theodore E. Cooke, M.D.,** Baltimore; University of Maryland, Baltimore, 1859; aged 79; a Fellow of the American Medical Association; died at his home, January 13, from injuries received in a collision between his automobile and an electric car.

**Annette S. Dobbins Richards Mack, M.D.,** Chicago; Northwestern University Woman's Medical School, Chicago, 1882; aged 78; formerly a member of the Illinois State Medical Society; died at her home, January 6, from cerebral hemorrhage.

**Israel H. Betz, M.D.,** York, Pa.; Jefferson Medical College, 1868; aged 76; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; died at his home, January 6, from nephritis.

**Charles Henry Burley, M.D.,** Chicago; Tulane University, New Orleans, 1904; aged 39; formerly a Fellow of the American Medical Association; died in Natchez, Miss., December 30, a day after an operation for disease of the stomach.

**John S. Pearson, M.D.,** Philadelphia; University of Pennsylvania, Philadelphia, 1876; aged 63; a Fellow of the American Medical Association, and a member of the Obstetrical Society of Philadelphia; died at his home, January 5.

**Mary L. Farnum, M.D.,** Portland, Ore.; Women's Medical College of Pennsylvania, Philadelphia, 1886; aged 59; for twenty years a practitioner of Woonsocket, R. I.; died in the Good Samaritan Hospital, Portland, December 31.

**Charles S. Martyn, M.D.,** Mauch Chunk, Pa.; University of Pennsylvania, Philadelphia, 1893; aged 49; for many years a practitioner of Elizabethville, Pa.; died in Mauch Chunk, December 19, as the result of renal hemorrhage.

**Paul S. Kaplan, M.D.,** New York City; University of Berlin, Germany, 1894; aged 70; know as the "Good Samaritan doctor of the East Side"; died in Beth Israel Hospital, New York City, January 6, from pneumonia.

**Malcolm C. Roe, M.D.,** Chana, Ill.; Physio-Medical College, Cincinnati, 1872; Bennett Eclectic Medical College, Chicago, 1878; aged 75; a Fellow of the American Medical Association; died at his home, December 28.

**George A. Krug, M.D.,** Utica, N. Y.; Albany (N. Y.) Medical College, 1881; aged 65; formerly a member of the Medical College of the State of New York; also a musician; died at his home, January 8, from pneumonia.

**Frank Belville, M.D.,** Delaware City, Del.; College of Physicians and Surgeons, Baltimore, 1875, aged 65; a Fellow of the American Medical Association; died at his home, January 5, from nephritis.

**Clinton J. Rumrill, M.D.,** Randolph, Vt.; Dartmouth Medical School, Hanover, N. H., 1900; a member of the Vermont State Medical Society; died at his home, January 7, from disease of the stomach.

**John Richard Batson, M.D.,** Spencerville, Md.; University of Maryland, Baltimore, 1880; aged 65; formerly a member of the Medical and Chirurgical Faculty of Maryland; died at his home, December 24.

**John F. Wilcox, M.D.,** Marmet, W. Va.; University of Louisville, Ky., 1883; aged 86; a member of the West Virginia State Medical Association; died at Old Point Comfort, Va., December 24.

**George D. B. Dods, M.D.,** Chicago; College of Physicians and Surgeons, Chicago, 1895; aged 56; a Fellow of the American Medical Association; died in Valmora, N. M., January 9, from tuberculosis.

**James Albert Monroe, M.D.,** Chicago; Rush Medical College, 1864; Bellevue Hospital Medical College, 1869; aged 75; formerly of Chenoa, Ill.; died at his home, January 3, from chronic nephritis.

**John E. L. Habold, M.D.,** LaGrange, Ky.; University of Louisville, Ky., 1874; aged 64; a member of the Kentucky State Medical Society; died at his home, December 30, from pneumonia.

**Charles Hermon Hervey, M.D.,** San Jose, Calif.; Eclectic Medical Institute, Cincinnati, 1884; aged 62; a Fellow of the American Medical Association; died at his home, December 27.

**Joseph Granville Fudge, M.D.,** Spring Valley, Ohio; Illinois Medical College, Chicago, 1903; aged 52; a member of the Ohio State Medical Association; died at his home, January 2.

**James Miles, M.D.,** Merom, Ind.; Medical College of Ohio, Cincinnati, 1897; aged 50; a Fellow of the American Medical Association; died at his home, January 7, from pneumonia.

**Henri Louis Ducrocq, M.D.,** Lafayette, La.; Tulane University, New Orleans, 1898; aged 46; formerly a Fellow of the American Medical Association; died at his home, December 24.

**Charles Rauschkolb, M.D.,** Columbus, Ohio; Columbus (Ohio) Medical College, 1891; aged 53; was beaten to death in his apartment in Columbus by an insane patient, January 3.

**Matilda Watson Burns, M.D.,** San Francisco; Cooper Medical College, San Francisco, 1864; aged 64; also a druggist; died at her home, December 26, from cerebral hemorrhage.

**Orville Penny Overton, M.D.,** Woodburn, Ore.; College of Physicians and Surgeons, Chicago, 1902; aged 40; died at the home of his mother in Brownsville, Ore., December 22.

**Alice A. Brabb, M.D.,** Romeo, Mich.; Bennett Eclectic Medical College, Chicago, 1885, Hahnemann Medical College, Chicago, 1890; aged 61; died at her home, December 25.

**Lieut. George Francis Owen, M. R. C., U. S. Army,** Columbus, Ohio; Starling Medical College, Columbus, 1892; aged 49; died at his home, December 27, from uremia.

**Joseph H. Horner, M.D.,** Concordville, Pa.; Jefferson Medical College, 1866; aged 73; died at the home of his daughter in Columbus, Ohio, December 27, from pyemia.

**Elijah Branson, M.D.,** Henderson, Ky.; St. Louis College of Physicians and Surgeons, 1890; aged 62; died at his home, October 9, from cerebral hemorrhage.

**John Hicks Lanier, M.D.,** Claybrook, Tenn.; University of Nashville, Tenn., 1866; aged 78; died at his home, December 31, from acute gastritis.

**Charles W. Hoyt, M.D.,** Sharon, Pa.; Cleveland University of Medicine and Surgery, 1870; aged 78; died at his home, December 16.

**William Robeson Polk, M.D.,** Minneapolis; University of Pennsylvania, Philadelphia, 1881; aged 64; died at his home, January 4.

**Andrew T. Gum, M.D.,** Frankford, Del.; Maryland Medical College, Baltimore, 1907; aged 42; died at his home, December 24.

**Homer Fremont Benson, M.D.,** Newport, Me.; New York University, New York City, 1881; died at his home, December 24.

**William Edward Russell, M.D.,** Avinger, Texas; Vanderbilt University, Nashville, 1887; aged 52; died at his home, December 24.

**Charles D. Camp, M.D.,** Chicago; Rush Medical College, 1879; aged 73; died at his home, January 8, from gangrene.

**Franklin Benjamin Staub, M.D.,** Pittsburgh; University of Pittsburgh, 1899; aged 41; died at his home, January 3.

**James T. Cleveland, M.D.,** Weston, Ga.; University of Nashville, Tenn., 1860; aged 78; died recently in Florida.

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## Marriages

Lieut. Stephen Horace Curtis, M. R. C., U. S. Army, Troy, N. Y., on duty at the Department Laboratory, Southeastern Department, Atlanta, Ga., to Miss Frances M. Burnham, at Camp Gordon, Ga., January 16.

Lieut. James George Conley, M. R. C., U. S. Army, Racine, Wis., on duty at the Belleville (Ill.) Aviation Field, to Miss Hazel Chatfield of Eagle, Wis., at Belleville, January 2.

Lieut. Hershall LaForge, M. R. C., U. S. Army, to Miss Irma Rosamond Williams, both of Kingsbury, Texas, at San Antonio, Texas, December 3.

Lieut. Harvey Maurice Slater, M. R. C., U. S. Army, Minneapolis, to Miss Marguerite Fairman Mers of Portland, Ore., December 25.

Lieut. Samuel Jack Taub, M. R. C., U. S. Army, to Miss Thelma Goldberg, both of Chicago, December 23.

Arthur M. Sonneland, M.D., Norfolk, Neb., to Miss Josephine Johnson of Sioux City, Iowa, December 29.

William Henry Creamer, M.D., Fall River, Mass., to Miss Elizabeth G. Horne of Boston, January 2.

William Curtis Gibson, M.D., to Miss Helen Borum, both of Suffolk, Va., January 9.

# The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## SURGODINE

### Report of the Council on Pharmacy and Chemistry

The following report submitted by a referee was adopted by the Council and authorized for publication.

W. A. Puckner, Secretary.

Surgodine (Sharp and Dohme, Baltimore, Md.), according to an advertising pamphlet, is a solution of 2¼ per cent. of iodin in alcohol, containing no alkaline iodid, but miscible with water in all proportions. The A. M. A. Chemical Laboratory reports that Surgodine is an alcoholic liquid (containing 91.8 per cent. alcohol by volume) containing free iodin, combined iodin and free acid, probably hydrogen iodid (hydriodic acid). Quantitative estimations gave 2.51 gm. free iodin per 100 c.c. and 1.78 gm. combined iodin (the greater part apparently was present as hydrogen iodid).

It is therefore similar to several other iodin preparations already considered by the Council. Like these, it is essentially similar to the official tincture of iodin, except that it is considerably weaker, and instead of potassium iodid it presumably contains hydrogen iodid and probably ethyl iodid to render the iodin water-soluble. Its composition, however, is secret.

There would be no objection to the use of ethyl iodid or hydrogen iodid, except perhaps the acidity of the latter, as a solvent agent rather than of potassium iodid. But neither is there any important advantage, and these preparations would have to be considered as unessential modifications of official preparations, and therefore ineligible for New and Nonofficial Remedies.

The attempt to make these modifications commercially profitable, however, seems inevitably to lead to exaggerations and misstatements. In an advertising pamphlet the following claims for Surgodine are unsupported by any evidence:

> "But from the surgical viewpoint the addition of this potassium salt is most objectionable because when such solutions as the official tincture are used locally in the antiseptic treatment of open and often infected wounds, the Potassium Iodide acts as an irritant to the wound and therefore produces a localized irritation which is not only objectionable from the surgical standpoint but also materially lessens the antiseptic power of the Iodine itself."
>
> "It has been demonstrated repeatedly that Iodine without the admixture of any alkaline iodide is much more efficient as a surgical antiseptic than any iodine solution that contains such an addition."
>
> "Iodine does not produce 'iodism' as quickly as the alkaline iodides do because it is eliminated more quickly and more perfectly than the alkaline iodides."

The next statement intimates that iodin taken by mouth enters the intestinal tract unchanged and is there free to combine with various gases:

> "Iodine in the presence of phosphorated or sulphurated gases in the gastro-intestinal tract unites with their hydrogen and thus breaks up these noxious compounds."

This is certainly untrue at least for ordinary doses.

It is recommended that Surgodine be held inadmissible to New and Nonofficial Remedies because its composition is secret (Rule 1); because the therapeutic claims made for it are exaggerated and unwarranted (Rule 6); and because it is an unessential modification of the official tincture of iodin (Rule 10).

[Editorial Comment.—Surgodine is a good illustration of the economic waste inseparable from most proprietary medicines. A hospital pharmacist writes that whereas his hospital obtains tincture of iodin at less than 82 cents a pint, Surgodine costs $2.13 a pint. This means that while the free-iodin strength of Surgodine is only about one-third that of the official tincture, its price is between two and three times as high. Surgodine is being advertised in the following medical journals:

*Illinois Medical Journal*
*International Journal of Surgery*
*Military Surgeon*
*Southern Medical Journal*
*Maryland Medical Journal*
*Chicago Medical Recorder*
*New Orleans Medical and Surgical Journal*]

## DIONOL

"Dionol" is advertised to physicians by the Dionol Company of Detroit. If one takes the word of the manufacturers, the therapeutic possibilities of Dionol are apparently limited only by the blue sky. Even the company admits that "the unprecedented range of action" of this marvel "may come as a surprise." A glance over the published "case reports" confirms the inference. From "Bed Sores," "Bubo," "Catarrh" and "Circumcision" through "Croup," "Deafness," "Dysmenorrhea" and "Eczema," including "Endometritis," "Erysipelas," "Gastritis" and "Hemorrhoids," not omitting "Osteomyelitis," "Otitis Media," "Pneumonia" and "Ptomaine Poisoning," down through the pathologic alphabet to "Quinsy," "Sciatica," "Spinal Curvature," "Varicose Veins," and "Whooping Cough" one concludes that here at last is a catholicon indeed.

What is Dionol? First it should be said that the preparation comes in two forms: as an ointment and as an emulsion. The ointment, so declare the manufacturers, "is *always* required"; the emulsion may be used "as an auxillary treatment." The Dionol "literature" when stripped of the verbal camouflage with which it abounds may be said to propound the following theories and propositions: First, that the nerves of the body are electric conductors insulated from the surrounding tissues by the nerve sheaths; second, that inflammation breaks down the insulation with the resultant escape of the current and an interference with the normal metabolic action of the cells; third, that Dionol, when applied to the body, penetrates the tissues, "coating the cells and with them the nerve sheaths with a nonconducting layer which is sufficient to insulate the nerve sheaths and stop the leak."

So much for the theory on which the alleged action of Dionol is based. Dionol itself is a sort of glorified petrolatum. Not, of course, that the manufacturers describe it in any such crude and understandable language. According to the company, Dionol is "composed of pure hydrocarbons, especially selected with regard to specific gravity, viscosity and other necessary physical properties" which has been "perfectly *deionized* by our special scientific process under the Baines method." It appears, from further reading, that ordinary petrolatum will not "turn the trick"; presumably because it does not overcome the human short circuits which the Dionol company declare are always present in inflammation. When, however, the petrolatum has been subjected to the "Baines Method" it achieves, it seems, an esoteric value that puts to shame its plebeian origin.

The whole thing is very simple. To those physicians that like this sort of thing this preparation should make a strong appeal.

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**Public Health Service.**—According to the *Bulletin* of the state board of health for October, North Dakota has had a Public Health Service which has been in existence for three months. Cases of tuberculosis, typhoid fever, gonorrhea, syphilis and diphtheria, as diagnosed by the four public laboratories of the state, are being reported to the state board of health. These reports are used by the registrar to check up the morbidity reports returned by physicians and health officers. The information obtained will be used in enforcing the provision of the law requiring physicians to report such cases. These reports are also to be used by the epidemiologist in keeping track of contagious and infectious diseases. The Public Health Service has employed a registered nurse who is to be a field investigator in tuberculosis and in school sanitation. The services of this nurse will be first given to cities and towns making the best showing in the sale of Red Cross Christmas seals, under an arrangement with the Anti-Tuberculosis Association.

# Correspondence

## REPORTING OF ACCIDENTS FROM LOCAL ANESTHETICS

*To the Editor:*—The Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association has undertaken a study of the accidents following the clinical use of local anesthetics, especially those following ordinary therapeutic doses. It is hoped that this study may lead to a better understanding of the cause of such accidents, and consequently to methods of avoiding them, or, at least, of treating them successfully when they occur.

It is becoming apparent that several of the local anesthetics, if not all of those in general use, are prone to cause death or symptoms of severe poisoning in a small percentage of those cases in which the dose used has been hitherto considered quite safe.

The infrequent occurrence of these accidents and their production by relatively small doses point to a peculiar hypersensitiveness on the part of those in whom the accidents occur. The data necessary for a study of these accidents are at present wholly insufficient, especially since the symptoms described in most of the cases are quite different from those commonly observed in animals even after the administration of toxic, but not fatal, doses.

Such accidents are seldom reported in detail in the medical literature, partly because physicians and dentists fear that they may be held to blame should they report them, partly, perhaps, because they have failed to appreciate the importance of the matter from the standpoint of the protection of the public.

It is evident that a broader view should prevail, and that physicians should be informed regarding the conditions under which such accidents occur in order that they may be avoided. It is also evident that the best protection against such unjust accusations, and the best means of preventing such accidents consist in the publication of careful detailed records when they have occurred, with the attending circumstances. These should be reported in the medical or dental journals when possible; but when, for any reason, this seems undesirable, a confidential report may be filed with Dr. R. A. Hatcher, 414 East Twenty-Sixth Street, New York City, who has been appointed by the committee to collect this information.

If desired, such reports will be considered strictly confidential so far as the name of the patient and that of the medical attendant are concerned, and such information will be used solely as a means of studying the problem of toxicity of this class of agents, unless permission is given to use the name.

All available facts, both public and private, should be included in these reports, but the following data are especially to be desired in those cases in which more detailed reports cannot be made:

The age, sex, and general history of the patient should be given in as great detail as possible. The state of the nervous system appears to be of especial importance. The dosage employed should be stated as accurately as possible; also the concentration of the solution employed, the site of the injection (whether intramuscular, perineural or strictly subcutaneous), and whether applied to the mouth, nose, or other part of the body. The possibility of an injection having been made into a small vein during intramuscular injection or into the gums should be considered. In such cases the action begins almost at once, that is, within a few seconds.

The previous condition of the heart and respiration should be reported if possible; and, of course, the effects of the drug on the heart and respiration, as well as the duration of the symptoms, should be recorded. If antidotes are employed, their nature and dosage should be stated, together with the character and time of appearance of the effects induced by the antidotes. It is important to state whether antidotes were administered orally, or by subcutaneous, intramuscular or intravenous injection, and the concentration in which such antidotes were used.

While such detailed information, together with any other available data, are desirable, it is not to be understood that the inability to supply such details should prevent the publication of reports of poisoning, however meager the data, so long as accuracy is observed.

The committee urges on all anesthetists, surgeons, physicians and dentists the making of such reports as a public duty; it asks that they read this appeal with especial attention of the character of observations desired.

Therapeutic Research Committee of the Council
on Pharmacy and Chemistry of the American
Medical Association.
Torald Sollmann, Chairman,
R. A. Hatcher, Special Referee.

## THE CONTROL OF SCARLET FEVER BY ROUTINE CULTURE

*To the Editor:*—During my service in the contagious wards at the City and County Hospital, St. Paul, in the winter of 1916-1917, I attempted routine control of the scarlet fever cases by cultures from the nose and throat. A method similar to that in common use for the control of diphtheria was employed, except that the streptococcus was considered instead of the Klebs-Loeffler bacillus. So far as I knew at the time, this had never been attempted as a routine. The attempt at control was made with the consent of the local bureau of health.

Routine cultures on admission to the scarlet fever wards had long been an established procedure on account of the frequency with which Klebs-Loeffler bacilli are found in the throats of scarlatinal patients. This varies from 5 to 30 per cent., according to the observer, and was about 10 per cent. in our cases. The routine examination was enlarged to cover the presence of streptococci both by direct smear and by incubated specimen. They were present on admission in every instance.

No special treatment of the nasopharynx was attempted. General treatment was carried on as usual. Symptomatic treatment was given in the mild cases, and the free use of fluids was largely relied on. Water was given freely to drink in septic cases, and glucose was used by rectum for nourishment. Opiates were administered when indicated.

Routine cultures were taken every week in the watch for possibilities of cross-infection. When convalescence was well established and the patient was up and about, the routine cultures were carefully studied for the presence of streptococci. If they were absent, the culture was repeated and the patient discharged after two successive streptococcus-free cultures from the nose and throat. No attention was paid to the peeling. Frequently the body peeling was about complete by the time the cultures were free from streptococci. The return cases were, if anything, fewer by this method than under the old method based on peeling.

There was no marked prevalence of scarlet fever in the city that winter, and the series of cases was small. No definite results can be quoted from the method till a larger number of cases can be observed and compared with former records. This I hope to carry on in my service next winter.

Charles E. Smith, Jr., M.D., St. Paul.
Assistant Secretary, Minnesota State Board of Health.

## MONOTONY OF SANATORIUM DIETS

*To the Editor:*—In The Journal, Dec. 22, 1917, p. 2102, is an item dealing with the monotony of sanatorium diets that concerns every sanatorium superintendent who believes that the methods of his institution reduce the monotony of meals to the minimum.

In the sanatorium of the Department of Health of the City of New York, food is ranked second only to medicine in the treatment of the case. Plain, wholesome food, approximating as nearly as possible home cooking in its preparation, is served. The menu is arranged to cover a period of four weeks, thus avoiding the weekly repetition of the same meals on regular days. The patient cannot prognosticate the roast beef day, the corned beef day, the lamb stew day, etc., as is the case in so many boarding houses. No restrictions are placed on the patients as to the number of helpings they shall have, and scientific investigation of the value of the food is confined to the laboratories. When patients participate in scientific tinkering with the bill of fare, and are constantly reminded of the necessity of eating just the right amount of food for their weight and disease, they find it, although mentally predigested, robbed of its satisfying character because they have thought about it so much.

The monotony of sanatorium diets is a question easily solved, the sanatorium frame of mind is just as easily established, and plain wholesome food partaken of by cheerful hungry people without a thought of what it costs or of what it does except to satisfy, served intelligently, will never become monotonous. Feed food for its food value, but feed food, not calories.

Robert J. Wilson, M.D., New York.
Director, Bureau of Hospitals, Department of Health.

## *Queries and Minor Notes*

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### TEST OF VISUAL ACUTENESS

*To the Editor:*—Give all the facts you have about Dr. W. O. Coffee, with reference to visual acuteness when the patient claims that both eyes are equally deficient, and when vision is 20/80? I am familiar with the visual tests by means of prisms and colored lenses when one eye is good or when both eyes are below normal, but one materially lower than the other.

C. A. G.

Answer.—The detection of this form of malingering is much more difficult than when the pretended high degree of amblyopia is confined to one eye.

A careful ophthalmoscopic and skiascopic examination should first be made in order to eliminate any causal fundus or refraction condition. It has been seen that this class of malingerers talk this thing over among themselves, and they pass the word along that they must not be able to read, for instance, any lower down than the third row from the top, on the test card. The following plan has been successfully employed in some of these cases: The man says he can read no farther down than the third line from the top—20/80. Then have a mirror hung where the letters are, and a card with letters of exactly the same size on the wall just behind the man, but printed backward, and with a strong light thrown on them. Now explain to the man that with this better light on the letters, he can by looking in the mirror read possibly one or two letters in a lower line. The man's mentality is usually not keen enough to detect the trick, so that if he still reads the same line he did before, his visual acuity is double the amount he pretended it was.

A device adopted by Roche (*Ophthalmoscope*, September, 1911) consists in the employment of a hundred cardboard squares on each one of which a Snellen test letter is pasted. Ten letters of the same size are made, thus having ten squares for each line of test type. The squares are all mixed up together promiscuously and exposed to the patient at a distance of 5 meters; he is asked to name those letters he can recognize, which are put aside and compared with the ones which were said not to be recognizable. Having no means of comparing one letter with another, the simulator finds it extremely difficult to deceive the examiner and be consistent in his answers.

### ALLOWABLE DEDUCTIONS ON INCOME TAX RETURNS

*To the Editor:*—What information can you give me for making out my income tax report? 1. I am compelled to use an automobile. This is an absolutely necessary expense, so far as I am concerned, in connection with my work. May I deduct this expense? 2. Likewise, I am compelled to have an office in town, separate from my residence. May I deduct the expense connected with this office?

S. W. H.

Answer.—1. The Treasury Department has ruled that when an automobile is used by a physician in his practice exclusively, the entire expense and upkeep can be deducted as expenses in his profession. If the automobile is used both in his profession and for pleasure, that proportion only of the expense and upkeep of the automobile properly chargeable to his professional use can be deducted, and the proportion chargeable to use of the car as a pleasure vehicle cannot be deducted.

2. The department has ruled on this subject that expenses of an office of a physician maintained separately from his residence, including amounts paid to employees for care of the office, telephone service, etc., can be deducted as expense in his profession. If a physician has his office in his home, setting aside a separate room or rooms for that purpose: (*a*) If he or his wife owns the home, he may deduct as a necessary expense in his profession the reasonable rental value of such room or rooms occupied by him solely in connection with his profession. (*b*) If he rents his home, he may deduct such proportionate part of the entire rent paid as the space occupied by him exclusively in connection with his profession bears to the entire premises rented.

### THE PERSIMMON

*To the Editor:*—Can you inform me as to what acid is found in the persimmon and of what food value that fruit is?

Earl H. Cornell, M.D., Oakland, Calif.

Answer.—The chief acids of the persimmon are malic acid and tannic acid, the latter being more readily available in the unripe state. The food value of the edible portion resides mainly in the carbohydrate content, this being higher in the American than in the Japanese persimmon. In the Japanese persimmon, as purchased, each 500 gm. should yield approximately 270 calories.

### COFFEE TURNS FROM MAIL-ORDER TO ITINERANT QUACKERY

*To the Editor:*—Give all the facts you have about Dr. W. O. Coffee who "cures" everything, especially cross eyes! He is widely advertised here.

M—— O——, M.D., Moline, Ill.

Answer.—W. O. Coffee of Des Moines, Iowa, used to do a flourishing mail-order "eye cure" business. Then his fakery was shown up by Mr. Adams in the "Great American Fraud" series and the business of repairing eyes by mail waned. Later (Oct. 19, 1915) appeared items in Des Moines newspapers recording the fact that Coffee had filed a petition in voluntary bankruptcy. His heaviest creditor, according to the report, was Arthur Capper, governor of Kansas and owner of the Topeka *Capital*, which had an advertising claim aggregating many hundreds of dollars. Also, it was mentioned, Coffee was owing over $800 in back rent on his "palatial suite" of offices. "Although the doctor owes over $15,000," continued the newspaper report, "he has not a cent due him from outstanding accounts. He did a cash business and required all payments in advance." Mail-order quackery failing, Coffee turned his talents to the itinerant field. From advertisements in our files it seems that Coffee operates chiefly in Illinois, and apparently finds Illinois a lush field for his endeavors.

### DEATH FROM ELECTRIC SHOCK—STOVAINE AND ITS USE

*To the Editor:*—1. What are the distinctive outward signs of death from electricity in man; for example, accidental or intentional contact with high voltage wires? 2. What is stovaine chemically, and how is it employed?

C. P. Frischbier, M.D., Gilmore, Ida.

Answer.—1. The pathologic effects of death from electric shock usually consist of deep burns in the skin at the point of contact, often destroying the tissue down to the bone. A similar charred wound is sometimes found at the point where the current leaves the body. In the internal organs little is to be observed aside from small hemorrhages and irregular streaks of contraction and hyaline change in the muscles. 2. Stovaine is described in "New and Nonofficial Remedies," 1917, page 34, thus: Benzoyl-dimethylaminomethylpropanol hydrochloride. — $CH_3.CH_2.C(C_6H_5COO)\ (CH_3)CH_2N(CH_3)_2\,HCl$.—The hydrochloride of 2-benzoxy-2-methyl-1-dimethyl-amino butane. Employed as a local anesthetic, it is used in from 5 to 10 per cent. solution when applied to the mucous membrane; hypodermically, in 0.75 to 1 per cent. solution.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

Alaska: Juneau, March 5. Sec., Dr. L. P. Dawes.
California: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.
Connecticut: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.
Connecticut (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.
Illinois: Springfield, Feb. 6-7. Supt. F. C. Dodds, Springfield.
Iowa: Des Moines, Feb. 5-7. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
Kansas: Topeka, Feb. 12. Sec., Dr. H. A. Dykes, Lebanon.
Maine: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
Massachusetts: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
New York: Albany, Buffalo, New York City and Syracuse, Jan. 29-Feb. 1. Sec., Dr. W. J. Denno, Education Bldg., Albany.
Vermont: Burlington, Feb. 12. Sec., Dr. W. Scott Nay, Underhill.
Wyoming: Laramie, Feb. 6-8. Sec., Dr. H. E. McCallum, Laramie.

### Kentucky June Examination

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, June 19-21, 1917. The examination covered 10 subjects and included 100 questions. An average of 70 per cent., with not less than 60 per cent. in any branch, was required to pass. Of the 71 candidates examined, 55, including 2 osteopaths, passed, and 16 failed, including 1 nongraduate. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Chicago College of Medicine and Surgery | | (1917) | 81, 86 |
| University of Louisville | | (1909) 70; (1916) 80; (1917) 74, 75, 78, 79, 79, 79, 79, 80, 81, 81, 81, 81, 82, 82, 82, 83, 83, 83, 83, 83, 84, 84, 84, 85, 85, 85, 86, 87, 88, 88, 90. | |
| Eclectic Medical College | | (1917) | 75 |
| Lincoln Memorial University | | (1917) | 83 |
| Meharry Medical College | | (1916) 75, 88, (1917) *, 72, 73, 74, 74, 76, 78, 79, 81. | |
| University of Tennessee | | (1917) | 88 |
| Vanderbilt University | | (1915) 74; (1916) 75, 80; (1917) 78, 83, 85. | |
| | FAILED | | |
| University of Louisville | | (1910) 43; (1912) 57, 63; (1917) | 74, 78 |
| Lincoln Memorial University | | (1913) 42; (1917) | 73, 78 |
| Meharry Medical College | | (1912) 67; (1914) 72; (1916) 67; (1917) 67, 69, 73, 75. | |

*No grade given.

### Iowa October Examination

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Oct. 9-11, 1917. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 10 passed and 1 failed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Loyola University | | (1917) | 81.4 |
| Rush Medical College | | (1902) 86.5; (1917) | 88.5 |
| University of Illinois | | (1916) | 79.7 |
| Indiana University | | (1912) | 91 |
| University of Louisville | | (1917) | 78 |
| John A. Creighton Medical College | | (1917) | 75.4 |
| University and Bellevue Hosp. Med. College | | (1916) | 84.2 |
| Jefferson Medical College of Philadelphia | | (1913) | 86.7 |
| University of Toronto | | (1908) | 86.7 |
| | FAILED | | |
| College of Physicians and Surgeons, Chicago | | (1902) | 70.5 |

### Oklahoma October Examination

Dr. James J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the oral and written examination held at Oklahoma City, Oct. 9-10, 1917. The examination covered 11 subjects and included 100 questions. An average of 70 per cent. was required to pass. Eleven candidates were examined, including 2 osteopaths, all of whom passed. Sixteen candidates were licensed through reciprocity, and 5 candidates were granted reregistration certificates. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Rush Medical College | | (1916) | 84 |
| University of Illinois | | (1899) | 84 |
| University of Louisville | | (1911) | 76 |
| Tulane University of Louisiana | | (1914) | 87 |
| St. Louis College of Physicians and Surgeons | | (1888) | 77 |
| University of Oklahoma | | (1916) | 80, 85 |
| University of Pennsylvania | | (1910) | 82 |
| Memphis Hospital Medical College | | (1913) | 71 |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| University of Arkansas | | (1914) | Arkansas |
| Howard University | | (1915) | Missouri |
| Physio-Medical College of Indiana | | (1896) | Texas |
| Kentucky University | | (1904) | Indiana |
| University of Maryland | | (1879) | Arkansas |
| Beaumont Hospital Medical College | | (1887) | Missouri |
| St. Louis College of Physicians and Surgeons | | (1897) | New Mexico |
| University Medical College of Kansas City | | (1912) | Kansas |
| University of Missouri | | (1904) | Missouri |
| John A. Creighton Medical College | | (1915,2) | Nebraska |
| Pulte Medical College | | (1892) | Kentucky |
| Memphis Hospital Medical College | | (1893) | Texas |
| University of Tennesese | | (1903) | Mississippi |
| Vanderbilt University | | (1916) | Tennessce |
| Baylor University | | (1915) | Texas |

### Delaware December Examination

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the practical and written examination held at Wilmington, Dec. 11-13, 1917. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. One candidate was licensed through reciprocity. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| University of Maryland | | (1917) | 79.4, 79.5 |
| Hahnemann Med. College and Hospital of Philadelphia | | (1917) | 87.4 |
| University of Pennsylvania | | (1917) | 78.4, 81.6 |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| University of Pennsylvania | | (1898) | Penna. |

### Iowa Reciprocity Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that 5 candidates were licensed through reciprocity at the meeting held Dec. 5, 1917. The following colleges were represented:

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Atlanta College of Physicians and Surgeons | | (1912) | Georgia |
| Chicago College of Medicine and Surgery | | (1916) | Wyoming |
| University of Nebraska | | (1907) | Nebraska |
| Western Reserve University | | (1897) | Ohio |
| University of Pittsburgh | | (1910) | Penna. |

# Book Notices

Problems of Subnormality. By J. E. Wallace Wallin, Director of Psycho-Educational Clinic, Board of Education, St. Louis. With an Introduction by John W. Withers, Ph.D., Superintendent of Public Schools in the City of St. Louis. Cloth. Price, $3. Pp. 485. Yonkers-on-Hudson: World Book Company, 1917.

This book outlines a plan for the organization of various types of special and ungraded classes to meet the needs of different types of exceptional children. It also considers the social, civic, industrial, criminologic and eugenic questions affecting different types of abnormal children, the feebleminded, backward, epileptic, blind, deaf, speech defective, crippled and psychopathic. The book may be divided into two portions. In the first, the changing attitudes toward the subnormal are considered, with a history of the care, training and study of the feebleminded and backward children, and a review of the present methods of determining subnormality, or the problem of diagnosis. In the second, there is a collection of addresses that have been delivered before various societies.

The author's point of view relative to the problems of subnormality is clear, concise and refreshing. He emphasizes the fact that it is evident that no mere Binet tester can fulfil the functions of a consulting psychologist in a school system or in a court. The fundamental weakness in the organization of special classes in the public schools, he concludes, has been and largely continues to be the inadequate provisions afforded by these schools for the correct diagnosis of varying degrees and types of mental retardation. Although he brings out clearly the inadequacy of present methods wherein untrained psychologists purport themselves to be clinical diagnosticians, he attributes to the function of well clinically trained psychologists too great an importance in the assumption of their ability to make differential diagnoses between psychoses and various psychic adolescent deficiencies. His plea for the collaboration of the neurologist or physician with neurologic and psychiatric training and a trained psychologist in the care of these conditions is timely and logical.

The chapter devoted to the problem of diagnosis includes a detailed summary of a considerable number of American studies of various mentally abnormal classes of juveniles and adults, and from these records he formulates conclusions relative to the standardization of diagnosis and delimitation of the term "feeblemindedness." The chapter on general principles and facts to be recognized in the organization of work for mentally and pedagogically retarded children contains the digest of a questionnaire that was sent to the supervisors or superintendents in charge of special classes in public schools in sixteen of the larger cities in the country, and affords data of great value to all who are interested in the problem of subnormality. What the author says concerning epilepsy will meet considerable resistance in the mind of the physician. Although he includes in his outline of the pathogenesis of epilepsy many of the factors that are considered in standard works, his grouping is rather objectionable in that, along with theories propounded by men recognized as competent observers, he includes the undigested and uncertified proposals of theorists. His consideration of the treatment of epilepsy is entirely without reason, in that he relegates to use only in emergencies such drugs as the bromids. The book as a whole is an interesting presentation of a difficult subject, and is one that should be of considerable value to the psychologist, physician, penologist, social worker and pedagogue.

A Handbook on Antiseptics. By Henry Drysdale Dakin, D.Sc., F.I.C., F.R.S., and Edward Kellogg Dunham, M.D., Emeritus Professor of Pathology, University and Bellevue Hospital Medical College. Cloth. Price, $1.25. Pp. 129. New York: The Macmillan Company, 1917.

This little book presents in a convenient form the methods of preparation and use of antiseptics that have received endorsement by military surgeons during the present war. While the phenolic group, the heavy metals, the dyes and other agents, such as hydrogen peroxid, iodin, boric acid and alcohol, are discussed, the members of the chlorin group, such as salts of hypochlorous acid and the chloramins, on which the authors have done a large amount of research work, have, as might be expected, received the preponderance of attention; and a perusal of the book leaves one with the impression that chlorin is king of disinfectants, which it well might be. Should the reader look for a discussion of the practical details of use of these agents by the Carrel method, he would be disappointed, as the authors have not taken up surgical technic. In the chapter devoted to methods of testing antiseptics, two important principles, in particular, that are frequently disregarded, are strongly emphasized. The necessity of choosing methods of testing "in some degree in conformity with the mode of use of the substance and under conditions not too remote from those under which it is proposed to employ it" is properly considered of fundamental importance. Thus, while the determination of the Rideal-Walker phenol coefficient yields valuable information regarding the relative value of disinfectants in fairly homeogeneous aqueous mediums, it is not suitable for the determination of the relative value of wound disinfectants or of agents that are to be injected into the blood stream. Another important point in the technic of evaluation of disinfectants is to add the agent last, after the medium has been inoculated. Otherwise labile agents, such as chlorin, will have expended their chemical energy on the medium, and much of its activity will be destroyed. Other topics taken up are disinfection of carriers, disinfection of water and disinfection of hospital ships with electrolytic hypochlorite.

# *Social Medicine, Medical Economics and Miscellany*

## COOPERATION OF PHYSICIANS AND INSURANCE COMPANIES IN THE PROMOTION OF PUBLIC HEALTH

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Insurance companies are becoming actively interested in problems for improving public health, and as their experience grows, they are beginning to appreciate not only the economic and social importance of such a campaign, but the benefits they themselves are likely to derive from the saving resulting from a lower rate of mortality among their policyholders.

It is estimated that the insurance carried by policyholders in the United States, on the ordinary plans, amounts to about $22,000,000,000, distributed among approximately 5,000,000 risks. Most of this, of course, is carried on men aged 20 or more. Granting that there are about 30,000,000 males in the United States past the age of 20, and that these, for the most part, are heads of families consisting of four members each, it is quite possible for insurance companies to reach about one home out of every five or six in the community, and thereby instruct in proper health measures, directly or indirectly, almost 20,000,000 persons, or about 20 per cent. of the population. In addition, some 35,000,000 industrial policies are carried, but much of this is on women and children.

From the financial standpoint, the insurance companies have much to gain. It is estimated that the average amount carried by a policyholder in most old line companies doing an ordinary standard business is about $3,000. Let us assume that through some good advice to the policyholder, the company succeeds in prolonging his life even one year. The saving to the company will be approximately $240.

Furthermore, the insurance company has very little difficulty in approaching its policyholder. Most companies issue bulletins that are mailed annually or semiannually to their members. The policyholder must be written to every year in connection with his premium notice. Most important of all, the company, if it is perfectly frank and ingenuous in its statements, can convince the policyholder that it is to the selfish interest of them both to heed any advice given, thereby breaking down one of the barriers that generally obstruct a clear understanding, namely, the suspicion on the part of the recipient that the donor may have some hidden motive.

The methods employed by insurance companies offering this service vary in detail. In a general way, however, they may be described as follows:

1. The policyholder is circularized and advised especially with reference to the prophylaxis of typhoid, malaria and tuberculosis.
2. Health examinations are held at certain intervals, preferably annually. The policyholder is permitted, without expense to himself, either to undergo a full examination by a physician selected by the company, or to submit annually a sample of urine for free examination, with a statement of illnesses and condition of health during the past year.
3. Advice is given to rejected applicants for insurance. This is usually some circular form of pamphlet.
4. Advice is given to persons to whom policies have just been issued. In the conduct of the business of medical selection, it is expedient to issue insurance to risks who are slightly impaired. Companies doing a substandard business issue to decidedly impaired risks.
5. Finally, it has been proposed that insurance companies should take a direct financial interest in supporting health departments, when a community is too small or too poor to maintain one. Also, they should establish, in various sections of the country, bureaus whose function shall be the education of the people in the prevention of diseases prevalent in the respective localities, such as malaria and hookworm in the southern states. This plan, however, is still in embryo. It

is further proposed that insurance companies establish sanatoriums for the treatment of their policyholders, as is done by certain fraternal lodge organizations.

All statements made by the policyholder are strictly confidential. In no case is the agent or any other company advised of their nature, nor do any statements of the policyholder or any findings influence the company in the consideration of any subsequent application that the policyholder may submit to the company. On request from the attending physician, a copy of the company's urinalysis or other findings is cheerfully sent. It is absolutely essential that all these precautions be taken, and that the work be done in absolute good faith, so as to instil confidence into the policyholder.

Whatever method for improving the public health is used, some benefit will be derived. But the practical handling of the situation demands considerable tact, patience and time, and a most wholehearted cooperation between the practitioner in the field and the insurance companies.

It is on this phase of the work that I particularly wish to lay stress. For the convenience of this discussion, prophylaxis may be divided into two groups: the prophylaxis of such diseases as tuberculosis, typhoid and malaria, and the prophylaxis that aims to diagnose and cure a disease in its earliest incipience or to prevent it in persons especially predisposed.

The prophylaxis governing typhoid fever, etc., can be best handled by the method of the propagandist; and that phase of activity on the part of the insurance company does not demand, except in a general way, the active cooperation of the medical practitioner. But the arrest of such processes as incipient diabetes, Bright's disease, tuberculosis, or the handling of mild obesity cases, anemia, etc., does. Unfortunately, it is just here that friction arises. The conflict is partly the fault of the medical directors and partly the outcome of a lack of clear understanding on the part of the practicing physician in handling these cases.

The insurance companies are constantly studying the effect of certain impairments of health or of family history on the longevity of their policyholders. The statistics have assumed respectable proportions. We know that a certain degree of overweight, or underweight, or a previous history of gallstones, or blood spitting, or rheumatism has a tendency to shorten life. These statistics are of great value in the selection of insurance risks, as well as to medical science; but, unfortunately, except for an occasional article published by insurance medical directors or actuaries, they have not been properly brought to the attention of the profession at large.

As a consequence, the average physician does not know that overweight, of even minor degrees, at certain ages, is a menace, and that this is also true for lightweight, and for persons giving past histories of pleurisy, spitting of blood, rheumatism, etc. Furthermore, even when the general practitioner has knowledge of these facts, his medical education and literature and textbooks impart very little practical knowledge that can be used in giving his patient the needed advice. It is most important that this phase of medical science be developed more extensively.

All too frequently, when an insurance company suggests to a policyholder that he consult his physician for reduction of his weight, the policyholder is told by the physician that his overweight is of no moment, and, ever suspicious, he scents some sharp practice on the part of the medical director. Nevertheless, the medical director knows from statistical information that the overweight is a menace and that the correction of it might add several years to the expectancy of the policyholder's life.

But the most discouraging experience is met in connection with urinalysis. A policyholder, let us say, submits a sample to his insurance company for analysis. This discloses the fact that there is a trace of albumin or sugar, or a few casts. He is referred to his physician, who fails to confirm the laboratory's findings. It is, of course, not unusual, as attested by the experience of handling applications for insurance, that albumin temporarily appears, as a result of very minor disturbances, such as overexertion and ordinary rhinitis.. Nor, on the other hand, is it unusual for albumin, and especially sugar, to appear intermittently in the incipient stages of Bright's disease or diabetes. The physician, however, without regard for these facts, or without any attempt at explanation, states his findings and thereby promptly arouses the suspicion of his patient as to the honesty of the company's motives.

A little cooperation, a modicum of regard for the really honest motives of the insurance companies in offering this service to their policyholders, as well as a bit of tact, would do much to help all concerned in overcoming this difficulty.

It is the endeavor of the medical departments of insurance companies to help, in every legitimate way, the efforts of physicians in persuading their patients to seek advice early in the course of the disease; to discourage the taking of "patent medicines"; to have policyholders consult their physicians, not only in disease, but also in health; to encourage annual examination, if possible, for the purpose of discovering ailments in their incipiency; to overcome the popular fear of surgical operations, and to aid in the exposure of medical frauds, practices and "isms." The insurance company is in a strong position to help in these matters. The policyholder knows that the company is interested financially in his living out his expectancy, and that since the medical director receives no fee for his suggestions, his advice is probably disinterested. But all these efforts will prove worthless, if at the outset, there is instilled into the policyholder's mind the idea that the company's suggestions are either bad or unduly of the alarmist nature, or tinged with sharp practice.

Cooperation, therefore, is absolutely necessary, if good results are obtained. The medical director should keep in closer touch with the profession at large. He should make more accessible the results of medico-actuarial investigation and cooperate more fully with general practitioners and health officers in their many excellent endeavors. The physician, on the other hand, should become better acquainted with the health promotion work of insurance companies and be prepared to handle with greater skill the incipient diseases referred to him by medical directors.

And, just as it would be eminently unjust and unethical for a medical director to criticize the skill of the physician, when the two fail to agree either in treatment or diagnosis, so it is equally unethical for the practitioner to impugn the motives of the medical directors of insurance companies in their efforts for the public good.

Director and practitioner can help each other greatly if they remember that, though engaged in different fields of medical practice, their ideals, motives and ethical standards remain identical.

### Report of the Surgeon-General of the Public Health Service

The Surgeon-General of the Public Health Service, under date of Oct. 6, 1917, submits his report for the fiscal year ending June 30, 1917, to the Treasury Department. It has just been published. The work has been administered during the past year by six assistant surgeon-generals in charge of the various divisions. The Surgeon-General points out that all of these divisions have cooperated one with another in the work. Following the declaration of war, the personnel and facilities of the service were made available to the military forces; numerous sanitary experts were detailed to the Army and Navy for special duty, and statistical information was supplied to Army and Navy officials. During the latter part of the year a large part of the force was occupied in surveys of the extracantonment zones and in industrial sanitation, cooperating in the supervision of the health of employees in industries related to the war. The Public Health Service gave its usual attention to special studies of outbreaks of infectious diseases in different sections of the country, to the study of pellagra, of mine sanitation, of health insurance, of public health organization and administration, of rural hygiene, of the pollution of streams, of the treatment of narcotic addiction, and of leprosy investigation; in fact, to all sorts of public health problems threatening the life of the people continually.

The Hygienic Laboratory, with its divisions of chemistry, pathology, pharmacology, zoology, etc., continued its investigations and research, and all of this material has been disseminated by personal interviews with health authorities, through the numerous publications of the department, through lectures, press service, exhibits and correspondence. A special appropriation of Congress has permitted the service to exercise greater control over the manufacture of biologic products during the past year.

The Department of Maritime Quarantine reports in detail numerous examinations of steamships and the sanitation of ports and the medical inspection of immigrants, protecting the country at every inlet against the bringing on of dangerous diseases.

The Department of Domestic Interstate Quarantine reports its extensive work in connection with the dangerous epidemic of poliomyelitis in New York and the East during the latter part of 1916, of the suppression of plague in New Orleans, including the examination of 77,071 rats, opossums, squirrels, rabbits, etc., out of 387,732 animals received at the laboratory. Rat proofing, trapping, etc., were carried out extensively; plague prevention operations were continued in California and Washington; Rocky Mountain spotted fever investigations were conducted in Montana, and measures for the prevention of the interstate spread of typhus fever continued in Texas, Colorado and Iowa.

A short section of the report deals with sanitary, educational and relief work in Alaska. There are numerous reports of investigations of water supplies and minor disease outbreaks. The Public Health Service was responsible also for sanitary inspection of government buildings in Washington. It created a government "safety first" train, and conducted the emergency hospital at the Panama Exposition. It arranged for vaccination of the general public against smallpox, typhoid and paratyphoid fever, and cooperated generally with all other important organizations throughout the country for the public health.

A large part of the report deals with sanitary reports and statistics outlining the extent of various infectious diseases during the period mentioned. Other sections describe the operation of the marine hospitals and relief, the personnel of the service and publications issued. A financial statement indicates the distribution of the appropriation made for the service.

In discussing the needs of the service, Surgeon-General Blue states that the question of making complete the national quarantine system by the acquisition of the few remaining stations not under federal control is considered sufficiently important to be classified as one of the most important needs of the Public Health Service. The return of troops and the resumption of commerce with European ports after the war, he believes, may well constitute a serious menace to the health of this country, to guard against which the control of quarantine procedure at all ports should be in the hands of the federal government. He pleads again for additional commissioned officers as the need of additional trained men has been felt at all times during the past few years, recent legislation having added materially to the duties devolving on the Public Health Service. The Surgeon-General also discusses the proposed legislation for a Sanitary Reserve Corps of the Public Health Service which passed the Senate, Jan. 18, 1917, and which was referred in the House of Representatives to the Committee on Interstate and Foreign Commerce, which committee, Aug. 30, 1917, reported a substitute measure. It is believed that through the establishment of such an organization, a strictly organized and efficient force for the protection of the public health could be maintained under the supervision of the federal government at a comparatively small expense. Finally, Surgeon-General Blue points out that additional funds are needed, particularly for the purpose of securing better and more complete information as to the prevalence of diseases in this country, and to arrange for more printing, since there is no other way in which the federal health agency can be of service to the public at large than by the publication and dissemination of information.

# Medicolegal

### Performing Unwarranted Partial Prostatectomy

*(Theodore vs. Ellis (La.), 75 So. R. 655)*

The Supreme Court of Louisiana says that two surgical operations were performed on the plaintiff by the defendant at the latter's sanatorium. The first consisted in a suprapubic opening of the bladder for the purpose of completely emptying and washing it, and the second, in the removal of the left lobe of the prostate gland. The plaintiff, aged 36 years, an immigrant from Greece, had been troubled with escape of urine during sleep, for which he had been treated by several different physicians. In his statement that the defendant told him that an operation would cure him entirely, he was corroborated by a friend and compatriot, admittedly a truthful man; but the defendant testified that he made no such statement, and could not have made it, as such a thing would have been unethical—that "no doctor, unless he is a thoroughbred quack, would make any such statement to a patient under such circumstances, and especially before he has completed his examination." The court agrees in this view of the matter; a physician of the standing of the defendant would hardly make such a representation or promise. The court is satisfied that the two witnesses understood as they testified, but that they did so through a misconstruction of what was really said. If the condition of the plaintiff's bladder be assumed to have been as serious as the defendant described it to have been, the court must conclude from the testimony of the physicians who testified in the case that the defendant was justified in resorting to the first operation. But the court fails to find anywhere in the record, in fact, even in the defendant's own testimony, any justification for the second operation.

It stood to reason that the inflammation of these parts had a cause, and it stands to reason that, before proceeding to operate, it was the duty of the defendant to seek for this cause and ascertain whether it would not yield to therapeutic, or prophylactic, treatment. The testimony of experts ought not to be necessary for establishing that before a man's prostate gland or any part of it is cut out an attempt should be first made to ascertain whether the trouble will not yield to the ordinary methods of treatment whenever the circumstances are such as to allow of it. The reason given by the defendant why he operated was that thereby the urethra would be lowered, and a more complete emptying of the bladder be secured. But this result could have been arrived at by reducing the enlargement by the ordinary methods. In order to find the defendant liable under the rule governing the liability of physicians and surgeons for malpractice, the court must conclude from the circumstances of the case that he did not exercise due care and use his best judgment, and in view of the testimony it cannot escape that conclusion. There was no urgent necessity for an operation; there was full opportunity to try first the course which if successful would have left the plaintiff whole, and not subject him to the danger and suffering of this operation. "Judging defendant by ourselves, we are sure" that in the place of plaintiff he would have unhesitatingly preferred to try first the therapeutic treatment. Resorting first to the operation was not a mere error of judgment, for which a physician is not responsible, but was dealing lightly with a situation of the utmost gravity to the plaintiff. The plaintiff denied that he consented to the operation; but granting that he did, it was merely acceding to what the defendant told him was the proper course to pursue, whereas it is found that that course was not the proper one, and that the defendant knew it, or should have known it. Besides, the defendant did not pretend to have explained that the object was merely to lower the floor of the bladder, and certainly did not explain that the same result might perhaps be accomplished without an operation. Especially is the foregoing true in view of the fact that the defendant knew that the cause of the plaintiff's trouble was syphilis, and that the plaintiff had not yet had the benefit of a trial of the salvarsan remedy, and knew that the plaintiff was tabetic, and therefore knew, or should have known, that a surgical operation should be avoided if possible.

The court fixes the plaintiff's damages at $2,000, and allows the defendant $75 for the first operation, but nothing for the second one.

### Partial Loss of Sight in One Eye by Physician

*(Murray vs. Aetna Life Insurance Co. (U. S.), 243 Fed. R. 285)*

The United States District Court, District of Montana, in granting the defendant insurance company a new trial, after a verdict had been rendered for the plaintiff, a physician, holds that, in a trial on a policy pending for payment, among other things, for "loss of entire sight of one eye, if irrevocably lost," as the result of and within ninety days from accident, there was no error in an instruction to the jury that, though the injured eye could "distinguish light from darkness, or perceive objects temporarily, for brief intervals," yet, if "all useful and practical sight was irrevocably lost," it was within the policy and the plaintiff was entitled to recover on the policy. The court says it is believed the instruction is the law. The indemnity is virtually for the loss of the benefit of sight or vision. The latter may be defined as the ability to perceive, distinguish and recognize objects, and the former as satisfaction of will, need or pleasure. If this ability is so far destroyed that what remains will not to practical and useful extent confer any of this benefit, entire sight, within the construction of analogous terms in insurance law, is lost. So would it be in popular phrase or sense. The interpretation must be reasonable and relative, not literal. The ability to perceive light and objects, but no ability to distinguish and recognize objects, is not sight, but blindness. So would it be, through there were intermittent flashes of the latter ability. To no practical or useful extent would it serve the will, need or pleasure. But it is also believed that the evidence in this case was insufficient to sustain a finding or verdict that of his injured eye the plaintiff had lost the entire sight as herein defined. The conclusions repeatedly testified to were that the plaintiff could normally see objects but a "short time," and then vision faded out "in a very much shorter time," or "longer," dependent on his physical condition; that he could not read, distinguish letters, "for any amount of time" . . . "not able to use the left eye to any advantage," and the like. He had between a fourth and a half of the former vision of the eye, a substantial part, which in respect to many needs and pleasures would render him practical and useful service, doubtless greater in a life of inactivity and leisure than in one active and professional. But it was loss of sight as a man, and not as a physician, that this term of the policy applied to.

### Permitted to Contract for Preparing to Give Expert Testimony

*(Birch vs. Sees (N. Y.), 165 N. Y. Supp. 846)*

The Supreme Court of New York, Appellate Division, Second Department, says that it must take it as established by the verdict for $500 rendered in favor of the plaintiff that he, an attending physician and a lifelong acquaintance of the deceased whose will had been offered for probate, having testified on a prior trial as an expert witness for the proponent of the will, at an agreed compensation of $50 per day, was thereafter employed by a succeeding attorney for the proponent at the same terms, to go over the witness' records to prepare himself so as to give expert testimony on the issue of the deceased's mental soundness, which he did on two trials, there having been three trials. It was, however, objected that as the plaintiff had been the attending physician, his testimony was not that of an expert, and that such agreement for compensation should not be enforced. But it seems settled that if a medical witness, or other witness with technical qualifications, goes beyond mere testimony to facts, observed by the senses, and is asked to draw a technical inference or conclusion, he may properly stipulate for compensation. The facts in this case were therefore within the pemissive rule, and the judgment on the verdict, for the plaintiff, should be affirmed, with costs.

# *Society Proceedings*

## WESTERN SURGICAL ASSOCIATION

*Twenty-Seventh Annual Meeting, held at Omaha, Dec. 14 and 15, 1917*

The President, Dr. Leonard Freeman, Denver, in the Chair

### Multiple Anastomosis for Intestinal Obstruction Due to Any Cause

Dr. Benjamin M. Ricketts, Cincinnati: To lessen the high mortality following operation for intestinal obstruction, early single or multiple anastomoses done rapidly with local anesthesia are best. One or more sittings will best conserve this purpose. Many supposed malignant growths are syphilitic or simple inflammatory products, and will disappear when irritation subsides. Syphilis as a causative factor in intestinal pathologic conditions has not been given due consideration. Mercury, when possible, should be given to limitation before and especially after the removal of intra-abdominal neoplasms elsewhere, because many will disappear under its influence. Conditions necessitating the removal of any part, especially all of the colon, for any cause, are seemingly in the great minority. When obstruction exists at and above the ileocecal valve, both the cecum and the ileum should be anastomosed with the sigmoid or rectum or both, several inches distant to each other, that both cecum and ileum may be drained perfectly. The jejunum should not be anastomosed with the colon unless it cannot be avoided, and then it should be anastomosed with the descending colon. When possible, the lower ileum should be brought up to and anastomosed with the jejunum. When possible, the ileum should be made to drain the cecum and ascending colon; but when it is impossible to cause the cecum to be so drained, the cecum should also be anastomosed with the sigmoid or ileum distant to or near the ileocecal valve. When the ileus involves the jejunum, the case is hopeless; but if a portion of the ileum is normal, extending down from the jejunum, then anastomosis below the collapsed ileum or colon should be done. Suture is more practical in the majority of instances. The presence of two buttons or bobbins in the intestinal tract at the same time should be avoided when possible. When multiple anastomoses are simultaneous, with one button, others should be by suture. The button is better adapted for emergencies, and the oblong button is better than the round button, because the oblong button produces a larger opening and is more certain to make its exit by the rectum. Drainage of all intestinal cavities should be provided for by anastomosis with button or suture or both. Colostomies and ileostomies executed rapidly with local anesthesia are methods of choice in the majority of intestinal obstructions. If the patient survives, time will be ample for suture anastomosis before returning the intestine within the peritoneal cavity, after having done whatever else is necessary within that cavity. Immediate mortality after removal of malignant growths from the intestinal tract is higher and longevity probably less than when rapid anastomosis is done with local anesthesia. Removal of patients with acute obstruction by ambulances over cobblestones and rails should not be tolerated; it would be better to render the necessary service where the patient is found.

#### DISCUSSION

Dr. Joseph Rilus Eastman, Indianapolis: Too much radical and too frequent surgery has been done for the relief of intestinal stasis. Many cases can be relieved by very simple surgical measures, so that colectomy and short-circuiting operations are unnecessary.

Dr. Jabez N. Jackson, Kansas City, Mo.: I agree with Dr. Eastman. Many cases of chronic intestinal stasis are amenable to proper medical and dietary treatment, if taken at the right time, and the treatment is kept up long enough. On the other hand, there are patients who can be cured or relieved by simple surgical procedures, and who do not require short-circuiting operations. Short-circuiting operations have always appeared to me to be unanatomic and unsurgical.

### Fate of the Cystic Duct After Cholecystectomy

DRS. D. N. EISENDRATH and H. C. DUNLAVY, Chicago: After we had found clinically a dilated cystic duct the size of an almond, and containing two small calculi, two years after the removal of the gallbladder, a number of experiments were performed on dogs in order to observe the degree of dilatation of the cystic duct after the gallbladder had been removed at its junction with the cystic duct. Our work confirms that of previous observers, that the cystic duct probably through back-pressure of the bile becomes greatly dilated and reaches its maximum size at a period of from four to six weeks after the removal of the gallbladder. Animals killed at varying intervals of from one week to three months show a gradual increase in the size of the dilated cystic duct which reaches its maximum at about the middle of the period. This new formed gallbladder has undoubtedly played a rôle in the cases of recurrence following gallbladder operations in the human being, and brings up the question whether it would be advisable to remove the cystic duct close to the common duct in addition to the removal of the gallbladder.

#### DISCUSSION

DR. BYRON B. DAVIS, Omaha: I think it is very well demonstrated now that the gallbladder reforms after removal, that is, the cystic duct dilates, and the question arises whether under these circumstances we should ligate the cystic duct flush with the common duct or ligate farther away, near the base of the gallbladder, and leave a considerable portion of the cystic duct. Dr. Eisendrath takes the position that the ligation should be done next to the common duct. I agree with him.

DR. ARTHUR T. MANN, Minneapolis: I have had one case in which I put in a rubber tube for a common duct that had been destroyed, and months afterward the pressure of the bile down into the stump of the common hepatic duct produced a growth not larger than a good sized pea.

DR. WARREN A. DENNIS, St. Paul: In our cases of cholecystectomy the results have been admirable. If the gallbladder is sufficiently involved to produce unmistakable symptoms, it ought to be removed close to the common duct.

DR. HENRY T. BYFORD, Chicago: Physiologically, it is known that bile is secreted at certain times during digestion in quantities faster than it can be discharged into the duodenum, and the gallbladder has the function of a reservoir, so that it can take up the excess of bile. Another function is to help to propel the bile. During certain periods of digestion, when food is entering the duodenum, the gallbladder is stimulated to contract; hence the two functions, one relieving the excessive pressure and the other relieving the common and hepatic ducts from distention, and helping to propel the bile at the time it is needed and aiding in overcoming the resistance at the ampulla.

### Spontaneous Rupture of Ventral Hernial Scar with Protrusion of the Small Bowel

DR. ROGER T. VAUGHAN, Chicago: A woman, who felt perfectly well for two years following a lower abdominal laparotomy, experienced a sudden pain in the abdomen. Examination revealed a loop of small bowel, 12 or 14 inches long, protruding through the median tear in the wide scar. The tear was so narrow as barely to admit a finger tip. The bowel was cleansed and replaced, the scar excised, and the hernia repaired transversed by imbrication (Mayo) without drainage. There was some postoperative fever due to peritonitis, but ultimately the woman made a good recovery.

#### DISCUSSION

DR. ROLAND HILL, St. Louis: A man, aged 30, was admitted to my service suffering from a hernia in which the bowel was lying free on the abdomen. He had been operated on for appendicitis six weeks before; the wound had not healed thoroughly, and at times there was a slight discharge of pus from the lower angle. Before entering the hospital, in doing some lifting, he strained himself and felt something bulge from the wound. He could not push it back. We found the cecum lying free on the abdominal wall. The bowel was dark; the man was in great shock; the opening was almost completely covered by the bowel. I cut the scar out, replaced the bowel, sewed it up in layers, and put in a small drain. In a few days he developed a fistula that persisted for some time; it was repaired by a secondary operation, and the man made a complete recovery.

DR. E. M. SALA, Rock Island, Ill.: Following a laparotomy for pus in which we used drainage, a fecal fistula developed. The man returned six month later to be operated on, but before operation he had a severe coughing spell and forced out a loop of bowel. I succeeded in getting the loop of bowel back, and he did not have a fecal fistula after that.

### Closure of Fecal Fistulas

DR. ARCHIBALD MACLAREN, St. Paul: Among more than 5,000 major operations I saw seventy-seven fecal fistulas following or associated with some intra-abdominal surgical condition. There were fifteen deaths, or a mortality of 19 per cent. Many of these seventy-seven fecal fistulas were accidental cases which closed by themselves. The largest number of fecal fistula cases, twenty-four, followed operation for appendical abscess; the next largest number, twenty-two, were associated with ovarian abscess, and the next sixteen, tuberculous fistula. Eight cases followed injury to the intestine, including intussusception gangrene. Three cases were associated with carcinoma of the colon, two tubal abscesses, not apparently tuberculous; one a gangrenous gallbladder drained, and one following a perineal prostatectomy about ten years before. We closed five tuberculous fistulas at the first operative treatment. In closing a fecal fistula by suture, the great point is to loosen up the tissues sufficiently so that there will be no tension. The free peritoneal cavity is opened, if necessary, and the suture placed longitudinally rather than transversely, especially if the opening is a large one, so as not to constrict the bowel.

#### DISCUSSION

DR. A. W. ABBOTT, Minneapolis: One important form of fistula is that which opens into some viscus, more commonly the bladder. These fistulae are sometimes difficult to manage. In several such cases I have observed the contents of the intestine flow into a viscus, and not vice versa. The bladder will usually retain its urine. In a recent case, cystoscopic examination revealed a sort of valvular closure in the bladder which apparently prevented the urine from flowing back into the rectum. I have noticed that in several instances. These cases are not so difficult to cure.

DR. DANIEL N. EISENDRATH, Chicago: In the large percentage of fistulas following appendical abscesses, we have learned to be less rough in handling the cecum than in the past. There is one method I am using more and more, especially if the appendix is retrocecal, and that is, not to bother with taking off the appendix at the tip, but to begin in the ampulla, at the base, and work toward the tip. I believe that in this way we save 70 per cent. of the rough handling of the bowel that results in these fistulas.

DR. JABEZ N. JACKSON, Kansas City, Mo.: One should never operate in a case of appendicitis without removing the appendix. We get a decrease in mortality by that means, and the probabilities of a fecal fistula developing are lessened.

In cases of acute appendicitis, a great deal of time is spent by the operator in endeavoring to peritonealize raw surfaces exposed at the base of the appendix.

DR. C. H. WALLACE, St. Joseph, Mo.: It is a dangerous doctrine to advocate the removal of the appendix in all cases at the primary operation, as this will increase the mortality of operations for appendicitis among general practitioners rather than lessen it. As our experience increases, and as we learn to recognize the conditions that exist and remove appendixes before they do damage, our mortality will be proportionately lessened.

DR. B. MERRILL RICKETTS, Cincinnati: Experiments made on dogs at our laboratory in which various strengths of solutions of iodin were introduced into the peritoneal cavities of these animals have shown gangrene and extensive adhesions at necropsy.

(*To be continued*)

## SOUTHERN SURGICAL ASSOCIATION

*Thirtieth Annual Meeting, held at St. Augustine, Fla., Dec. 18-20, 1917*

The President, Dr. W. D. Haggard, Nashville, Tenn., in the Chair

### Causes and Treatment of Rupture of Uterus During Labor

Dr. E. Gustav Zinke, Cincinnati: The most frequent cause of rupture of the uterus is a prolonged second stage of labor, due to an obstruction of either maternal or fetal origin. The appearance of the contraction ring is the most significant sign of an impending rupture of the uterus. When rupture of the uterus is not the result of an imperfectly united cesarean scar, extirpated tube, myomectomy, etc., but is solely the consequence of an obstruction, its clinical picture is clear and definite. If the rupture is incomplete, the child may be extracted through the vagina if the hemorrhage is not severe or when the patient is in her home; if the patient is in a hospital, an abdominal section, quickly performed, may save both lives, even if there has been great loss of blood. If the rupture is complete, and the child is alive and vigorous, an immediate abdominal section is indicated, no matter what the condition of the mother, or whether she is at home or in a hospital. If the child is dead, and the mother's condition is hopeless, it is of no avail to interfere surgically under any circumstances. If the child is dead, and the mother's condition fairly promising, the child should be at once delivered through the abdomen, and the rent in the uterus and the peritoneum repaired; or, if an infection exists, a hysterectomy should be performed. The latter treatment promises little for the mother at home; but her life may often be saved if she is in a hospital.

### Cesarean Section Done with Local Anesthesia

Dr. Hugh H. Trout, Roanoke, Va.: Often general anesthesia is contraindicated when cesarean section is indicated. Local anesthesia is almost ideal. There is very little pain to the operation, except when the uterus is lifted out of the peritoneal cavity and there is no pain on incision of the uterus. I introduce sutures into the uterus first before the incision is made. Afterward these sutures are tied across the incision so as to give double locking mattress sutures which not only approximate the surfaces, but also control the hemorrhage. My eighteen cases prove Lenander's contention relative to the sensibility of the various viscera and parietal peritoneum.

#### DISCUSSION ON PAPERS OF DRS. ZINKE AND TROUT

Dr. I. S. Stone, Washington, D. C.: The tendency at present is in favor of cesarean section from above. Probably we should under all circumstances go after the hemorrhage at its origin and deliver, unless the child has been so far delivered by the second stage as to make it necessary to deliver below because it is impossible to do so from above.

Dr. John Wesley Long, Greensboro, N. C.: Several years ago, when I reviewed the literature on rupture of the uterus, I learned that the rupture began from the peritoneal side rather than from the mucosa side. In the only case of rupture of the uterus that came into my hands, I opened the abdomen and did a supravaginal hysterectomy. The rupture occurred in front of the uterine artery so that there was very little hemorrhage. The woman made an uneventful recovery.

Dr. J. M. Mason, Birmingham, Ala.: I am of the opinion that cesarean section is the proper procedure in cases of puerperal eclampsia in which the patient is not yet in labor. The great danger has been not so much the operation, which produces perhaps less shock in many instances than prolonged labor, but the superadded general anesthetic that has heretofore been used in cesarean section. Local anesthesia removes the serious drawbacks to cesarean section.

Dr. Herbert P. Cole, Mobile, Ala.: I am a firm believer in local anesthesia. Several years ago I reported 700 cases of laparotomy done under local anesthesia. Since then I have performed hysterectomies under local anesthesia. I have also removed a 14 pound myoma from a woman, aged 60, with a bad heart lesion, under local anesthesia without particular discomfort.

Dr. Charles R. Robins, Richmond, Va.: At the end of labor, the veins are enormously distended and extremely tortuous, and I believe that in the vast majority of cases of fatal hemorrhage from rupture of the uterus, the blood comes from the venous plexuses and not from the uterine artery. Therefore, the bleeding is continuous and there is no effort at spontaneous stoppage. That is the reason why we should always open the abdomen in preference to trying to complete the operation from below.

Dr. E. Gustav Zinke, Cincinnati: It is not quite clear to me why we should resort to local anesthesia to perform a cesarean section when chloroform and ether or the A. C. E. mixture have been so satisfactory. It saves the woman the shock that she must necessarily experience when she witnesses the operation. There is no place for surgery in the treatment of puerperal eclampsia, and it has not added one iota to the reduction of the maternal mortality of eclampsia. Cesarean section, which I advocated more than fifteen years ago, is now recognized as the proper procedure.

### Cranial Decompression for Head Injuries Accompanied by Signs of Increased Intracranial Pressure

Dr. R. L. Payne, Jr., Norfolk, Va.: In twenty-nine cases of severe head injuries accompanied by marked increase in pressure, subtemporal decompression was done; twenty-two of the patients recovered, while seven died. In the mild cases recovery occurs without a high increase of intracranial pressure. It is only in the severe cases, accompanied by a marked increase of pressure, that decompression should be considered. I have never seen a patient with acute high intracranial pressure, with a pulse of from 45 to 50, recover by operation if operation had not been performed until the pulse on the secondary rise had reached 95. Results would be much better in these cases if we relieved the threatened danger to the brain by a cranial decompression.

### Long Resection of the Intestine

Dr. J. E. Cannaday, Charleston, W. Va.: In a case of multiple strictures of the small bowel due to ileocecal tuberculosis, 10 feet of the small bowel, besides the cecum, and 8 inches of the ascending colon were resected. The patient made an operative recovery, but died a few weeks later of a fulminant type of pulmonary tuberculosis.

### Intra-Abdominal and Slit Hernias with Obstruction

Dr. Fred W. Bailey, St. Louis: I attended in a case of hernia through the foramen of Winslow and six cases of slit hernia or protrusion of the small bowel through apertures in the mesentery of the ileum and jejunum, gastrocolic omentum, omentum, and adventitious membranes. Acute obstruction with perforation of the gangrenous loop was present in the hernia into the lesser cavity, and death resulted. The issue was also fatal in an ileomesenteric hernia with volvulus and perforation. The remaining five patients recovered. There were four acute and two chronic obstructions in the group. Three of the cases were postoperative cases, and three followed inflammatory processes in the peritoneal cavity.

### Sacral Teratoma: Glioma of the Upper Abdominal Region

Dr. James E. Thompson, Galveston, Texas: A sacral teratoma, as large as a coconut, was removed successfully from a child 6 months old without any injury to the rectum. The tumor contained cartilage, unstriped muscle, gliomatous tissue, ependymal tissue, cysts lined by epithelium, and glandular elements. The glioma occupied the upper abdominal region of an adult colored man. It was as large as a Rugby football. It was removed without particular difficulty, but its removal necessitated the removal of the spleen, the tail of the pancreas, and a portion of the greater curvature of the stomach. The patient made a very satisfactory convalescence. Microscopically, the growth resembled a spindle cell sarcoma. Careful examination revealed cellular elements, such as are seen in gliomatous tumors. Its probable origin was the splenic sympathetic plexus.

(*To be continued*)

# *Current Medical Literature*

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Diseases of Children, Chicago

January, 1918, **15**, No. 1

1 *Varying Susceptibility of Children to Acidosis. M. Sawyer, F. A. Stevens and L. Baumann, Iowa City, Iowa.—p. 1.
2 *Intraperitoneal Injection of Saline Solution. K. D. Blackfan and K. F. Maxcy, Baltimore.—p. 19.

1. **Acidosis in Children.**—This report includes observations on ten boys whose reaction to acid-producing diets was studied. Tables and charts recording the results of the blood and urine analyses were made. A careful survey of the tables and charts leads to the conclusion that the response to such a diet is a variable factor. In a general way the increase of acetone bodies in the blood was proportionate to the severity of the acidosis. The glucose content of the blood was examined in eight cases; of these, six showed a decrease during the period of acidosis; two did not.

2. **Intraperitoneal Injection of Saline Solution.**—The results obtained by Blackfan and Maxcy from the use of this method in dogs have been so encouraging that they have adopted the method in the treatment of all cases of severe gastrointestinal disturbance when the introduction of water in sufficient quantity by mouth is impossible. If the condition of the patient demands it the intraperitoneal injection is made immediately on admission to the hospital. The indications for repeating the intraperitoneal injection are, the general condition of the patient and continuation of vomiting. When the vomiting has ceased water is given by mouth, and as early as possible thereafter the food which is indicated is begun. In patients with acidosis, alkaline therapy is used.

### American Journal of Medical Sciences, Philadelphia

January, 1918, **155**, No. 1

3 Influence of War on Infant Mortality and Its Meaning. S. McC. Hamill, Philadelphia.—p. 1.
4 Prophylaxis of Malaria. C. C. McCulloch, Washington, D. C.—p. 10.
5 *Roentgenologic Diagnosis of Primary Carcinoma of Lung. F. B. McMahon and R. D. Carman, Rochester, Minn.—p. 34.
6 *Study of Sixty-Two Cases of Diabetes of Fifteen or More Years' Duration. A. A. Hornor and E. P. Joslin, Boston.—p. 47.
7 *Infarction of Heart Simulating Acute Surgical Abdominal Conditions. S. A. Levine and C. L. Tranter, Boston.—p. 57.
8 Brief Experimental Study of Morphology of Heart Muscle Following Hypothyroidism. H. Brooks and J. Larkin, New York.—p. 66.
9 Analysis of Fifty Cases of Malaria. O. H. P. Pepper, Philadelphia.—p. 70.
10 Primary Carcinoma of Liver in Infancy and Childhood. J. P. C. Griffith, Philadelphia.—p. 79.
11 Enteroptosis and Subnutrition; Their Relationship and Treatment. M. Einhorn, New York.—p. 85.
12 Some Points Respecting Localization of Syphilis on Aorta. O. Klotz, Pittsburgh.—p. 92 .
13 Cardiac Dyspnea. F. W. Peabody, Boston.—p. 100.

5. **Roentgenologic Diagnosis of Carcinoma of Lung.**—Up to this time there have been 428 authentic case reports of primary carcinoma of the lung. The pathology of primary pulmonary carcinoma is most interesting. There are three main types of primary carcinoma of the lungs which present characteristic gross pathologic appearances; the infiltrative, the miliary and the mixed. McMahon and Carman maintain that the roentgen examination and the stereoscopic study of roentgenograms will early point to a pulmonary lesion and its probable nature. The areas of increased density found in primary pulmonary carcinoma are usually quite typical, and can be differentiated from areas of increased density caused by other diseases in the thorax, including inflammatory changes and neoplasms, both primary and metastatic. A careful correlation of the roentgen findings with the clinical history and the physical and laboratory findings usually makes a clinical and differential diagnosis possible.

6. **Diabetes of Fifteen Years Duration.**—In a series of 1,187 patients with diabetes, of whom 1,156 are traced by Hornor and Joslin, 640 are living and 516 are dead; among these were 62 who lived fifteen or more years, or 5 per cent., and of these 37 are living and 25 are dead. Obesity, which is universal in the long lived diabetic, was demonstrated in 60 cases out of 62. The average loss of weight when the patient first came to the authors for treatment was 41 pounds. Gallstones were recognized in 8 cases, being six times as frequent among these cases as in the entire series of 1,187 cases. The presence of acidosis was demonstrated twenty-one times and in 11, or 44 per cent., of the fatal cases the patients succumbed to it. Arteriosclerosis occurred in 36 cases and was a prominent factor in causing the death of 10 patients. Diabetes is now a minor issue in 50 per cent. of the living patients, and at the time of death was a minor issue in 28 per cent. of those who had died. An extremely rigid diet is necessary for only 4 of the patients now living. Of the fatal cases, 20 per cent. outlived the normal expectation of life for their age at the onset of their diabetes, and this is true for 10 per cent. of the living cases. Dietetic treatment was carried out to a considerable degree by 57 patients. Of the remaining 5 patients, 3 are among the dead.

7. **Infarction of Heart.**—Two cases are reported by Levine and Tranter. They were strikingly similar in their history, clinical course, physical findings, and necropsy examination. Both patients entered the hospital complaining of acute epigastric pain of a few days' duration in one case and of a few hours' duration in the other. Both had slight nausea and some vomiting, and felt quite sick, but neither had chill nor felt feverish. Their past histories were essentially negative except for antecedent angina in one. Physical examination showed marked tenderness in the epigastrium in each case and a questionable mass in the region of the gallbladder, over which the percussion note was dull. The pulses were of poor quality, slightly rapid, and the heart sounds were feeble. In neither case were cardiac murmurs heard, the apex beat was neither seen nor felt, and cardiac dulness was slightly increased in the second patient. One patient developed complete heart block shortly before death. The blood pressure in both patients was low, the pulse pressure in the first patient was only 12 and in the second 26. There were anomalous signs in the right lower chest in both instances, consisting of a moderate number of râles at one time and subsequently a diminution of the breath sounds throughout both lungs. The acute epigastric pain and tenderness, together with a leukocytosis of about 20,000 and a moderate fever in both cases made the diagnosis of an acute inflammatory or perforative lesion of the upper abdomen seem probable. The conditions considered were perforated gastric ulcer, acute pancreatitis, and acute gallbladder disease. A laparotomy with negative findings was performed on the first patient. The mild diabetes with acidosis in the second patient, together with the drowsiness, influenced the surgeons to consider that the patient might be on the verge of coma, and dissuaded them from operation.

The pathologic examination in both cases showed striking similarity in that the anterior coronary arteries were in each instance practically obliterated by thrombosis, with resultant extensive infarction of the heart. Generalized arteriosclerosis was likewise a common finding. The lungs, liver, spleen and kidneys showed acute passive congestion. The liver edge in the first case extended to a hand's breadth below the costal margin, which accounted for the abdominal mass palpated. No other lesions were found in the viscera, which could account for the symptoms.

### American Journal of Orthopedic Surgery, Boston

January, 1918, **16**, No. 1

14 Arthroplasty with Aid of Animal Membrane. W. S. Baer, Baltimore.—p. 1.
15 What Are Real Results of Arthroplasty? M. S. Henderson, Rochester, Minn.—p. 30.
16 Opportunities for Social Service in Orthopedic Clinic. E. M. Baker, Boston.—p. 34.
17 Method of Studying Nerves. S. M. Cone.—p. 42.
18 Old Ununited Fracture of Patella. W. A. Steel, Philadelphia.—p. 44.

### Boston Medical and Surgical Journal

Jan. 3, 1918, **178**, No. 1

19 Differential Diagnosis of Pulmonary Tuberculosis. W. H. Smith, Boston.—p. 1.
20 Treatment of Eczema in Childhood. C. J. White, Boston.—p. 5.
21 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 16. To be continued.—p. 16.

Jan. 10, No. 2

22 *Examination of Soldiers for Tuberculosis in U. S. Army. E. O. Otis, Boston.—p. 33.
23 After-Care of War Cripple. E. A. McCarthy, Fall River.—p. 37.
24 *Paroxysmal Tachycardia of Ventricular Origin. F. A. Willins, Rochester, Minn.—p. 40.
25 Recognition of Surgical Kidney. B. Tenney, Boston.—p. 44.
26 Membranous Croup. D. M. Lewis, New Haven, Conn.—p. 47.
27 Some Effects of Massage on Colon. F. W. White, Boston.—p. 48.
28 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 50. To be continued.
29 Ventral Fixation of Uterus, Causing Dystocia. Ruptured Uterus Following Version for Transverse Presentation. Hysterectomy and Recovery; Report of Case. L. E. Phaneuf, Boston.—p. 55.

22. **Examination of Soldiers for Tuberculosis.**—Otis offers the following suggestive scheme for tuberculosis examinations when they can be made under favorable auspices in a permanent camp and with sufficient time for leisurely work and observation: 1. So far as possible, only experienced examiners should be employed. 2. Only a certain number of examinations should be made by the examiner in a day. 3. The place of examination should be such that comparative quiet can be maintained. 4. A short history should be taken of each soldier, which can be done by an intelligent and honest, noncommissioned officer according to a prepared schedule of which the following questionnaire is an illustration: (*a*) Have you ever had pleurisy, pneumonia, typhoid, influenza or any severe illness? (*b*) Did you ever spit up blood? (*c*) Have you been losing weight or strength recently? (*d*) Are you short of breath or exertion? (*e*) Have you a cough, and, if so, how long has it lasted? (*f*) Are you subject to colds? (*g*) How is your appetite and digestion? (*h*) Do you use alcohol? 5. All suspicious cases should be deferred for a second examination and consultation, and if then the doubt still exists the subject should be kept under observation for a period of time, or, if a roentgen-ray outfit is at hand and a competent technician in charge, roentgenograms can be taken. 6. When sputum is obtainable in a suspected patient it should be examined, and for this purpose a clinical laboratory should be at hand as well as for other bacteriologic examinations. 7. All cases with any developmental defects of the chest, should receive especial attention in the examination. 8. In suspicious cases, particularly with a pulse above the normal, the temperature should be taken at stated periods for several days. 9. All acute respiratory infections, such as bronchitis, influenza, laryngitis, etc., should be kept under observation in the hospital.

24. **Paroxysmal Tachycardia of Ventricular Origin.**—Paroxysmal tachycardia of ventricular origin occurred in only 0.047 per cent. of all abnormal electrocardiograms recorded in the Mayo Clinic. Two cases revealed conduction impairment. As an etiologic factor, a history of infection with the streptococcus group was elicited in four cases. The symptomatology in all cases was very uniform, palpitation, tachycardia and exertion dyspnea being complained of by all the patients. Vertigo attend the paroxysms in three cases. The average pulse rate during the paroxysms was 174. One patient coming to necropsy revealed distinct atheroma of the left coronary artery, which is very significant. As life is dependent on ventricular, and not on auricular action. Willins says that this condition must be considered potentially grave. Digitalis medication in two cases treated did not affect the abnormal rhythm.

### Cleveland Medical Journal

December, 1917, **16**, No. 12

30 Manual of Clinical Laboratory Methods. C. L. Cummer, Cleveland.—p. 785.

### Illinois Medical Journal, Chicago

December, 1917, **32**, No. 6

31 Conservation of Maternal Nursing. G. E. Baxter, Chicago.—p. 381.
32 Electrical Treatment of Infantile Paralysis. E. H. Grubbe, Chicago.—p. 384.
33 Treatment of Cavernous and Plexiform Angioma. F. Reder, St. Louis.—p. 387.
34 Review of Recent Work on Etiology of Pneumonia. W. W Dicker, Chicago.—p. 393.
35 Removal of Steel Particles from Interior of Eye by Magnet. F. Allport, Chicago.—p. 395.
36 Interrelation of Diseases of Eye, Nose and Nasal Accessory Sinuses; Report of Cases. E. C. Spitze, East St. Louis.—p. 399.
37 Management of Squint. R. Von der Heydt, Chicago.—p. 404.
38 Prophylaxis in Eclampsia; Case Reports. W. H. Condit, Minneapolis.—p. 406.
39 Treatment of Hemorrhoids Under Local Anesthesia. C. J. Drueck, Chicago.—p. 411.
40 Liquid Petrolatum as Antiseptic. H. D. Junkin, Milford.—p. 416.
41 Course of Tuberculosis at Different Ages. J. Ritter, Chicago.—p. 416.

### Indiana State Medical Association Journal, Fort Wayne

December, 1917, **10**, No. 12

42 *Diseases of Gallbladder; Diagnosis. A. C. Kimberlin, Indianapolis.—p. 457.
43 *Diseases of Gallbladder; Medical Treatment. C. R. Sowder, Indianapolis.—p. 460.
44 *Gallbladder Surgery. H. H. Martin, Laporte.—p. 463.
45 Cholecystectomy vs. Cholecystotomy. H. A. Duemling, Fort Wayne.—p. 466.

42, 43 and 44. Abstracted in The Journal, Oct. 27, 1917, p. 1468.

### Journal of Experimental Medicine, Baltimore

January, 1918, **27**, No. 1

46 *Effect of Injections of Hemolytic Streptococci on Susceptible and Insusceptible Animals. J. G. Hopkins and J. T. Parker, New York.—p. 1.
47 *Common Colds as Possible Source of Contagion for Lobar Pneumonia. E. Valentine, New York.—p. 27.
48 *Study of Mitochondria in Experimental Poliomyelitis. G. F. McCann, New York.—p. 31.
49 *Localization of Streptococcus Viridans. H. K. Detweiler and H. B. Maitland, Toronto, Canada.—p. 37.
50 Morphin Hyperglycemia in Dogs with Experimental Pancreatic Deficiency. J. Auer and I. S. Kleiner, New York.—p. 49.
51 Studies of Lung Volume. Relation Between Thorax Size and Lung Volume in Normal Adults. C. Lundsgaard and D. D. Van Slyke, New York.—p. 65.
52 *Id. Tuberculous Men. A. Garvin, C. Lundsgaard and D. D. Van Slyke, New York.—p. 87.
53 Id. Tuberculous Women. A. Garvin, C. Lundsgaard and D. D. Van Slyke, New York.—p. 129.
54 *Solvent Action of Antiseptics on Necrotic Tissue. H. D. Taylor and J. H. Austin, New York.—p. 155.

46. **Injections of Hemolytic Streptococci.**—Hopkins and Parker found that with hemolytic streptococci, which are of rather low virulence for rabbits, a sublethal dose may completely disappear from the blood stream within a few hours. If a lethal injection is given, over 90 per cent. of the cocci are removed from the circulation within the first few minutes, and subsequent blood cultures reach a minimum in two to three hours, but after four to six hours the number again begins to increase. Even with lethal doses, cultures of 1 c.c. of blood may show no colonies after two or three hours, but, as a rule, streptococci do not completely disappear after such an injection. Streptococci taken up by the lung are killed within five to eight hours. In the liver they are killed less rapidly, and in the spleen a few may remain viable for a considerable period. About the time that the streptococci have begun to develop in the muscles (four to eight hours after injection) the number in the blood stream begins to increase. Septicemia, then, is probably the result of washing out of organisms from the infected tissues. Attempts to immunize rabbits have been unsuccessful, but in certain treated animals the distribution of the organisms among the various organs approached that found in insusceptible animals, that is, the cats.

47. **Cold and Lobar Pneumonia.**—In two instances of common colds, with no known contact with cases of pneumonia, Pneumococcus Type 1 was found to be the predominating organism, which strongly suggests that it was etiologic agent in these colds. If this is so, Valentine points out that common colds of this type must be looked on as a possible source of contagion in the development of lobar pneumonia due to the Type I pneumococcus.

48. **Mitochondria in Experimental Poliomyelitis.**—McCann says that typical mitochondria can be found in the spinal ganglion cells of monkeys with experimental poliomyelitis,

even when typical Nissl substance has disappeared, and mitochondria-like structures are found in the remaining protoplasm in the latest stage of neurophagocytosis.

49. **Localization of Streptococcus Viridans.**—The results of these experiments do not substantiate in full the theory of the power of selective action of *Streptococcus viridans.* A few strains showed a remarkable constancy in location and type of lesion, but these strains were greatly in the minority. The location of the lesions in animals seemed to bear no relation to the origin of the organism or to the lesions produced by it in the patient from which the strain was obtained. *Streptococcus viridans,* regardless of site of origin in the patient, produced most lesions in the heart and joints. The organisms were obtained from many different sources and from patients suffering from a diversity of ailments.

52. **Lung Volume of Tuberculous Men.**—The total capacity, middle capacity, and residual air were determined by the authors in thirty-one adult male patients suffering from tuberculosis of the lungs. In nine patients with incipient tuberculosis, the total lung volume was found within normal limits, whereas the vital capacity was diminished as a result of an increased residual air. The increase in the residual air was due to less complete expiration, caused partly by diminished movement of the diaphragm, partly by diminished compression of the chest wall. The diminished movement of the diaphragm was, as a rule, most marked on the most affected side. Whether these decreased movements are due to a reflex or to stiffness of the lung tissue could not be determined. The middle capacity was found practically normal. In twenty-two cases of moderately advanced and advanced tuberculosis, the total lung volume was in most cases markedly decreased. The vital capacity was substantially decreased, principally as a result of the diminished total capacity. The residual air was, as a rule, normal, although in a few cases an increase in residual air also contributed to the decrease in the vital capacity. The middle capacity was normal in some patients and considerably diminished in others.

54. **Solvent Action of Antiseptics.**—As the erosive action of Dakin's solution is an important factor, experiments were conducted by Taylor and Austin to compare its solvent action with that of certain other chlorinated antiseptics. The solvent action of the various substances employed was tested by adding 50 c.c. of each solution to 5 c.c. of an emulsion of macerated liver tissue in a 100 c.c. bottle. Chloramin-T solutions, hypochlorite solutions, chlorinated oils and dichloramin-T were tested. From the results obtained by the authors considerable stress is laid on the relatively great solvent action of Dakin's hypochlorite solution as contrasted with the more recent and more stable chloramins of Dakin. It also seems probable that to its greater ability to dissolve necrotic tissue, plasma clot, and leukocytes it owes its chief claim to preference over the chloramins in the treatment of infected wounds. The results also show that the solvent action of Dakin's hypochlorite solution in the degree of alkalinity used clinically is due primarily to its hypochlorite content. The slight alkalinity of Dakin's solution, while in itself without solvent action, does, however, increase the effectiveness of the hypochlorite. Chloramin-T failed in these experiments to exhibit any solvent action not explicable as an effect of the alkalinity of the solution in which it was dissolved, and dichloramin-T was also wholly without solvent action. The results of these experimental studies do not, therefore, support the clinical observations of Dakin and his associates, who assert that the chlorin in dichloramin-T, as in the hypochlorites, has the power of dissolving dead tissues. In the degree of alkalinity used clinically, the solvent action of hypochlorite is absent below about 0.2 per cent. sodium hypochlorite concentration. None of the antiseptics studied had demonstrable solvent action on blood clot.

### Journal of Urology, Baltimore

December, 1917, **1**, No. 6

55 *Treatment of Carcinoma of Lower Genito-Urinary Tract with Radium. H. H. Young and W. A. Frontz, Baltimore.—p. 505.

56 *Study of Vesical Orifice Following Perineal Prostatectomy. E. M. Watson, Baltimore.—p. 543.

57 *New Method for Locating Small Calculi in Kidney at Operation. J. E. Burns, Baltimore.—p. 559.

58 *Injections of Papaverin in Experimental Syphilis. D. I. Macht and M. A. Reasoner, Washington, D. C.—p. 571.

55. **Carcinoma of Lower Genito-Urinary Tract Treated with Radium.**—During the past two years Young and Frontz treated with radium 66 patients with cancer of the prostate. In 42 of these, the tumor was extensive, not only the prostate but the seminal vesicles being involved. In 19 the process was confined apparently to one half of the prostate and the corresponding vesicle, while in 4 the vesicles were apparently free from invasion. The results have in many cases been most encouraging. Cases presenting marked urinary obstruction have responded in the course of six weeks to two months and in some instances a large residual urine has diminished to zero. Cases giving a history of voiding from ten to twelve times at night and then only with extreme difficulty and pain, have shown, after a course of treatment marvelous improvement, urination being accomplished in a normal manner. In 11 cases retention of urine was complete. The obstruction in these cases, with one exception, showed no improvement, 8 of them subsequently coming to operation for the relief of urinary retention. Fifty-one cases gave a history of more or less frequency and dysuria. In 17 the improvement was symptomatically very slight. In the remaining cases, the improvement in many was very striking. In 4 cases a prostatectomy had been performed previous to the application of radium. In 14 cases with evident metastasis there was pain in the back, hips or thighs. In none of these cases was there any alleviation of this symptom following radiation of the primary growth. This report also includes 45 cases of tumor of the bladder in which the patients were treated with radium alone or a combination of radium and fulguration. Of these cases 15 were papillomas, 30 carcinomas. The results obtained have been most satisfactory in the malignant papilloma type which have failed to respond to fulguration. The treatment with radium of the infiltrating types of malignant tumor has been less encouraging and in no case in which there was definite infiltration of the bladder wall, as demonstrated either by cystoscopy or by rectal palpation, has a cure been effected.

56. **Vesical Orifice after Perineal Prostatectomy.**—For this study twenty-five cases were taken at random. The operation in every instance had been the Young conservative perineal prostatectomy. The study of the vesical orifice was made in these cases by means of cystograms taken at varying periods after operation; that is, three weeks to thirteen years. In no instance did the internal sphincter remain permanently dilated and Watson feels that following perineal prostatectomy, the musculature about the vesical orifice becomes readjusted in the vast majority of cases. This occurs in some instances as early as the third week after operation and probably remains so thoroughout life, as shown in one of the cases in which the internal sphincter was functioning normally thirteen years after operation.

57. **Locating Calculi in Kidney at Operation.**—The procedure described by Burns has been found extremely valuable in the location of very small stones in the kidney substance. Some as small as 0.5 cm. in diameter have been located without difficulty. The requisites for success in this procedure are a good exposure of the kidney and a satisfactory delivery of it into the wound. It must be freed from the surrounding fatty capsule so that it can easily be lifted up and grasped between the thumb and fingers of the left hand. Further, it is essential to have satisfactory roentgenograms in which the outline of the kidney is clearly seen as well as the shadow of the stone. The operator must make the measurements on the kidney surface as accurate as possible so that the point at which the kidney is to be probed shall lie directly in line with the stone. By means of a straight liver needle or a fine probe the operator measures off the distance from the shadow of the stone to the border of the lower pole of the kidney (the upper pole if the stone be located in this region). The point of the needle should coincide with the center of the shadow of the stone, and the needle should be so grasped that the edge of the thumb will be on a line with the shadow of the lower border of the

kidney. This measurement is then transferred to the surface of the kidney and the thumb of the left hand moved down to the point indicated by the end of the needle and held in this position. The same method is then employed in mapping out the distance of the stone from the convex border of the kidney. These two points should coincide. Now if the liver needle be inserted perpendicular to the surface of the kidney at this point it should in its passage through the kidney come in contact with the stone. In other words, the stone lies in a line drawn perpendicular to the surface of the kidney at a point indicated by intersection of these two lines measured off on the roentgenogram.

After the stone has been definitely located by this means, usually by one attempt, the liver needle is withdrawn and a clamp introduced into the opening made by it, the blades separated slightly, and the stone grasped and removed. One chromic gut mattress suture is usually sufficient to close this opening. The kidney is returned to its usual position and two drains (a cigaret and a rubber tube) placed down to the opening into the kidney. The wound is then closed in the usual manner. This method prevents entirely the great mutilation and destruction of kidney tissue so often seen when an ordinary nephrotomy is done, and in consequence renders the operation less dangerous to the patient and a far more satisfactory procedure to the operator.

58. **Injections of Papaverin in Experimental Syphilis.**—Prolonged and repeated injections of papaverin produced in no case any toxic symptoms of a serious nature. In one series of experiments, no influence on the course of the disease and no effect on the lesions could be noted. In a second series of experiments, likewise, no effect on the development of the disease or on the development of the lesions was noted. Two of three inoculated animals developed typical testicular lesions as usual, the third was not affected. The results of the investigation may, therefore, be briefly stated as follows: Injections of papaverin have no appreciable effect on the course of spirochetic testicular lesions in rabbits; nor have they any influence on the development of the disease even when administered simultaneously with the inoculation of the syphilitic material.

### Laryngoscope, St. Louis

December, 1917, **27**, No. 12

59 Fossa of Rosenmueller from Rhinologic Standpoint. S. Yankauer, New York.—p. 861.
60 Nasal Septum Deformity in Children. Study of Three Hundred and Fourteen Children. L. G. Kaempfer, New York.—p. 868.
61 Method of Medicating Eustachian Bougies. L. M. Hurd, New York.—p. 879.
62 Salivary Calculus; Report of Case. W. W. Carter, New York.—p. 881.
63 Stenosis of Nasopharynx Operation with Prosthesis. H. E. Isaacs, New York.—p. 885.
64 Case of Tic Douloureux Treated by Avulsion Method of Dr. Ernest LaPlace. H. H. Curtis, New York.—891.
65 Stone Removed from Esophagus of Insane Patient. H. Arrowsmith, Brooklyn.—p. 893.
66 Syphilitic Paralysis of Right Vocal Cord. G. E. Davis, New York.—p. 896.
67 Rib Transplantation for Correction of External Nasal Deformity. Unusual Experience in Two Cases. W. Scruton, New York.—p. 899.
68 Unusual Course of Pus in Neck of Case of Mastoiditis. J. W. Durkee, Brooklyn.—p. 901.
69 Fibroma of Ethmoid Region. R. H. Fowler, New York.—p. 903.
70 Two Cases of Atrophic Rhinitis Treated with Ichthyol Ointment. R. H. Fowler, New York.—p. 904.
71 Case of Accessory Tonsils. J. A. Hagemann, Pittsburgh.—p. 906.

### Medicine and Surgery, St. Louis

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72 Courage and Fear in the Great War. G. T. W. Patrick, Iowa City, Iowa.—p. 1029.
73 Dramatist on Physicians. W. M. Reedy, St. Louis.—p. 1040.
74 French Physicians and War Literature. A. Schinz, Northampton, Mass.—p. 1050.
75 Age Limit—An Unfortunate Americanism. W. A. N. Dorland, Chicago.—p. 1060.
76 Alvar Nunez Cabeza de Vaca: First White Medicine Man in United States. C. Babre, Flagstaff, Ariz.—p. 1068.
77 Philibert Joseph Roux, 1780-1854. W. P. Coues, Boston.—p. 1074.
78 Concerning Salt. H. J. Achard, Chicago.—p. 1081.
79 Millionaires and Millennium. F. Grierson, Washington, D. C.—p. 1087.
80 Odor of Peculiars. L. P. Clark, New York.—p. 1091.
81 Mobilized Brain Power. C. O'Brien, New York.—p. 1095.
82 Some Interesting Chinese Writers and Writings. M. F. Morris, Jr., Chelsea, Mass.—p. 1098.
83 New Method of Tubulizing Tendon when Used as Free Transplant. P. G. Skillern, Jr., Philadelphia.—p. 1108.

### Modern Hospital, St. Louis

December, 1917, **9**, No. 6

84 Private Ward of Massachusetts General Hospital. J. B. Howland, Boston.—p. 389.
85 Standards of Almshouse Administration. F. Bardwell, Boston.—p. 393.
86 Laxative Food Preparations and Their Composition. J. P. Street, New Haven, Conn.—p. 398.
87 Cincinnati's Successful Antituberculosis Campaign. C. Dinwiddie. Cincinnati.—p. 400.
88 Cafeteria Service for Tuberculosis Patients. H. D. Chadwick and H. W. Smith, Westfield, Mass.—p. 403.
89 Well Planned County Tuberculosis Hospital. R. K. Cummings, Webb City, Mo.—p. 406.
90 Standardization of Hospitals—Large Municipal Hospitals. J. A. Hornsby and others.—p. 409.
91 Small Town Hospital; Some of the Bases of Its Success. M. G. Phifer, Wheatland, Wyo.—p. 412.
92 Reclamation of Rejected Candidate for Army. J. H. Quayle, Cleveland.—p. 415.
93 Placing Cripples in Industry. E. Rigby, Boston.—p. 417.
94 Value of Case Records in Hospitals. E. A. Codman, Boston.—p. 426.
95 Hospital Organization and Efficiency. J. Y. Brown, St. Louis.—p. 428.
96 Educational Responsibility of Hospital to Profession and Community. A. B. Kanavel, Chicago.—p. 430.
97 Trained Nurse. A. W. Goodrich, New York.—p. 431.

### Nebraska State Medical Journal, Norfolk

December, 1917, **2**, No. 12

98 Cystocele, Perineum Damage and Rectocele. P. H. Salter, Norfolk.—p. 509.
99 Prolapse of Uterus. A. I. McKinnon, Lincoln.—p. 513.
100 Fistulae of Pelvic Outlet. F. A. Long, Madison.—p. 513.
101 Fractures in Vicinity of Joints. C. O'N. Rich. Omaha.—p. 518.
102 Surgical Treatment of Uterine Hemorrhage. P. Findley, Omaha.—p. 522.
103 Roentgen Ray Treatment of Uterine Hemorrhage. A. F. Tyler, Omaha.—p. 523.

### Ophthalmic Record, Chicago

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104 Neurologic Perimetry and Method of Imitating Daylight with Electric Illumination. C. B. Walker, Boston.—p. 600.
105 Irrigation of Vitreous Chamber in Case of Suppurative Panophthalmitis. F. Allport, Chicago.—p. 620.
106 Aborted Case of Adult Gonorrheal Ophthalmia. W. D. Stevenson.—p. 621.
107 Case of Laceration of Eyeball with Eyelash Driven into Lens. J. R. Smith, Chicago.—p. 623.

### South Carolina Medical Association Journal, Greenville

December, 1917, **13**, No. 12

108 Infant Welfare Work in Iowa. L. R. H. Gantt, Spartanburg.—p. 761.
109 State Wide Plan for Infant and Maternal Welfare. W. Weston, Columbia.—p. 762.
110 Improvement of Rural Obstetrics with Special Reference to Midwife. G. F. Klugh, Cross Hill.—p. 764.
111 Pediatrics for General Practitioner. R. M. Pollitzer, Charleston.—p. 766.
112 Way to Cure a Child of Enteric Infection Accompanied by Greenish Stools. L. F. Robinson, Greenville.—p. 768.
113 Child Welfare Work in Rural Districts of South Carolina. L. A. Riser, Columbia.—p. 770.
114 Infant Mortality in South Carolina and South. E. A. Hines, Seneca.—p. 770.

### Southwest Journal of Medicine and Surgery, El Reno, Okla.

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115 Treatment of Simple Chronic Glaucoma with Myotics. H. Moulton, Fort Smith, Ark.—p. 275.
116 Nonsuppurative Otitis Media. J. H. Barnes, Enid.—p. 279.
117 Seat of Astigmatism. J. H. Schrant, Hutchinson, Kan.—p. 283.
118 Orthopedia, Artistic Department of Medicine and Surgery. B. Belove, Kansas City, Mo.—p. 287.

### Southwestern Medicine, El Paso, Texas

December, 1917, **1**, No. 12

119 Tibiale Externum. F. P. Miller, El Paso.—p. 9.
120 Examination of Recruits by Roentgen Ray. A. G. Shortle, Albuquerque, N. M.—p. 12.
121 Lobar Pneumonia in Children. G. Werley, El Paso.—p. 18.
122 Symptomatology of Gastric Ulcer. T. C. Sexton, Las Cruces, N. M.—p. 21.
123 Medical Inspection of Schoolchildren. I. McNeil, El Paso.—p. 25.

124 Two Stage Operation for Prostatectomy. F. W. Noble, El Paso.—p. 29.
125 Davies-Colley Flap Operation in Cleft Palates. A. V. Smelker, Nogales, Ariz.—p. 34.

### Tennessee State Medical Association Journal, Nashville

December, 1917, **10**, No. 8

126 Surgical Treatment of Prolapse of Remaining Structures After Removal of Uterus. W. T. Black, Memphis.—p. 305.
127 *New Species of Streptothrix Isolated from Case of Rat Bite Fever. W. Litterer, Nashville.—p. 310.
128 *Remarks on Leukemi. W. St. John, Bristol.—p. 313.
129 *Roentgen Treatment of Uterine Fibromyomas and Hemorrhagic Metritis. W. S. Lawrence, Memphis.—p. 316.
130 Pneumonia. J. S. Campbell, Gordonsville.—p. 321.
131 Infant Welfare Work in Nashville. W. F. Acree, Nashville.—p. 326 .
132 Morphinism. M. O. Davis, Nashville.—p. 330.

127, 128 and 129.—Abstracted in The Journal, April 28, 1917, pp. 1286 and 1287.

### Texas State Journal of Medicine, Fort Worth

December, 1917, **13**, No. 8

133 Local Anesthesia in Major Surgical Operations. A. C. Scott, Temple.—p. 269.
134 Acidosis and Internist. J. S. Lankford, San Antonio.—p. 272.
135 Diabetes with Special Reference to Obstetrics. H. Caldwell, and R. H. L. Bibb, Corpus Christi.—p. 274.
136 Treatment of Diabetes Mellitus. A. Woldert, Tyler.—p. 277.
137 Cardiovascular-Renal Disease. W. A. Boyce, Dallas.—p. 281.
138 Early Diagnosis of Cardiovascular Diseases. R. W. Baird, Dallas.—p. 284.
139 Painless and Bloodless Tonsillectomy. W. W. Fowler, Brownwood.—p. 286.

### United States Naval Medical Bulletin, Washington, D. C.

January, 1918, **12**, No. 1

140 *Dangers of Intravenous Injection of Antityphoid Vaccine. G. D. Hale and F. W. Hartman.—p. 1.
141 Treatment of Fractures of Thiglr by Gassette Apparatus. G. Houzel.—p. 3.
142 *Pathologic Study of Splenic Anemia (Banti's Disease). F. W. Hartman.—p. 13.
143 Care of Contagious Cases and Their Importance to United States Navy. M. F. Gates.—p. 17.
144 Contagious Hospitals. R. K. Joslin.—p. 21.
145 Hospital Care of Contagious Diseases. L. A. Butler and V. Rau.—p. 27.
146 Examination of Aviators. R. A. Bachman.—p. 30.
147 Preparation of Dakin Solution. E. R. Noyes.—p. 41.
148 Preparation of Dakin's Solution and Carrel Technic in Treatment of Infected Wounds. W. N. McDonell.—p. 45.
149 Musings During American Cruiser's Visit to War Zone. C. N. Fiske.—p. 53.
150 Bedside Screen. M. F. Gates.—p. 75.
151 Small Stethoscope Bell. E. F. DuBois.—p. 75.
152 Entry of Vaccination and Typhoid Prophylaxis on Cover of Health Record. R. B. Henry.—p. 76.
153 Chronic Pancreatitis; Cholecystostomy and Recovery. F. W. Hartman and B. H. Hager.—p. 79.
154 *New Method of Treating Tropical Ulcers. J. A. Halpin.—p. 80.
155 Cases of Subdural Hemorrhage in Cerebrospinal Fever. U. R. Webb.—p. 84.
156 Dakin's Fluid in Treatment of Chancroid. W. A. Bloedorn.—p. 85.
157 Tetanus in Haiti. G. L. Wickes.—p. 86.

140. **Dangers of Intravenous Injection of Antityphoid Vaccine.**—A fatal case cited by Hale and Hartman plainly shows hat the intravenous vaccine treatment is dangerous, that the irst dose should be small and subsequent doses measured by he reaction of the patient to the first dose, and, finally, that he patient should be under close observation until the period luring which anaphylactic shock may occur is surely over. In his case that 0.5 c.c. of standard typhoid vaccine or 500,000,000 acilli with no special method of preparation was given intravenously, resulting in a marked reaction, one manifestation f which was a high fever. Then, seven days later, at the eight of sensitization, a second dose even larger than the irst was given. Thus over three times the maximum dose rdinarily used was given at the first injection, and four (probably more) times the maximum dose was given the econd time, resulting in the typical symptoms of anaphy-actic shock with death four hours later. The necropsy find-ngs corresponded with those described in the experimental naphylaxis of animals.

142. **Pathology of Splenic Anemia.**—The constant com-laint of Hartman's patient was of pain and discomfort in the epigastrium and right upper quadrant associated with nausea, vomiting, diarrhea and irregular fever. Of thirty-two months' illness approximately sixteen months had been spent in different hospitals. The patient underwent a cholecystostomy in 1915. On admission to the hospital his face had a pinched expression. Weakness and malaise were very evident. The complexion had a yellowish tint, and the conjunctivae were slightly jaundiced. The teeth were in good repair, containing numerous fillings and crowns. There was some rigidity of the abdominal muscles, with pain on deep pressure over the epigastrium. The liver dulness extended from the third interspace to 4 cm. below the costal margin on the right side. The spleen was easily felt rising and falling with respiration as a firm rounded mass reaching 7 cm. below the costal margin during full inspiration. In addition to a moderate anemia (75 per cent.), leukopenia and relative lymphocytosis, many of the polymorphonuclear leukocytes showed a dense granulation, which tended to be basophilic, and band-form nuclei, and there was 1 per cent. of typical myelocytes and a few very large mononuclear cells with blue staining vacuolated protoplasm and lighter staining nuclei. Splenectomy was performed. Sixteen days after operation the hemoglobin was 80 per cent., red count 4,500,000, white count 14,200. Numerous atypical leukocytes with band-form nuclei and heavy granules were seen at this time, but no typical myelocytes. There was an increase in eosinophils and mast cells. Two months and a half after operation, the patient was free from all his former symptoms Hemoglobin, 90 per cent.; white cell count, 12,800; red cell count, 4,900,000. There are many band-form nuclei in the polymorphonuclears with dense granulation of the protoplasm. Most of the lymphocytes are of the large type and the protoplasm, containing no granules, stains a steel blue. Increasing eosinophilia with continued leukocytes is striking.

154. **Salt Solution in Treatment of Tropical Ulcers.**—Three methods of treatment were tried by Halpin: One series of patients was treated with mercury salicylate injections and mercury salve. They did not respond to treatment, and at the expiration of two months the ulcers were the same, or, as in five cases, increased in size. The discharge was also increased. In the second series, those which were treated with autogenous vaccine and filtrate, the discharge was decreased. None of the ulcers, however, healed, and only slight improvement was noted. In the third series, those which were treated with a saline injection method, every case responded to this form of treatment. In the majority of cases the cure was very rapid and permanent, the old edematous tissue surrounding the edges of the ulcers disappeared rapidly and was replaced by healthy tissue, the discharges ceased, new healthy granulation tissue soon covered the ulcer and healing resulted. This treatment was as follows: The ulcers were thoroughly curetted and wiped off with sterile 0.6 per cent. sodium chlorid solution. Then a 20 c.c. syringe was filled with the same solution and the contents injected beneath the ulcer, the needle entering just at the margin of the ulceration and going deep enough to prevent the solution from oozing through. The ulcer is then recovered with sterile gauze saturated with the same solution. These injections were given daily as long as the ulcer persisted.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### Journal of Laryngology, Rhinology and Otology, London

December, 1917, **32**, No. 12

1 *Morbid Anatomy of War Injuries of Ear. J. S. Fraser and J. Fraser.—p. 369.
2 Foreign Body in Right Maxillary Antrum for Twenty-Five Years, Causing Facial Neuralgia. I. Moore.—p. 386.

1. **Morbid Anatomy of War Injuries of Ear.**—The only changes of importance found by the Fraser in the four cases of explosion injury of the ear were: (1) rupture of the drumhead and hemorrhages into the middle ear spaces; (2) hemorrhage in the fundus of the internal meatus in three of the

four cases. In two cases the neuroepithelial structures of the labyrinth appear to be normal. In one case the changes were possibly of postmortem origin, but appeared to be due rather to an early stage of degenerative neuritis. The Frasers suggest that it is possible that in many cases of shell or explosion deafness we have to deal with a functional affection, as suggested by Milligan and Westmacott. On the other hand, rupture of the drumhead and hemorrhage into the middle ear spaces must cause a certain loss of hearing, while hemorrhage in the fundus of the internal meatus may give rise to deafness, tinnitus, giddiness, and other symptoms of an inner ear lesion. It may be that the blow to the ear due to shell explosion, and the associated loud sound, paralyzes the delicate nerve endings of the auditory apparatus, but it cannot be claimed that this has been demonstrated microscopically.

### Medical Journal of Australia, Sydney

Dec. 1, 1917, **2**, No. 22

3 Limitations of Military Orthopedic Surgery. M. O. Hughes.—p. 451.
4 Reestablishment of Crippled. R. B. Wade.—p. 452.
5 Neuromuscular Reeducation of Soldier. N. D. Royle.—p. 453.
6 Stiff Knee. C. MacLaurin.—p. 456.

### Annales de Gynécologie et d'Obstétrique, Paris

September-October, 1917, **72**

7 *Metastasis of Melanosarcoma. A. Kotzareff (Geneva).—p. 641.
8 *Resection of Perineal Nerves for Vulvovaginal Pruritus. P. Mauclaire.—p. 655.
9 Organized Welfare Work for Infants and Mothers at Montevideo. A. Turenne.—p. 663.

7. **Metastasis of Melanosarcoma.**—Kotzareff declares that primary melanosarcoma of the external genital organs is the most malignant of all neoplasms. In the case described the primary tumor was in the left labium majus in a seamstress of 56 with two healthy children. It had probably developed from a pigmented nevus. It grew slowly for four months and then mestastases in the brain and elsewhere were evident.

8. **Unbearable Vulvar Pruritus.**—Mauclaire's patient was a widow of 34 who had persisting pains in the pelvis and smarting in the vulva, all coming on soon after appendicectomy plus resection of the left ovary and suspension of the uterus by passing the round ligament through the rectus muscles. Five months later the right ovary was partially resected, and this was followed by unbearable pruritus in vulva and vagina. There was no vaginism, and no relief was obtained by any measures except briefly transient relief from hot douches. After the patient had been under observation for a year, Mauclaire resected on the right side the superior perineal branch of the pudic nerve for a segment of 3 cm., back of the transverse muscle of the perineum. On the left side he made the incision against the ascending ramus of the ischium and resected the lower branch of the perineal nerve for a distance of 3 or 4 cm. in front of the transverse muscle. The pains and discomfort in the region disappeared the same day and have not returned since, although there is still vulvovaginal secretion as before the operation. To date, seven months later, there is nothing to indicate atrophy of the vulva. Mauclaire reviews the various methods in vogue for treating vulvar pruritus, and expresses his opinion that this partial resection of the genital branches of the abdomino-genital nerves seems superior to other measures from several points of view, especially by the technic he followed, namely, resection of the superficial nerve on one side and the deep-lying nerve on the other side. He refrained from attempting to anesthetize the vulva entirely, by severing all the abdominal-genital branches, from fear of bringing on trophic changes.

### Bulletin de l'Académie de Médecine, Paris

Dec. 4, 1917, **78**, No. 47

10 *High Heels. E. Quénu and Ménard.—p. 634.
11 *Tuberculosis in Serbian Refugees. Petrovich.—p. 649.
12 Correction of Deformed Jaws. P. Robin.—p. 653.
13 Ossification Process in Supernumerary Fingers. L. D. Chambardel.—p. 656.

10. **Injurious Influence of High Heels on Physiologic Processes.**—Quénu and Ménard call attention to the artificially induced talipes equinus from wearing high heels. The hyperextension of the foot compels the trunk to be thrown back, while the knees are slightly flexed. This pulls on the quadriceps, and this in turn draws the patella up. Moving pictures of the gait with high heels (from 7 to 9 cm., that is, from 2¾ to 3½ inches), compared with the gait of the subjects (three young women) with bare feet, demonstrated the comparative inaction of the muscles of the leg and foot. This entails lesser activity in the nutritional phenomena of the contractile tissue and hence less perfect circulation through the leg. The "induced equinism" as they call it, upsets the architectural balance of the feet and legs, and the effect of the vicious attitudes is felt in the spine and pelvis to such an extent that high heels are directly contraindicated for the growing organism. In the discussion that followed, Barrier mentioned that veterinarians have long been recording the grave consequences of similar defective attitudes of the feet in horses, even although the horse is digitigrade and not plantigrade like man. Chronic osteoperiostitis is the consequence in the horse, and if the fashion of high heels is kept up long enough, a like incurable metatarsophalangeal osteoarthritis may be predicted in consequence. Kirmisson called attention to the tendency to valgus when high heels are worn, from weakening of the crural triceps. Linossier also reported that young girls with orthostatic albuminuria may be cured by having the heels removed from their shoes. The high heels induce and aggravate lordosis, and thus may be responsible for the orthostatic albuminuria.

11. **Serbian Refugees in France.**—Petrovitch states that there are 1,300 Serbian refugees and 2,100 repatriated severely wounded prisoners of war in France. Most of them are making munitions or working on the railroads, and one in every six is tuberculous. The proportion is still higher among the Serbian students. The rate in Serbia was 3 per cent. in 1906.

### Bulletins de la Société Médicale des Hôpitaux de Paris

Oct. 19, 1917, **41**, No. 28

14 Fluid Extract of Salicaria in Treatment of Enteritis in Infants and Adults. H. Dufour.—p. 1029.
15 *Afebrile Spirochete Jaundice. N. Fiessinger and E. Leroy.—p. 1032.
16 *Spirochetosis of Icterohemorrhagiae Type. N. Fiessinger and E. Leroy.—p. 1035.
17 *Streptococcus Septicemia. P. Nobécourt and H. Gimbert.—p. 1037.
18 *Digestive Power of Gastric Juice Tested on Gelatin Tubes. F. Ramond, A. Petit and P. A. Carrié.—p. 1040.
19 Persisting Tremor Consecutive to Malaria. L. Marchand.—p. 1043.
20 Typhoid Form of Spirochetosis. Manine and Cristau.—p. 1045.
21 *Emphysema of the Lungs. L. Galliard.—p. 1048.
22 *Meningococcus Epididymitis. R. Lancelin.—p. 1052.

15. **Afebrile Spirochetosis.**—In two cases of afebrile jaundice Fiessinger and Leroy isolated from the urine a spirochete nonpathogenic for the guinea-pig. In one case the liver was much enlarged and there was albuminuria and azotemia with myalgia, but all the symptoms speedily subsided except that the liver outline is still abnormally large.

16. **Febrile Spirochetosis.**—In another case the symptoms were those of typical very severe spirochetosis icterohemorrhagiae. The case is remarkable only for the abrupt turn for the better after injection of 20 c.c. of "antispiro" serum.

17. **Streptococcus Septicemia.**—Nobécourt says that this was the only case of the kind encountered among the 3,000 soldiers in his service in over a year, with bacteriologic examination of the blood in 600 cases. The sudden onset, high fever, tenacity of the pains in the joints, the purpuric erythema on the arms, and the subconjunctival ecchymosis were special features. The spleen was hypertrophied and the albuminuria intense, but there were no signs of endocarditis although the pulse ran up gradually to 80, 120, 140. Necropsy revealed aortic valvular disease. An infarct in the inferior lobe of the right lung had also escaped detection. Death occurred the eighth day.

18. **Test of Digesting Power of Gastric Juice.**—Ramond adds 5 c.c. of filtered gastric juice to 5 c.c. of a 3 per cent. solution of gelatin in a test tube at room temperature. Tubes 15 mm. in diameter seem the best adapted for the purpose. The gelatin is sterilized at a temperature not surpassing 100 C., and the tube should be kept strictly vertical. He

usually adds 2 cg. of thymol on top of the gastric juice. A ring forms in the gelatin below the surface and makes its way downward. This is the work of the acid in the gastric juice. At the same time the surface of the gelatin grows lower and lower but much more slowly. The progress of this digesting away of the gelatin can be watched by a graduated scale on the tube or a paper behind it. The digestion proceeds normally about 2.5 mm. in twenty-four hours. Several tubes are used for each gastric juice. The test is a simple and practical method of determining the digesting power and the acidity of a given gastric juice.

21. **Emphysema of the Lungs.**—Galliard withdrew about 250 gm. blood and injected camphorated oil, and under these measures the man of 70 was materially relieved from his sudden menacing suffocation. It had come on a few hours before without known cause except a slight chilling, and death seemed imminent. By exclusion, acute ballooning of the lungs was diagnosed. Under the above measures it subsided completely. In a second case a man of 32 with mitral stenosis developed suddenly symptoms suggesting acute edema of the lungs, including blood-stained sputum. Wet cupping and venesection plus a digitalis preparation and restriction to a milk diet were followed by subsidence of the symptoms. They returned a few days later after errors in diet, but no vesicular murmur or fine râles at the base of the lungs could be auscultated from the rear. In front the resonance under percussion was exaggerated, with moist râles. The heart was concealed behind the dilated lungs. The man died in three days but there were no signs of congestion or edema in the lungs; they were merely large, dilated, as if blown up. There was no interlobular or subpleural emphysema.

22. **Meningococcus Epididymitis.**—Lancelin relates that this complication developed the forty-sixth, the twenty-third or the fifteenth day after the onset of severe epidemic meningitis. There was slight fever in only one of the three cases, and the epididymitis subsided without apparently leaving a trace. While it lasted the features closely resembled those of the gonorrheal type. The men were young sailors in the navy and none had had gonorrhea. The true meningococcus was cultivated from one and paremeningococci from the others.

### Journal de Médecine de Bordeaux

December, 1917, **88.** No. 13

23 *Paralysis after War Wounds. A. Pitres.—p. 263. Conclusion.
24 Reclus' Walking Stirrup for Fractured Leg. J. Guyot.—p. 271.
25 Experimental Picric Acid Jaundice. P. Lande and F. Marguery.—p. 277.

23. **Blunders in Diagnosis of Paralysis.**—Pitres refers to paralysis following war wounds of the limbs, complications from injury of different elements, from operations, from hysteria, etc., confusing the clinical picture. The false paralysis may be result of severing of certain tendon fibers or similar injury. The blunders in differentiation teach the imperative necessity for neurologists, in particular, "to think anatomically and physiologically," and to refrain from formulating the diagnosis until after thorough clinical examination and study of the pathogenesis of each of the phenomena observed and exclusion of all the eventualities liable to induce error.

### Lyon Médical

November, 1917, **126.** No. 11

26 *Radium Treatment of Cancer of the Tonsil. M. Lannois and Moutet.—p. 495.
27 *Urticaria with Malaria. C. Garin and C. Pasquier.—p. 499.
28 *Restoration of the Nose. M. Pont.—p. 508.

26. **Radium Treatment of Neoplasms in the Tonsils.**—Lannois and Moutet report the present condition of patients given radium treatment a year or more ago. One young man has nothing left of his tonsils, and the enlarged glands in the neck and axillae have subsided to normal size and shape. He has been an active wage earner during the year since, but recently some enlarged glands were palpated in the inguinal region. They do not seem to be metastases but a new manifestation of the lymphadenia to which he is subject. Two other patients are at work with no indication of recurrence. In a fourth case, a woman of 74 was treated for a lymphosarcoma in the left tonsil. A needle with stout thread was passed through the anterior pillar and the platinum tube containing 48 mg. of radium was drawn by the thread into the depths of the tonsil, a hole being burrowed for each end of the tube in the abnormal tonsil tissue. A small tampon of gauze was placed over it and the tube was left in place for nineteen hours. The dose applied was 912 milligram-hours. Improvement was rapid, the tumor promptly subsiding, and in a month or two both tonsils had completely retrogressed. In another case the cancer in the tonsil was far advanced but the symptoms were notably improved by implanting the radium tube in a slit made with the bistoury in the tumefied tonsil. It was left in place for twenty-four hours, and the condition was much relieved. The application was repeated later, and swallowing became less difficult but the enlarged glands in the neck were not modified. The man is now taking a course of roentgen treatment for them, but his condition is precarious.

27. **Urticaria with Malaria.**—Garin and Pasquier relate that among 135 malarial patients in the malaria hospital at Modane (Savoy) over 30 per cent. developed recurring urticaria with or after the malarial attacks. Diarrhea preceded the urticaria almost invariably, suggesting that some digestive upset was responsible for both. Malarial jaundice was also often accompanied with urticaria. The latter appeared almost exclusively in malarial soldiers with long intervals between attacks, but the attack was then followed by several others at two or three days intervals, first the diarrhea or jaundice and then the urticaria. They indicate severe infection.

28. **Plastic Operations and Prosthesis for the Nose.**—Pont is chief of the "stomatologic center" in the Lyons district, and he gives a number of illustrations before and after plastic operations on the nose. The cartilage implant technic seems to be superior to all other plastic methods. The traumatisms of war have given great experience in this line and fine results have been attained. With syphilitic and tuberculous lesions, extensive burns, cancer or lupus, it is often impossible to count on enough sound tissue to answer the purpose. For these cases and for those with bad outcome after a plastic operation, he applies a wax false nose, held in place by glue and by eyeglasses. This wax prosthesis lasts only three or four days but the patient is taught how to recast the wax. A more durable prosthesis can also be used, but it does not look so natural as the wax one. [The Journal summarized some articles on artificial noses in the issue of April 22, 1916, p. 1361.]

### Paris Médical

Dec. 1, 1917, **7.** No. 48

29 *Imported Tropical Diseases in France during the War. P. Carnot and R. Turquéty.—p. 437.
30 *Chronic Enteritis in Ameba Carriers. G. Mouriquand and E. Deglos.—p. 445.
31 *Technic for Detection of Ameba Cysts, etc., in Stools. J. Carles and E. Barthélemy.—p. 453.
32 Relapsing Fever in Macedonia. P. Armand-Delille and H. Lemaire.—p. 455.
33 Beriberi at Marseilles in Troops and Coolies from Indo-China. J. A. Sicard and others.—p. 459.
34 Prophylaxis of Malaria in Macedonia. Visbecq.—p. 463.

29. **Amebic Dysentery in France.**—The presence of troops from the colonies in France and the expeditions of French troops to Macedonia and elsewhere have made amebic dysentery one of the prominent questions of the day, as it is liable to gain a foothold before its true nature is suspected. Nothing but the discovery of the amebas or their cysts in the stools renders the diagnosis certain. The stools must be examined fresh or be kept at body temperature as the amebas lose their motility when chilled. Their movements and the red blood corpuscles included in their endoplasm are the chief differentiating features. The cyst is quite small and has only four nuclei. The cysts keep well in formol, and show up better when treated with a drop of Gram's solution. The amebas or cysts can be obtained more certainly after a purge or injection of an irritating iodo-iodid solution or intravenous mercurial injection. The frequent association of amebas with other microbes hinders differentiation, while the clinical picture is liable to be modified thereby. Carnot has encountered three cases of an ameba abscess in the lung, healing under

emetin. This cures the acute phases and ameba liver abscesses but it seems powerless against the encysted form. The cysts lie in the depths of old ulcerations through which there is little circulation of blood and hence they escape the influence of drugs. To overcome this, he injected into the rectum oxygen passed through an Oudin *ozonateur,* the gas distending the intestine as it enters loop after loop. It is borne well even when there is spasmodic contraction, and as the walls are distended the crevices are smoothed out, and thereafter no further amebas or cysts were found in any of the six men thus treated. The injection was given twice a day and retained.

30. **Chronic Amebiasis.**—Mouriquand and Deglos insist on the necessity for repeated reexamination of the stools with chronic diarrhea. The elimination of the ameba or its cysts is irregularly intermittent, and one or two negative findings are not conclusive. Mastication must be supervised with special care, especially of vegetables, and the diet should not bring on fermentation diarrhea. They give four series of six daily injections of emetin, with six day intervals. After the emetin a series of four injections of neosalvarsan at six day intervals, concluding with a final series of six injections of emetin. The diarrhea itself is combated, and not until the clinical picture has much improved and the stools have given negative findings on four weekly examinations is the man regarded as ready for dismissal as convalescent.

31. **Detection of Ameba Cysts.**—Carles and Barthélemy comment on the necessity for examining the stools for amebas at the very bedside, especially in winter. In chronic cases it may be necessary to obtain mucopus by rectoscopy directly from the ulcerating surface. The cysts keep well with 10 per cent. formol or a few centigrams of trioxymethylene. They work with a homogeneous emulsion of 20 or 25 gm. of stool in saline with 10 per cent. formol. This is passed through brass wire netting of 1 mm. mesh; then through a silk filter laid without folds in a funnel. The silk is about 15 cm. square and is of the kind used by millers, called bolting cloth. In examining for cysts, a silk is used with 63 threads to the centimeter, the interstices averaging 100 microns. For trematod eggs, silk with 32 threads to the centimeter, and for microphotographic work, No. 90, that is, averaging 90 threads to the centimeter. The stool fluid after the second straining is centrifuged for one minute at 1,800 turns. More rapid centrifugation is liable to deform or burst the elements. The supernatant fluid is decanted and the residue is diluted with a 12 per cent. solution of citric acid with 2 per cent. formol, specific gravity 1.047.

Enough space is left in the tube to add 1 or 2 c.c. of ether and the whole is vigorously agitated and then centrifuged anew at 1,800 turns for thirty seconds. As the ether rises, it carries up particles with it, and the pellicle thus formed at the zone of junction of the ether and the rest of the fluid is broken up with the tip of a pipet to release the solid particles. After centrifuging again for thirty seconds, all the fluid is decanted, leaving nothing but the small clot which contains the cysts of protozoa, helminth eggs and possibly some débris of food. All the blood corpuscles and fat and the greater part of the bacteria have been eliminated. This "sieve and similihomogeneization" method, as they call it, shows up associated parasites as well as the ameba cysts. They are convinced that many ameba diarrheas are kept up by superposed parasitism. By curing the latter, the former can be successfully eradicated. In Mauté's experience, clearing the bowel of ascarides permitted the cure of otherwise refractory amebiasis. Others have had similar experiences with the lamblia and the trichocephalus. When the stools fail to show encysted amebas, the finding of other parasites may explain the clinical picture. Even the *Endamoeba coli* may acquire pathogenic properties under certain circumstances. Differentiation of all these is simple, easy and complete in ten minutes, they say, by the technic here described.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 1, 1917, **47**, No. 48

35 *Allergy with Skin Diseases. W. Lutz.—p. 1601.
36 *Drugs that Influence the Temperature. R. Isenschmid.—p. 1610.

December 8, 1917, **47**, No. 49

37 *Symposium on Goiter. T. Kocher.—p. 1633; C. Roux.—p. 1655; A. Kocher.—p. 1673; E. Bircher.—p. 1678; J. Kopp.—p. 1682; F. de Quervain.—p. 1688; K. Arnd.—p. 1694; E. Kummer.—p. 1697.

35. **Allergy with Skin Diseases.**—Lutz reviews the present status of our knowledge in this line and points to certain questions still waiting for solution. Among them is the query why tuberculids are so rare in comparison to the prevalence of mild internal tuberculous affections. Also why they occur under such different forms in different persons when other conditions seem to be identical. The assumption that idiosyncrasies are of the nature of allergy has been sustained by Bruck's successful transmission of an idiosyncrasy to pork, and by Rosenthal's experience that Tartar children brought up on mare's milk may display anaphylaxis to horse serum Idiosyncrasy to drugs seems to be more complex. To date no one has succeeded, he declares, in passive transmission of an idiosyncrasy to drugs, as has been realized with albuminous substances.

36. **Drugs that Influence the Temperature.**—Isenschmid remarks that for a drug to have a durable influence on the temperature of the body it must act on the heat regulation center. Most of the drugs of this kind are poisons for the nervous system, and especially for the vegetative nervous system. The sympathetic system seems to be responsible for the rise in temperature and the autonomic for the drop. This antagonism between these systems is perhaps most plainly apparent in the action of drugs on the pupil. Drugs that dilate the pupil usually have the faculty of raising the body temperature, while those that contract the pupil, like pilocarpin, reduce the temperature when introduced into the blood. The strong sedatives have also a temperature reducing action, as they act on both the components of the heat regulation center, the end result being a decline in the temperature. The drugs that have a special antipyretic action, including quinin, are all sedatives, and owe much of their vogue to the general tranquilizing and pain relieving effect. They reduce the excitability of the heat regulation center and by this means depress the fever. The central action has been proved by the typical reduction of the temperature when a minute amount of some drug of this group is introduced directly into the brain of the animal. The fever induced by injection of salt, of hemoglobin, peptone and other substances evidently is the result of irritation of the heat center, and this is also the case in infectious diseases, the bacterial toxins irritating this center. The fever with anaphylaxis is of the same mechanism. Drugs that reduce the irritability of the heat center are thus logically indicated in treatment of fever of infectious origin, but heat is the normal, centrally acting antipyretic; and cold is the normal, physiologic, likewise centrally acting temperature-raising means. The higher and lower external temperatures are conveyed to the heat center by way of the blood. The glands with an internal secretion may also be involved; certain facts already observed suggest this, especially the difference in the behavior of the rabbit surviving heart during heat puncture fever if the thyroid has been removed.

37. **Goiter: Treatment and Prophylaxis.**—Over sixty-seven pages are devoted to the addresses and discussion on goiter at the last meeting of the Swiss Surgical Association, March 10, 1917. Kocher discussed the history of operative treatment of ordinary goiter and means to ward off goiter. He emphasized the importance of the blood picture as an index of whether the thyroid functioning is deficient or in excess. With hypothyreosis the enlarged thyroid should be reduced in size only what is absolutely necessary to relieve mechanical disturbances, leaving as much of the functioning gland tissue as possible. The arteries should not be ligated if it can be possibly avoided, as this is liable to devitalize the tissues nourished by them. On the other hand, with hyperthyreosis, the operation should remove enough of the gland, but never the whole, and the functioning should be checked by ligating the main arteries, with or without excision. Kocher advocated enucleation of the diseased tissue while retaining the sound tissue. This guarantees better against recurrence, he said, than Mikulicz' wedge excision and the Porta-Socin method of enucleation. With vascular or exophthalmic goiter

more than two arteries (3 or 3½) must be ligated to ensure hemostasis. All four or five arteries should not be ligated except at two sittings. What he called the primary subperithyreal ligation of the arteries, especially the inferior, seems to be the simplest and safest technic when the perithyreum is free.

The mortality of goiter operations has been brought down in fifty years from 30 per cent. to 3 per thousand and further progress can be only in the line of prevention. For this he advocated modifying the drinking water by addition of a minute amount of iodin. In the endemic foci the children first show signs of goiter after a few months in school; the confinement in school predisposes them to feel the effects of the unknown substance that causes goiter. On the other hand, army service is liable to cause the retrogression of established goiter. Güttinger reported that in one group of 417 young recruits—all just 20—331 showed goiter at the beginning of their military service, but no signs of goiter could be discovered in 146 of them at the close of their service. Of seventy-six visible goiters all had retrogressed except 21 per cent., and of 138 goiters evident on palpation, only 58 per cent. could still be felt by the end of their term of service. These facts confirm the importance of hygiene and outdoor life in warding off goiter. Kocher cited experiences which demonstrate the favorable action of iodin in the earliest phases of endemic goiter. Also the experiences with fishes which developed goiter in certain ponds and the goiters retrogressed when a minimal amount of iodin was added to the water. He therefore suggested that in endemic foci of goiter the younger schoolchildren should be encouraged to drink freely of water prepared with a minute amount of iodin. This in connection with good ventilation, clothing that does not bind anywhere, regular bowel movements, and plenty of exercise in fresh air will tend to ward off the development of goiter. That good drinking water not only prevents goiter but aids in the retrogression of old goiters, was proved by his experience with Lauterbrunnen water supplied to 75,000 schoolchildren in the Bern district. He urged that this water should be barreled for the schoolchildren.

37. **Goiter.**—Roux gives charts showing how the number of operative cases in Switzerland has increased from eight in 1870-1875 to 7,809 in 1911-1915, while the postoperative mortality has dropped from 12.5 to 0.66 per cent. Of this mortality, pneumonia formed over 37 per cent. Permanent injury of the recurrent nerve occurred in 1.22 per cent. of the 20,654 Swiss operative cases he has compiled, and transient injury in 0.81 per cent. It does not depend on the technic so much as on the gravity of the case. As the goiter is drawn out, the recurrent nerve may be stretched or it may be injured by some hasty movement in case of hemorrhage from rupture of the inferior thyroid artery, or in shelling out nodules at a second operation. The anastomoses or newly formed arteries are so numerous that in clamping them the nerve may get pinched. He warns further that in elderly fat women some of their nerves can be compared only to fresh butter, and they should be left strictly alone. In any event, he continues, no one who has never had an injury of the recurrent nerve should set himself up as a medicolegal expert and pass judgment on one who has. His turn will come if he keeps on operating. Another point on which Roux dwells is the rapidity and treachery of recurrences after quadruple ligation.

37. **Recurring Goiter.**—A. Kocher relates that he had permanent injury of the recurrent nerve in six of his 1,200 goiter operations, with transient injury in twenty-three. Postoperative pneumonia can be warded off with practical certainty in nearly every case, and the mortality has been reduced to the minimum with Kocher's enucleating or excision-resection method. The main point is to leave sufficient functionally capable tissue. Quality is of more importance than quantity, and it is necessary to keep from injuring the thyroid tissue during the operation. These two points render it necessary to avoid extensive operations on both sides. To relieve the trachea from pressure, to correct the stasis and to leave sufficient functioning tissue, it is better to operate only on one side of the goiter at one sitting. The so-called recurrence operation, namely, removal of part of the other half, can be done later, and if the Kocher enucleation resection is correctly applied, the results have been so excellent that this can be recommended without hesitation.

37. **Goiter in the Tuberculous.**—Bircher makes a point of operating on goiters in patients with pulmonary tuberculosis. This removes the obstruction to their breathing and gives them a better chance for healing of the lung process.

37. **Trachea Flattened by Goiter.**—Bircher gives an illustrated description of the way in which he passes a thread through the side wall of the flattened trachea and then through the sternocleidomastoid muscle. A series of such threads on each side holds the lumen of the "saber-sheath" trachea open. Some of the threads can be brought out in front. In one case he applied eighteen of these supporting threads, the trachea having been squeezed flat down deep into the thorax and there had been several attacks of suffocation during the operation.

37. **Injury of the Recurrent Nerve.**—Kopp reported that in his 812 goiter operations the recurrent nerve had been injured in 1.7 per cent. He had noticed in his own and others' experience that this injury did not occur at the point where it was most liable, namely, at the ligation of the inferior artery. This he explains in the same way as Alpine guides explain that accidents rarely occur at the most dangerous points, but only when caution is relaxed.

37. **Types of Goiters.**—De Quervain gives an illustration of the four main types as calling for excision, resection or shelling out of the cysts or nodules. He makes a point of ligating the inferior thyroid artery as the first act of the intervention, with rare exceptions. But he always refrains from ligating all four arteries; three or three and a half is the maximum, and two the average number ligated. The main thing is to protect against injury of any kind the part of the goiter that is to be left. Only with diffuse follicular and with exophthalmic goiters, the ligation has direct therapeutic importance, and only when extensive. In twenty-one cases of exophthalmic goiter or diffuse hyperplastic goiter, he applied ligature alone in treatment but restricted it to three and a half arteries. There were no evidences of tetany thereafter or other symptom of hypofunction.

37. **Pneumonia after Goiter Operations.**—Pneumonia was responsible for all but one of Arnd's twenty-six fatalities in 1,300 operations for goiter. All but one were in his public hospital service, and he is inclined to ascribe the pneumonia to the lack of hygiene in the mouth of this class of patients. "If we had an effectual antiseptic for the mouth the statistics for goiter operations would improve." Long operations also favor pneumonia, as the position of the head is liable to entail nausea and vomiting in time.

37. **Ligation for Hyperthyreosis.**—Kummer reports the case of a boy of 13 with goiter, tachycardia, 60 per cent. neutrophils and 27 per cent. lymphocytes. Ligation of both inferior thyroid arteries and the anterior branches of the two superior thyroid arteries was followed by rapid subsidence of the thyroid to normal size. By the seventh month pronounced symptoms of hypothyreosis were manifest, but no deficit in parathyroid functioning. Under thyroid treatment the boy threw off the myxedema and by the thirteenth month seemed in good condition, and further treatment was abandoned.

## Policlinico, Rome

November 11, 1917, **24**, No. 46

38 *Associated Movements after War Wounds. L. Roncoroni.—p. 1353.
39 War Wounds of the Elbow. P. d'Alessandria.—p. 1358.
40 *No Alcohol in the Hospital Fare. G. Jona.—p. 1361. Concluded in No. 47, p. 1391.

November 18, **24**, No. 47

41 *Five-Day Fever. A. Ceconi.—p. 1381.

November, **24**, Surgical Section, No. 11

42 *Malignant Edema without Gas. I. Scalone.—p. 433. Conclusion.
43 *Intracranial Enterococcus Complications of Otitis. P. Caliceti and R. Vaglio.—p. 450.
44 *Technic for Arthrotomy of the Knee after War Wound. R. Mosti.—p. 458.
45 Experimental Lesions of the Pituitary Body. A. Chiasserini.—p. 469. To be continued.

38. **Synkinesia.**—Roncoroni applies this term to the unintentional movements accompanying a volitional movement in men who have been wounded in war. He analyzes the synkinesia from imitation, from incoordination, and from global synkinesia, seeking the causal factors in each type of this automatism. Although the symptoms differ widely, yet the basis of the synkinesia seems to be the same for all.

40. **Hospital Fare Without Alcohol.**—Jona gives the statistics from the Venice hospital connected with the medical school to show that no harm has resulted from the complete discarding of wine and brandy. The educational effect from the suspension of alcohol has been most excellent and widespread. Even the elderly chronic cases seem to do just as well without it, and 78 per cent. assured the investigators that they did not feel the loss of the wine as a privation, and the others seemed to miss it only as an agreeable relish. None showed any signs of physiologic loss from its absence although all had been accustomed to a little wine every day.

41. **Five-Day Fever.**—Ceconi describes in detail the peculiar fever with pains recurring at five-day intervals, as a rule, during four or five weeks. No deaths have been known from it, but it keeps the men out of the ranks for seven or eight weeks in all. Quinin seems to be ineffectual, but neosalvarsan sometimes has relieved while no effect was apparent in other cases. The main indication is to relieve the severe pains. The tibia is the chief seat. A constricting band has helped in some instances. A favorable influence on the course was sometimes noted under continuous use of arsenic internally. The disease seems to be transmitted by the body louse, but its causal germ is still unknown.

42. **Malignant Edema Without Gas.**—Scalone reports five cases in which the malignant infection had developed after comparatively slight wounds with crushing of muscle tissue. The path of the projectile was a tract of putrid mortification and edema developed early. It spread to the end of the limb but not up to the trunk. Death occurred from heart failure in every case, although the conditions did not seem at all menacing as there was neither gas nor spreading gangrene.

43. **Otitic Complications with the Enterococcus.**—Caliceti and Vaglio describe three fatal cases of purulent meningitis and thromobophlebitis of otitic origin from which the enterococcus was cultivated. The stormy onset and rapidly fatal course suggest that enterococcus infection of the middle ear is characterized by special gravity. In one case there had been recurring otitis media for four years; in the others the otitis was of recent origin, two months or ten days, and had been exceptionally destructive even before the intracranial complications.

44. **Technic for Operating on the Knee after War Wounds.**—Mosti says that a U incision comprising the patellar ligament gives exceptional facilities for draining the articular cavity, while it permits free access to the whole joint and thus facilitates extraction of projectiles, splinters of bone and foreign bodies. The objection to this has been that the flap thus formed retracts and the severed patellar ligament never regains its former strength. He obviates this by keeping the flap stretched all the time. Two broad strips of adhesive plaster are fastened to the skin of the flap. Their outer ends form a loop through which is passed a piece of rubber tubing. The plaster cast is made with a metal rod projecting for 10 cm. beyond the sole of the foot. To this rod is fastened the rubber tubing fastened to the U flap over the knee. This keeps the flap slightly stretched and slanting up a little from the front of the knee, leaving the articular cavity gaping. He keeps it irrigated by the Carrel method, but prefers Giannettasio's fluid for the purpose. When ready to suture, the stumps of the patellar ligament are freshened, as also the edges of the entire U incision, and the ligament is sutured with catgut, the rest held together merely with clips. Capillary drainage can be kept up for a time longer, to drain the recess back of the quadriceps. If resection has reduced the size of the joint, there is no fear of retraction of the flap, but the above technic still is superior as it provides so excellently for drainage. He has been applying it for several months with excellent results and describes three cases in detail to show its advantages in different types of cases.

### Riforma Medica, Naples

Nov. 10, 1917, 33, No. 45

46 *War Wounds of the Skull. S. Salinari.—p. 1053.

Nov. 17, 1917, 33, No. 46

47 Multiple Osteomyeloma with Albumosuria. (Morbo di Kahler.) A. Testi.—p. 1073.
48 Signs to Differentiate Pyramidal Disease. F. Bonola.—p. 1078.
49 Indications for Spinal Anesthesia. G. Cocci.—p. 1079.

46. **War Wounds of the Skull.**—Salinari remarks that the metal helmets now worn answer their purpose admirably "except for being antihygienic and anti-esthetic," but that some addition should be made to them to protect the temples. He states that 12 per cent. of the total 15,000 wounded had been wounded in the head. In 5 per cent. of these the wounds were in the face. Injury apparently of the soft parts alone should always be distrusted; the destruction or contusion of nerve tissue always extended beyond the bone lesion. A large proportion of the men with skull wounds seemed to bear them at first without much general disturbance. They might complain of the painfulness of the wound, but they were able to walk about, and several remarked that if they had not been bleeding so much they would not have thought of going to the dressing station. Even many men with severe focal symptoms recovered completely in a few days after trephining, and have shown no disturbances since. "War surgery has certainly triumphed in skull wounds." The traumatic shock was allowed to subside, as a rule, before operating. The routine procedure in case of a mere dent in the skull was to examine at once with the roentgen rays. If the findings were negative, the soft parts were drained and the man kept under supervision for a certain time after healing. When the rays showed signs of irritation or injury of the meninges or brain, but the skull intact, the rule was to wait a few days to see whether conditions were improving, ready to trephine promptly if they grew worse. This was done earlier if the cerebrospinal fluid was blood stained. If the dura was found intact and of normal aspect, nothing further was attempted as the decompression and removal of loose scraps of bone in case of partial fracture generally turned the scale in favor of recovery. Under other conditions, an exploratory operation was done, and this was the rule also at once in grazing wounds, whatever the state of the skull. No delay was allowed with these grazing wounds, and the degree of injury of the brain below and the promptness of recovery after the intervention were both surprising. In extracting splinters of bone, they must be held parallel to their natural position, as in turning them around they are liable to injure the meninges. The exploration and clearing out of the wound may require the enlarging of the hole in the skull, and this can be done without fear. No attempt was made to suture early. Paresis from compression disappeared promptly, in twenty-four hours at least. The disturbances in speech were the latest to retrogress.

Hernia of the brain was treated with compression. This was usually applied by means of a gauze disk over which were loosely sutured flaps of the surrounding skin, according to Delagenière's method. The head was kept high, and lumbar puncture was done if much headache came on. After eight or ten days, the sutures were cut, a fresh disk of gauze was introduced and the skin sutured again, drawn a little tighter. If the prolapsed mass seemed to be growing softer and more wine colored, he cauterized it with the actual cautery, plunging the tip at ten or twelve different points without going deeper than the base of the hernia. No attempt was made to close the gap in the skull at once, but a secondary plastic operation is desirable as the men with an open space in the skull keep worrying about it, and some have pain in the region at times. Five or six months after the primary healing he closed the gap in a few cases with a plate of aluminum or perforated ivory. The metal seemed to aggravate the subjective symptoms and the ivory was gradually absorbed. Better results were obtained with a rabbit scapula and best of all with the patient's own costal cartilages with the perichondrial surface turned toward the brain. In one case long under observation the cartilage technic has answered the purpose perfectly and has persisted unmodified.

This technic seems superior to all others as the cartilages form a yielding cover for the gap. Soldiers who have had a penetrating wound of the skull must be apportioned thereafter to light duty only. Men with a skull wound can bear immediate transportation without much harm, but once they have been operated on they should not be evacuated until healing is almost complete. Operations on the skull, therefore, should be done at a post from 10 to 20 kilometers back of the actual fighting line. If the injury was extradural, the man can be evacuated when cicatrization is complete, but when intradural, the resting period should be much longer.

### Revista de la Asociacion Medica Argentina, Buenos Aires

October, 1917, **27**, No. 155

50 Reenforced Technic for Operating with Umbilical Hernia. A. J. Bengolea.—p. 409.
51 *Syphilis of the Uterus. J. Bordarampé.—p. 417.
52 Anuria from Calculus in Single Kidney. E. Castaño.—p. 423.
53 The Mineral Springs of Argentina. E. H. Ducloux and P. Belou.—p. 430. Continuation.
54 *Epinephrin in Heart Block. P. J. Hardoy and B. A. Houssay.—p. 462.
55 Hemophiliac Joint Disease. G. Madero.—p. 472.
56 Roentgen Study of Ileal Constipation. J. A. Saralegui.—p. 493.

51. **Syphilis of the Uterus.**—Bordarampé has been making a special study of the direct influence of syphilis on the uterus, tubes and ovaries and the importance of specific treatment, alone or as a preliminary to operative measures. He describes two cases in which there were evidently gummatous lesions in the uterine walls. The Wassermann reaction was positive, and in one case uterine hemorrhages and watery discharges had returned every week or two for nearly two years. The woman had three children. Cureting failed to show any signs of cancer, but the uterus was evidently sclerous with small interstitial hemorrhagic foci. Under mercurial and potassium iodid treatment the hemorrhages ceased and the uterus shrank to normal size and smoothness, and menstruation returned to normal.

54. **Action of Epinephrin in Heart Block.**—The experiments on dogs and the clinical experiences related confirm that epinephrin does not break up heart block when there is total dissociation. It may even bring on partial heart block in hearts with apparently normal conduction of the impulse. The epinephrin accelerates the rhythm of the auricles and ventricles but it acts on them separately, and they retain their independent beat in the total block cases.

### Revista de Medicina y Cirugia, Havana

Oct. 25, 1917, **22**, No. 20

57 Reactivation of Wassermann Reaction. B. Saenz.—p. 533.

Nov. 10, 1917, **22**, No. 21

58 *Uterine Cancer in Cuba. E. R. de Aragon.—p. 559.

58. **Uterine Cancer in Cuba.**—De Aragon insists on the importance of uprooting the popular impression that cancer is inevitably fatal from the first. At the Tamayo dispensary in Havana, fourteen had cancer of the 450 women patients, and in all the malignant disease was beyond an operation when first seen. He warns that because cancer is most prevalent between 40 and 70, is no reason for neglecting to examine younger women for cancer. One of the fourteen women was only 22 and the cancer of the cervix and vaginal walls was beyond operative measures. Small hemorrhages after coitus are among the earliest symptoms. There were 132 deaths reported in Cuba in 1902 from cancer of the female genital organs, seventy-five white and fifty-seven negro women; in 1911 the figures were respectively 199 with 133 white and sixty-six negro women.

### Mitteilungen a. d. med. Fakultät. der k. Univ. zu Tokyo

June, 1917, **17**, No. 4

59 *Viscosity of the Blood with Experimental Anemia. S. Saneyoshi.—p. 401.
60 *The Pharmacologic Action of the Poison of the Tetrodon Globe Fish. T. Itakura.—p. 455.
61 Changes in the Blood of Animals after Injection of Typhoid Bacilli. H. S. Tachigara and Y. Miura.—p. 539.
62 *Changes in the Blood of Splenectomized Puppies. S. Tachigara and T. Takagi.—p. 563.

59. **Viscosity of the Blood in Experimental Anemia.**—The findings in large numbers of rabbits are tabulated and compared with data from the literature. They all apparently confirm the assumption in regard to the persisting viscosity of the blood even during extreme anemia. As long as the organism is capable of reaction, the viscosity tends to keep on a normal plane.

60. **Fish Poison.**—The fish producing tetrodotoxin are of the balloon and puffer types. It seems to paralyze the local nerve fibers, but requires large doses for a paralyzing action at a distance (frogs).

62. **The Blood in Splenectomized Puppies.**—The number of erythroblasts increases markedly, up to 5,000 per cubic centimeters after splenectomy. The changes in the blood in puppies seem to be the same as in grown dogs after removal of the spleen, although the spleen in puppies is proportionally much larger.

### Russkiy Vrach, Petrograd

Sept. 16, 1917, **16**, No. 33-37

63 Brilliant Green, Flavine and Other Stains in Treatment of Wounds. G. I. Turner.—p. 481.
64 *Ether-Oil Anesthesia by the Rectum. B. N. Kholtzoff.—p. 482.
65 Improved Technic for Administering Concentrated Solutions of Salvarsan, Arsol and Arsaminol. N. A. Solovieff.—p. 486.
66 The So-Called Pseudo-Aneurysms. N. A. Dobrovolskaya.—p. 487.
67 *Prolapse of the Brain with Wounds of the Skull. V. N. Novikoff.—p. 489.
68 Action of Different Alkaline and Alkaline-Earthy Metals on the Vessels of Internal and Peripheral Organs. M. I. Gramenitzky.—p. 493. To be continued.
69 Vaccine Therapy in Typhoid. A. V. Lavrinovitch.—p. 497.
70 Vaccination against Typhoid. V. T. Trileff.—p. 500.
71 Some Cases of Tropical Ulcer in Soldiers. B. A. Bolter.—p. 504. To be continued.
72 Alkalinity of the Saliva under Different Conditions. M. A. Smirnitzkaya.—p. 507.

64. **Ether-Oil General Anesthesia by Way of the Rectum, Especially for Operations on the Kidneys.**—Kholtzoff says that he knows of over 1,000 cases in which anesthesia has been induced by injection of ether and oil into the rectum. Four fatalities from it have been reported in Russian literature. One was evidently due to the unusually large amounts of ether used and the small proportion of oil. The second was described recently in The Journal, Sept. 8, 1917, p. 857. A third was in a case of severe suppurative processes in the cervical vertebrae and vicinity, with intense septicemia; in the fourth, death occurred from paralysis of the respiratory apparatus several hours after the rectal anesthesia during a gynecologic operation with Trendelenburg position. Kholtzoff also reports a case from his own experience, death occurring a few hours after the ether rectal anesthesia. The patient was a man of 28 with tuberculous pyonephritis which had followed a bladder affection, and the man was debilitated by nearly a year of incessant fever. He died a few hours after the nephrectomy, evidently from operative shock. Kholtzoff mentions as serious complications that have been observed by Russian surgeons, a case of bronchorrhea, one of transient asphyxia during the operation and one of asphyxia three hours afterward, and postoperative jaundice in one case. The question as to the dosage is still unsettled, but the experience to date seems to indicate that 0.9 gm. ether to 0.9 pound of the patient's weight is the maximum dose. Also that the ether and the oil should be in equal amounts. But he warns that this estimation by body weight is more or less arbitrary. For example, a person with dropsy and one with obesity rightfully should have the weight of the dropsical fluid and of the excess of fat deducted before calculating the ether dose. In his fatal case the man weighed 135 funts ($135 \times 0.9$ pounds $= 121.5$ pounds) and the mixture injected into the rectum totaled 120 gm. ether and 130 of oil.

He cites recent research by Bolyarsky which demonstrated a constantly injurious influence on the kidneys from chloroform, while with hedonal intravenously, and with ether, the indications constantly demonstrated that the kidneys had not suffered at all or only extremely slightly and transiently. For this reason Kholtzoff thinks that the ether-oil rectal anesthesia is specifically indicated for operations on the kidneys. He has performed fifteen operations on the kidneys under the ether-oil rectal technic, all successful, with smooth recovery, except in the fatal case described above. There was never any vomiting, and by the second or third hour after the operation the work of the kidneys did not differ from what it had been before the operation. The functioning of both kidneys or of the remaining kidney was on the proper plane.

He commends this method of anesthesia therefore particularly for operations on the kidneys or when we suspect that the kidneys are diseased; also for operations on the head and face in which the mask interferes with the work; also for exceptionally long and tedious operations, and also when the patient is much exhausted or when there is reason to anticipate trouble from ether by inhalation on account of cardiovascular disturbance. The work issues from the urologic department of the Obukhovsky hospital and the surgical department of another hospital at Petrograd. Kholtzoff makes a point of injecting a small dose of some sedative subcutaneously an hour before the operation, and he thinks that to this he owes his success with smaller doses of the ether than others have deemed necessary. He has often found 0.7 gm. of ether per 0.9 pound of body weight sufficient for complete anesthesia by way of the rectum. He emphasizes the necessity for rinsing out the rectum at once at the close of the operation, using a drain tube 20 or 25 cm. long and another 5 or 10 cm., pouring in the rinsing fluid through the longer tube and continuing the rinsing until the emerging water has no further smell of ether. He used always an equal amount of the ether and of the oil or a little more of the oil, thus 1 gm. of oil to 0.7 or 0.8 gm. ether. This protected the rectal walls against the irritation from the ether and none of the patients complained of smarting.

67. **Prolapse of Brain Tissue after War Wounds of the Skull.**—Novikoff has had 32 men with severe hernia of the brain tissue, and tried various methods of treatment as advocated by different authors. Among others he tried Irvin's method of dressing the hernia with a 40 per cent. solution of liquor formaldehydi. This proved disastrous as a dry eschar formed and stuck to the dressings, tearing the brain tissue as the dressings were removed. The method found best from every point of view was to pour warm sterilized liquid petrolatum over the herniated brain tissue and cover with gauze dipped in the same, with a dry dressing outside. The region was protected with a kind of turban, a large ring of cotton wrapped in gauze, placed as a high wall around the exposed brain. It is easily held in place by sticking it to the skin with a little glue. He thinks it is more than chance that the 9 patients treated with the liquid petrolatum all recovered, including 3 with an abscess in the brain. The total mortality was 50 per cent. in his 32 cases. Demme in 1859 had 16 deaths in 21 cases; all of Pirogoff's cases of the kind terminated fatally (1854-1855); in the American Civil War of 1861-1865 Hildebrandt reported 36 deaths in 43 cases; Stevenson in the Boer War, 7 in 12; in the Russo-Japan War, 32 in 59 cases. Novikoff's 16 deaths in 32 cases compare favorably with these figures.

If the patient is seen soon after the wound and the temperature is normal and general condition good, we are justified in waiting to see if the prolapsed brain will not subside spontaneously. Under other conditions the question is whether there is suppuration in the depths or not. The brain should be punctured in various directions, seeking for pus. If none is found, he advises to introduce the puncture needle in the direction of the lateral ventricle, investigate the character of its contents, and drain if there is pus. He found pus accumulated at the base of the hernia of the brain in 11 cases, and pus in the lateral ventricle in another case. In 2 others there was acute hydrocephalus; both these patients recovered. Of 14 with an abscess in the brain, 8 died; 2 without an operation and 6 after an operation to drain the pus pocket. The congestion, hyperemia and accumulation of blood or cerebral fluid readily explain the tendency to hernia on the part of the brain tissue, and the spontaneous subsidence as conditions in the tissues otherwise tend to approximate normal. Radical measures are absolutely uncalled for.

### Hospitalstidende, Copenhagen

Nov. 7, 1917, **60**, No. 45

73 *Congenital Neuroblastoma. P. Hertz and K. Secher.—p. 1093.

73. **Congenital Tumor in Suprarenal.**—The male infant died at the sixteenth month from acute meningitis. A congenital tumor in the left suprarenal had been overshadowed by a large metastatic tumor in the liver. At the age of 2 months the abdomen measured 49.5 cm., the chest 37 cm. The tumor in the suprarenal did not begin to grow rapidly until the thirteenth month. Necropsy disclosed that it was a so-called neurocytoma or neuroblastoma. About thirty similar cases are on record. The oldest known case was in a child of 9; eighteen of the children died in the first year of life. In only five of twenty-one with full data was the growth bilateral. The huge metastatic tumor in the liver and the manifestations of Addison's disease after the sixth month of life were special features of the case here reported. It is illustrated and the literature analyzed in detail.

### Norsk Magazin for Lægevidenskaben, Christiania

November, 1917, **78**, No. 11

74 *Functioning of the Liver in Pathologic Conditions. L. Dedichen. —p. 1241. To be continued.
75 Postpartum Hemorrhage from Atony of the Uterus. A. Arnesen. —p. 1360.
76 *Bone Cysts and Sarcomas. E. Platou.—p. 1365.

74. **Functioning of the Liver in Pathologic Conditions.**—Dedichen describes in this first instalment what has been accomplished to date in estimation of the functional capacity of the "king of the organs." He says of urobilinuria that it is encountered with heart disease only when there is stasis in the liver. This condition was realized in all but four of his sixty cases of heart disease. It is a constant symptom with liver disease when the bile is not shut off from the bowel. In his 114 cases of liver disease, urobilinuria was most pronounced with stasis liver, cirrhosis, and syphilis of the liver and catarrhal jaundice. In one case of cirrhosis, confirmed by necropsy, urobilinuria and bilirubinuria alternated regularly but the stools were free from urobilin. In another case of cirrhosis there was constantly bilirubinuria with clay-colored stools. Anemia from destruction of blood is accompanied by urobilinuria, but not secondary anemia. Primary anemia must therefore be excluded before accepting urobilinuria as a sign of liver incompetency. Typhoid, pneumonia and scarlet fever are usually accompanied by urobilinuria, and some declare that recovery should not be considered complete until the urobilin findings are normal. With poisoning of different kinds, including alcohol, the persistence of urobilinuria seems to indicate a tendency to cirrhosis already installed. In five cases of typical exophthalmic goiter, urobilinuria was constant and he found it in 83 per cent. of 60 pregnant women, but fluctuating and not pronounced.

With rare exceptions, he declares, pronounced urobilinuria must be regarded as a sign of absolute insufficiency of the liver. He applied various parallel methods for determining the urobilin in the urine and stools. The simplest test for urobilinuria is to add tincture of iodin, a drop at a time, and thereon an equal amount of Schlesinger's reagent and filter at once. The fluid shows fluorescence with positive findings. His tests with levulose, galactose and dextrose on fifty-eight patients with various forms of liver disease showed that alimentary elimination of sugar is a common symptom with liver affections, and, when pronounced, can be regarded as a sign of insufficiency of the liver. With catarrhal jaundice, galactosuria seems to be constant, and levulosuria occurs in over 62 per cent. Other tables show the blood sugar content before and after these tests and the nitrogen metabolism findings.

76. **Bone Cysts and Sarcoma.**—Platou relates the present status in four cases of bone cysts with giant cells in which the diagnosis had wavered between simple fibrous ostitis and sarcoma. The giant cells and certain other findings seemed to indicate malignant disease, but as the patients are still in good health from one to two years since the operation, the benign nature of the process seems to be established. The leg was amputated in one of the cases, but this seems now to have been unnecessary. This giant-cell, richly cellular structure encountered in certain forms of bone disease can be safely given conservative treatment. His original report on these cases was summarized, Dec. 30, 1916, p. 2042.

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# THE VALUE OF THE WASSERMANN REACTION

## AS INDICATED BY POSTMORTEM INVESTIGATION IN THREE HUNDRED AND THIRTY-ONE CASES AT BELLEVUE HOSPITAL *

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When the Wassermann reaction was introduced, it was widely embraced as marking the end of all diagnostic difficulties in syphilis. In addition, it caused to be included in the already comprehensive domain of syphilis conditions that previously were regarded as independent or doubtful affections, and it promised to lay the foundations of a new eugenics by the exposure of latent but transmissible syphilis in either or both prospective participants in an otherwise desirable procreative venture. As time progressed, instances began to multiply in which the reliability of the reaction was brought into question. By this time, however, the serology of syphilis had become identified with almost every thought devoted to the contemplation of this far-reaching disease; and while, at the present moment, it still occupies a place of profound importance in the study of syphilis, there seems to be a growing tendency to moderate those views which once were attacked only on a charge of heresy.

In the pathologic laboratories at Bellevue Hospital we have used the Wassermann reaction in the diagnosis of syphilis for a period of nearly seven years, during which time about 75,000 serums have been examined, representing a total of nearly a hundred thousand reactions, the cholesterin-fortified antigen having been exclusively employed for the first four years, and both the cholesterin and the crude alcoholic antigens for the past three years. From the outset the Wassermann laboratory has been under the supervision of pathologists who, with their assistants, have been specially trained in serologic work. Every effort has been made to safeguard the accuracy of the reports. In view of the doubt concerning its reliability as a diagnostic sign of syphilis, not only in our own laboratory but elsewhere, we have attempted to correlate the results of the Wassermann reaction with postmortem findings, keeping constantly before us the fundamental conception that syphilis is an inflammatory process, that it is characterized by definite and diversified structural alterations, and that without anatomic changes there is no syphilis. However indispensable this conception may be as a point from which to start and around which to build, the pathologist whose routine brings him into intimate and frequent contact with postmortem investigation can scarcely remain insensible to the fact that certain anatomic changes in subjects of suspected syphilis are sometimes exceedingly difficult to interpret, not only in the organs as they come under orderly examination at necropsy, but also in the subsequent microscopic investigation of individual tissues, even when special methods of differentiation are employed.

There were 331 cases in which the results of the Wassermann reaction were correlated with the anatomic findings in the same subjects investigated postmortem. In 204 cases no anatomic signs of syphilis were detected at necropsy, and the Wassermann reaction during life was negative, or was reported as "weakly positive" or "doubtful." The cholesterin-fortified antigen was used in every case. In 158 cases both the cholesterin and alcoholic antigens were employed. In a considerable number of cases, as will be shown later, no syphilis was demonstrable at necropsy, and yet the Wassermann reaction during life was positive. Of the latter cases it may be said, of course, that syphilis was present, but that we failed to find it at necropsy. The possibility of overlooking syphilitic lesions in isolated cases is not to be denied. However, it is not fair to assume that we overlooked syphilis in one series of cases in which the Wassermann reaction during life was positive without assuming that we overlooked it in another series in which the reaction during life was negative. In those instances in which the Wassermann reaction was positive, we employed exactly the same methods of excluding syphilis at necropsy as were employed in those cases in which the Wassermann reaction during life was negative, and we assume that we were no more frequently guilty of error in one series than in the other, particularly since the results of the Wassermann reaction, whether negative or positive, had nothing whatever to do with the postmortem exclusion of syphilis, the absence of which was postulated purely on the basis of failure to detect the naked eye changes by which the disease is characterized. We repeat that, in the absence of demonstrable syphilis, the existence of syphilis is not to be denied. We do not feel called on, however, to admit more than a small percentage of failures in view of the universally recognized fact that syphilis is a disease of ambitious anatomic proportions and that, while it may undergo modifications spontaneously or under treatment, it usually does so at the expense of structural legacies which, in the majority of cases, are characteristic and readily identified at necropsy.

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* From the pathologic laboratories of Bellevue and Allied Hospitals, Dr. Charles Norris, Director.

Unfortunately, it was not practicable for us to subject every tissue to special methods of staining designed to bring out the *Spirochaeta pallida.* Such an investigation, in the absence of otherwise recognizable syphilitic lesions, might have been of value in helping to avoid mistakes. With other pathologists who have investigated the question at length, one of us (Symmers) has secured only negative results in a numerically and otherwise comprehensive series of

TABLE 1.—CASES ON WHICH REPORT IS BASED

| Cholesterin Antigen | Alcoholic Antigen | Necropsy Findings |
|---|---|---|
| Positive | Negative | No signs of syphilis |
| Positive | Negative | No signs of syphilis |
| Positive | Negative | Atrophic pretibial scars; hepar lobatum |
| Positive | Negative | No signs of syphilis |
| Positive | Negative | No signs of syphilis |
| Positive | Negative | No signs of syphilis |
| Positive | Not used | Ulcerative cutaneous syphilids |
| Positive | Not used | Syphilitic aortitis; adenopathy |
| Positive | Negative | No signs of syphilis |
| Positive | Negative | No signs of syphilis |
| Positive | Negative | No signs of syphilis |
| Positive | Not used | No signs of syphilis |
| Positive | Not used | Smooth indurative atrophy of tongue, with scarring of epiglottis |
| Positive | Not used | No signs of syphilis |
| Positive | Not used | No signs of syphilis |
| Positive | Not used | No signs of syphilis |
| Positive | Not used | Penile scar; syphilitic orchitis and aortitis |
| Positive | Negative | Syphilitic aortitis |
| Positive | Negative | No signs of syphilis |
| Positive | Negative | Sphilitic aortitis and valvulitis |
| Positive | Negative | No signs of syphilis |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Negative | No signs of syphilis; miliary tuberculosis |
| Strongly positive | Not used | Syphilitic orchitis |
| Strongly positive | Not used | Syphilitic aortitis |
| Strongly positive | Not used | Syphilitic ostitis and periostitis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | ++++ | Syphilitic orchitis and aortitis |
| Strongly positive | Negative | Hepar lobatum; syphilitic orchitis |
| Strongly positive | Negative | Syphilitic aortitis; paresis |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Negative | Syphilitic leptomeningitis |
| Strongly positive | +++ | Syphilitic aortitis |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Negative | Scars on shins; laryngeal cicatrices |
| Strongly positive | Negative | Syphilitic aortitis and valvulitis; penile scar; smooth atrophy of tongue. |
| Strongly positive | ++++ | No signs of syphilis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | Syphilitic osteomyelitis tibiae |
| Strongly positive | +++ | No signs of syphilis; cancer of uterus |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Not used | Syphilitic aortitis |
| Strongly positive | +++ | Syphilitic aortitis |
| Strongly positive | Negative | Pretibial scars; syphilitic aortitis; general lymphadenopathy |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Negative | Pretibial scars; syphilitic aortitis; general lymphadenopathy |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Not used | Syphilitic aortitis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | Tabes |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | Congenital syphilis |
| Strongly positive | Not used | Syphilitic aortitis |
| Strongly positive | Not used | Syphilitic aortitis with aneurysm |
| Strongly positive | Not used | Chancre; adenopathy |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | Syphilitic aortitis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | Gumma of heart; syphilitic aortitis |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | Pigmented pretibial scars; syphilitic aortitis |
| Strongly positive | Not used | Syphilitic aortitis; hepar lobatum |
| Strongly positive | Not used | Syphilitic aortitis; aneurysm of aorta; gummas of liver; penile scar |
| Strongly positive | Not used | Hepar lobatum; indurative atrophy of tongue |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Not used | No signs of syphilis; ulcerative pulmonary tuberculosis |
| Strongly positive | ++++ | Congenital syphilis |
| Strongly positive | Negative | No signs of syphilis |
| Strongly positive | Not used | Syphilitic aortitis |
| Strongly positive | Not used | Syphilitic orchitis; indurative atrophy of tongue |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | No signs of syphilis; ulcerative tuberculosis of lungs |
| Strongly positive | Not used | No signs of syphilis |
| Strongly positive | Not used | Congenital syphilis |
| Strongly positive | Not used | No signs of syphilis; general miliary tuberculosis |
| Strongly positive | Negative | Mucous patches on palate |
| Strongly positive | Negative | Syphilitic aortitis and valvulitis; syphilitic cerebral endarteritis |
| Very strongly positive | Not used | No signs of syphilis |
| Very strongly positive | Not used | Syphilitic leptomeningitis, cerebral endarteritis |
| Very strongly positive | ++++ | Syphilitic aortitis |
| Very strongly positive | ++++ | Syphilitic aortitis, pharyngitis, laryngitis and glossitis |
| Very strongly positive | ++++ | Generalized cutaneous syphilids; mucous patches; adenopathy |
| Very strongly positive | ++++ | No signs of syphilis; epithelioma with extensive metastases |
| Very strongly positive | Negative | No signs of syphilis |
| Very strongly positive | ++++ | No signs of syphilis; carcinomatosis |
| Very strongly positive | Negative | Syphilitic aortitis |
| Very strongly positive | ++++ | Syphilitic leptomeningitis; syphilitic aortitis |
| Very strongly positive | ++++ | Congenital syphilis |
| Very strongly positive | ++++ | Syphilitic aortitis with aneurysm |
| Very strongly positive | +++ | Congenital syphilis |

known syphilitic tissues stained for spirochetes by the older method of Levaditi, including sclerotic lesions at the base of the tongue, syphilitic cirrhosis of the liver, chronic interstitial orchitis, syphilitic aortitis, gummas and sclerotic chancres. Even in active syphilitic lesions, efforts to demonstrate spirochetes by the same method are by no means uniformly fruitful. For example, in a case of syphilis recently investigated at necropsy in Bellevue Hospital, the skin was the seat of a generalized eruption, there were mucous patches in the mouth, and the scar of the chancre was still visible on the penis. The patient died of an acute exudative glomerulonephritis about seven weeks after syphilitic infection, and the body was submitted to necropsy a few hours after death, so that conditions appeared to be propitious for the demonstration of spirochetes in silver preparations. Sections of all the organs, including the skin lesions and the chancre, were stained and examined with care, but spiral microorganisms could not be identified. It appears, therefore, that the use of this method, while desirable in certain instances, is not always free from disappointing results, even in known syphilitic tissues. In the active chancre and in other virulent lesions of acquired syphilis, and in the organs of those dead of congenital syphilis, notably in the suprarenal capsule, swarms of spirochetes are often to be shown by the older method of Levaditi. In late syphilitic lesions, such as aortitis and orchitis, the demonstration of spirochetes is an exceedingly precarious undertaking, and pitfalls are frequent in the forms of minute tissue fibrils which become impregnated by silver and present an alluring resemblance to spirochetes, so that the microscopist who ventures to lay the foundations of a newer pathology of syphilis on the interpretation of spiral forms in sclerotic tissues sponsors a method whose hazards are at least fascinating.

The difficulty at Bellevue Hospital is furthermore increased by the fact that, in some instances, the written permission for necropsy is necessarily worded in such fashion as to preclude the examination of certain viscera, notably the organs of the head and neck, thus making it impracticable, in a small percentage of cases, to exclude lesions in localities in which it is known that syphilitic changes are of common occurrence. In by far the greater number of cases, however, we have been enabled to conduct complete necropsies, and in these, as in the restricted cases, we are always on the alert for signs of syphilis. Moreover, there are circumstances in which the pathologist, no matter what his training or experience may be, is apt to overlook the structural defects of syphilis. By taking all these things into consideration, and by excluding questionable necropsy reports, we feel that we have succeeded in arriving at certain conclusions which are accurate within the limitations imposed by biologic vagaries and by a human tendency to err. As far as the worth of the Wassermann reaction is concerned, we may be permitted the observation that we have no theories to defend, merely facts to present as we have found and interpreted them, and we shall hope not to leave it to be read between the lines that our technic has precipitated certain exceedingly regrettable mistakes.

Excluding the 204 instances in which one or both antigens gave a negative reaction and in which no signs of syphilis were found at necropsy, together with certain doubtful cases, Table 1 shows the cases on which this report is based. The results of an analysis of these cases may be expressed as in Table 2.

In order to arrive at an intelligent interpretation of the result of the Wassermann reaction, it is necessary to start with an anatomic conception of syphilis, and any definition of the disease which is not founded on an anatomic basis is obvious sophistry. Every known sign of syphilis, from the chancre through the gamut to the scar, is explicable as a purposeful reaction to injury. The Wassermann reaction, on the other hand, is a biologic phenomenon which occurs in certain syphilitic subjects and, in these circumstances, it is a symptom of value. It is not a specific reaction, however, but occurs in conditions other than syphilis, and it does not always occur in syphilis.

To the clinician, the interpretation of the results of the Wassermann reaction is of moment only so far as it permits him to arrive at a correct conclusion as to the absence or existence of the anatomic changes of syphilis in the body. We should not be guilty of such a glaring platitude were it not for the fact that the clinician who invokes a Wassermann reaction to aid him in visualizing syphilitic changes in the deeper parts not uncommonly neglects to search for anatomic lesions in localities in which the senses are ready to yield definite information. We refer to those superficial and detectable changes in the skin and mucous membranes and elsewhere that lend themselves to purposes of diagnosis and that, unlike the Wassermann reaction, are specific, and reveal syphilis stripped of its uncertainties and artificialities. Previous to the introduction of the Wassermann reaction, the pathologist who had occasion to inquire of the attending physician or of the intern as to the clinical evidence of syphilis in the body under investigation almost invariably received a reply quoting the patient's denial or admission of infection. At the present moment the same question equally often elicits a statement referring to the substance of the Wassermann report. It is practically an unknown incident, in our experience, to receive any voluntary reference to the existence of a scar in the genital region that might be interpreted as a healed syphilitic lesion, to atrophic pigmented scars in the pretibial skin, to roughening of the anterior border of the tibia or thickening of its periosteum, to superficial lymphadenopathy, to

TABLE 2.—RESULTS OF ANALYSIS OF CASES IN TABLE 1

Positive Results with the Cholesterinized Antigen: 96 cases
Positive in 20
    Syphilis in 6 (30 per cent.)
    No syphilis in 14 (70 per cent.)
  Strongly positive in 63
    Syphilis in 30 (47.5 per cent.)
    No syphilis in 33 (52.3 per cent.)
  Very strongly positive in 13
    Syphilis in 9 (69 per cent.)
    No syphilis in 4 (30 per cent.)
Positive Results with the Alcoholic Antigen: 15 cases
  Syphilis in 11 (73 per cent.)
  No syphilis in 4 (26 per cent.)
Results from the Use of Both Antigens in 49 Cases
  Cholesterin positive in 12; alcoholic negative in all; signs of syphilis positive in all.
  Cholesterin strongly positive in 12 (44 per cent.); alcoholic negative in 6, positive in 6; signs of syphilis positive in all.
  Cholesterin strongly positive in 15 (55 per cent.); alcoholic negative in 12, positive in 3; no syphilis in any.
  Cholesterin very strongly positive in 8; alcoholic positive in all; signs of syphilis positive in all; cholesterin very strongly positive in 2; alcoholic positive in both; no syphilis in either.
Negative Results in Positive Syphilis
  Cholesterinized antigen negative in 21 (31.3 per cent.) of 67 cases of syphilis.
    Syphilis indolent, possibly healed, in 9 (42.5 per cent.)
    Syphilis active in 12 (57 per cent.)
  Alcoholic antigen negative in 18 (56.2 per cent.) of 32 cases of syphilis.
    Syphilis indolent, possibly healed, in 7 (38.8 per cent.)
    Syphilis active in 11 (61 per cent.)

increased consistency and diminished sensitiveness of one or both testicles, to indurative atrophy of the base of the tongue, leukoplakia and the like, and scarring and deflection of the epiglottis, to scars of the pharyngeal vault, to perforation of the nasal septum, to the presumptively syphilitic nature of aortic regurgitation, to the ophthalmoscopic signs of chorioretinitis pigmentosa, and similar discoverable signs of syphilis, any one or any combination of which, as the case may be, is less apt to lead one astray than the results of a Wassermann reaction. These and like signs were sought by the clinicians of the generation that passed with Delafield and the elder Janeway; but the generation that holds the responsibility of the future is being inculcated with an almost reverential respect for artificial methods that neither clinician nor pathologist can explain or control.

### CONCLUSIONS

1. Depending on the antigen employed, the Wassermann reaction in the living patient, as carried out at Bellevue Hospital, gives a negative result in from 31 to 56 per cent. of cases in which the characteristic anatomic signs of syphilis are demonstrable at necropsy.

2. The Wassermann reaction in the living patient is positive in at least 30 per cent. of cases in which it is not possible to demonstrate any of the anatomic lesions of syphilis at necropsy.

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## THE DIAGNOSIS OF INFARCTION OF THE ENTIRE SPLEEN

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Total infarction[1] or necrosis of the spleen has received little attention in medical literature. Even the larger systems of medicine devote only a line to its consideration. From scattered reports of colliquative necrosis, coagulation necrosis, thrombosis of the splenic vein, etc., it is evident that a definite symptomatology is associated with these specific affections of the spleen. The purpose of this paper, in addition to adding four instances of total infarction or necrosis of the spleen to the literature, is to point out the possibility of the diagnosis of this condition.

The symptoms are pain, tenderness in the left hypochondrium, enlargement of the spleen, occasionally fever, and vomiting of blood due to rupture of dilated gastric veins. A glance at the literature reveals the regularity with which these symptoms are recorded. The added examples in this report are a repetition of the former.

Whenever the spleen becomes totally infarcted, enlargement occurs, the weight varying from 300 to 1,300 gm., and the dimensions reaching such proportions as 25 by 15 by 8 cm. The enlargement in all of the new cases reported here was noted on physical examination, but was often misleading, it being assumed that such an enlargement must be due to a leukemia or other condition. This fallacy is demonstrated by the fact that infarction of the spleen may result in a huge enlargement, such as occurred in no less than ten instances in this report.

Pain in the left hypochondrium likewise is present, though variation in the site of the pain differs somewhat. In three cases the pain was described as diffuse throughout the abdomen, then localizing in the left hypochondrium, and in a fourth as "in the region of the stomach." The character of the pain varied from a dull ache to a sharp colic, with all degrees of gradation between. The pain is usually superficial and spontaneous, but may be deep and provokable. It is frequently exaggerated by changes in position, and may radiate along the phrenic nerve or into the left shoulder.[2] A sensation of weight in the left hypochondrium was often complained of, a violent hauling to the left exaggerated by inspiration, or a tingling, shooting or beating sensation in the same region.[3] The pain is probably due to irritation or interference with the structures immediately surrounding the spleen, since this organ is not very sensitive. Total infarction of the spleen may occur, however, without any pain, as in one case here reported and in three of those in the literature.

Tenderness is usually associated with the pain, and is present in the left hypochondrium. The tenderness may come on suddenly and may continue for many days, or there may be occasional tenderness in the left side.[4]

The presence of fever apparently depends on the disease to which the spleen alterations are concomitant. When this is due to an obstruction of the splenic vessels by thrombi or emboli that are sterile, fever is absent. But after the spleen has undergone degenerative changes, bacteria which were already present[5] or which make their entrance from some source such as the colon[6] multiply rapidly, the organ finally resembles a bag of pus, and fever occurs. In one of the four cases here reported, the *Proteus mirabilis*, in another the colon bacillus was isolated from the spleen, and in each instance a rise in temperature of from 1 to 2 degrees was present intermittently. Many times the splenic changes result from or are accompanied by inflammatory changes elsewhere in the body, and under such conditions the fever is often attributable to such factors. In one of our instances a gangrenous cystitis, in another a suppurative pylephlebitis and in a third an amebic dysentery was present and would account for the rise in temperature.

The vomiting of blood, bright red at times, and resembling coffee grounds at others, is of frequent occurrence. It was present in one of our instances and in several from the literature. Ewald[7] recorded an example of a large spleen resulting from a thrombosed splenic vein, the patient dying as the result of a hemorrhage from the stomach. Following the hemorrhage there was a marked reduction in the size of the spleen. The reasons for bleeding from the stomach following splenic infarction or necrosis are well known, and have been substantiated by experiments. The splenic changes are accompanied by extensive anastomoses between the splenic and gastro-epiploic vessels. The dilatation of these gastric veins often becomes extreme, and the possibility of their rupture is imminent. However, the bleeding in the instance recorded by Ewald was through a mucous membrane of the stomach which did not present gross lesions. This, too, has been described before. Experimentally, Troell[8] found that following ligation of the splenic veins, a second procedure is necessary, namely, ligation of the dilated anastomosing vessels in the ligamentum gastrosplenicum. Likewise, Warthin[9] found that after ligation of the splenic vessels proper, anastomoses of the spleen with veins of the gastrosplenic omentum and of the stomach allowed small islets of the spleen to live.

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[1] The term "total infarction" is here used because the condition is discussed in the literature, as a rule, under this title. Strictly, total infarction is very rare, most infarcts being "mixed," the blood by imperfectly anastomosing vessels infiltrating the edges to make a red margin about the place of more total infarction. "Infarction of the entire spleen" is, therefore, a better term.

[2] Lefeuvre: Bull. Soc. anat. de Paris, 1848, p. 193.

[3] Durand, M.: Contribution à l'étude des infarctus de la rate, Lille, 1903, Mason.

[4] Saundby: Brit. Med. Jour., 1908, **2**, 1155.

[5] Carriere and Vanverts: Arch. d. méd. exper. et d'anat. pathol., 1899, **11**, 48.

[6] Balacescu: Münchcn. med. Wchnschr., 1901, **48**, 35.

[7] Ewald: Deutsch. med. Wchnschr., 1913, **39**, 398.

In the etiology of total infarction of the spleen, vascular obliteration has been held responsible; but the cause of the vascular obliteration must be determined. The important factors here concerned are pressure on the walls of the splenic vessels by tumors; torsion of these vessels in instances of ectopic spleen; thrombosis of the splenic vessels, and embolism. The emboli may be (1) exogenous, including microbes, and (2) endogenous, as atheromatous plaques. In one of our instances, thrombosis of both the splenic artery and the splenic vein was found; in another, an embolus in the splenic artery from a mitral endocarditis, and in a third an extension of a carcinoma into the splenic vein. Thrombosis of the splenic vein was the causative factor in nine instances recorded in the literature; arterial plugging was responsible in five. Occlusion of both the artery and the vein was present twice. Torsion of these vessels produced a total infarction in nine instances. Pressure on the vein or invasion of it by neoplasms was found twice. In five, the condition of the splenic vessels was not determined.

TABLE 1.—EXAMPLES IN AUTHOR'S SERIES

| Case | Cause | Symptoms | Pathology of Spleen | Cause of Death |
|---|---|---|---|---|
| 1............ | Obturating thrombus of splenic artery and vein | Pain in left hypochondrium; vomiting at times; anorexia and headache for eight weeks; large spleen; intermittent fever, 1-2 degrees; both bright and "coffee ground" blood in vomitus | Spleen much enlarged and entirely necrotic | "Diphtheria and gangrenous cystitis" |
| 2............ | Embolism of splenic artery from mitral endocarditis | All symptoms referable to an ulcerative, amebic colitis | Wt., 300 gm.; "a soft, yellow, necrotic mass not normal at any point." | "Ulcerative stenosis of rectum; amebic dysentery" |
| 3............ | Extension of carcinoma into splenic vein | Enlargement of spleen; pain under costal arch | Wt., 600 gm.; size, 13 by 9 by 8 cm.; entirely necrotic | Carcinoma of stomach with perforation into lesser peritoneal cavity |
| 4............ | Not determined; overlooked at necropsy | Pain in left hypochondrium | Wt., 210 gm.; organ entirely necrotic | "Suppurative pylephlebitis; multiple abscesses of liver" |

Thrombosis of the splenic vein has resulted, therefore, in a total splenic infarction more frequently than any other single factor. Usually the thrombus is primary in the splenic vein, Bonne[10] reporting the first example of this. His explanation is frequently quoted, and is as follows: An infectious process in the spleen results in a splenitis, which in turn produces an endophlebitis. This endophlebitis causes a proliferation of the endothelial cells, and leads to thrombus formation. The splenic induration and the circulatory disturbances which follow aid in an extension of the thrombus formation.

In a few examples of totally infarcted spleen, a portal thrombosis has been found associated with the splenic thrombosis, and it was difficult to determine whether the thrombosis was primary in the portal or splenic veins. Sometimes, in a general arterial sclerosis, the portal vein is markedly sclerosed. Or a portal sclerosis may be present even without a general arterial sclerosis.[11] In such instances, Simmons believes that the sclerosis is due to bacterial poisons, and the primary splenic enlargement is the result of blood stasis. Syphilis and trauma also have been held as productive of a primary portal sclerosis,[12] and may be responsible for a portal thrombosis which backs up into the splenic vein. The thrombus in the portal vein does not necessarily mean death to the patient, as is generally believed, since the thrombus may become canalized.[13] Or the portal vein may remain completely obliterated without causing death, as Umbra[14] found.

A displaced spleen or torsion of the splenic vessels may give rise to splenic infarction. In a series of twenty-six instances of ectopic spleen collected from the literature, Durso[15] found seven in which there had been complete infarction of the spleen. To these he added one instance of his own, the body of the organ being necrotic and surrounded by a narrow strip of healthy splenic tissue which obtained its nourishment from the capsule. He found that rotation of the spleen in dogs produced infarcts of the character of embolic infarcts, and that as a result, severe symptoms became manifest. He determined that the infarction resulted from the circulatory disturbance in the branches of the splenic veins.

An embolus lodging in the splenic artery only rarely gives rise to total infarction, in spite of the fact that this artery is an end artery. In one of our instances, however, total infarction resulted from an embolus coming from thrombi on the mitral valve.

The pathology of total infarction of the spleen does not differ from infarction in any viscus that has a "terminal" blood supply. Softening of the infarct is sometimes mistaken for abscess formation, and cannot be differentiated without the aid of the microscope. In each of our four instances, the changes in the spleen had reached this stage, the organ being entirely necrotic and resembling a bag filled with purulent material. In two of the four instances, bacteria of low virulence were isolated from this material. In approximately one half of the examples in the literature, a similar condition was found. In others the spleen was a "gigantesque" (gigantic) cicatrix, fibrous and infiltrated with blood pigment, the third or final phase of infarct formation having been reached.[3] In some, the three phases of infarct formation were represented, portions of the infarcted spleen being brownish and tumified, other regions having softened and become cysts filled with necrotic material, and still other portions of the same organ, fibrous and retracted.[16]

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[8] Troell: Ligation of the Splenic Vessels as a Substitute for Splenectomy in Blood Diseases, Ann. Surg., 1915, **63**, 88.

[9] Warthin: Experimental Ligation of the Splenic and Portal Veins with the Aim of Producing a Form of Splenic Anaemia, Proc. Soc. Exper. Biol. and Med., 1907, **4**, 127.

[10] Bonne: Ein Beitrag zur Kenntniss der Thrombosen der vena lienelis, E. Huth, Gottingen, 1884.

[11] Simmons: Virchows Arch. f. path. Anat., 1912, **207**, 360.

[12] Heller: Verhandl. d. deutsch. path. Gesellsch., 1904, **41**, 182.

[13] Edens: Ueber Milzvenenthrombose, Pfortaderthrombose und Bantische Krankheit, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1908, **18**, 59.

[14] Umbra: Beitrag zur Pfortaderobliteration, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1901, **7**, 487.

[15] Durso: Studio clinico e sperimentale dello infarto splenico nella rotazione della milza, Policlinico, Rome, 1896, **3** C, 63; abstr., Atti d. r. Accad. Med.-Chir. di Napoli, 1895, **49**, 214.

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[16] Lefeuvre: Etudes physiologiques et pathologiques sur les infarctus viscéraux, Paris, 1867, p. 125.

TABLE 2.—EXAMPLES FROM LITERATURE

| Case | Author Reference | Cause | Symptoms | Pathology of Spleen | Cause of Death |
|---|---|---|---|---|---|
| 1 .......... | Bonne, G.: Ein Beitrag zur Kenntnis der Thrombosen der vena lienalis, Göttingen. | Thrombosis of splenic vein and its branches; also of portal vein | Seized with abdominal pain; spleen became enlarged; diarrhea and headache developed | Spleen 18 by 11 by 15 cm.; necrotic | Peritonitis |
| 2 .......... | Rolleston, H. D.: Tr. Path. Soc. London, 1891-1892, **43**, 49 | Thrombosis of splenic vein | Not stated | Weight of spleen, 36 oz.; filled with extensive, anemic, infarcted areas | Chronic diarrhea |
| 3 .......... | Same | Carcinoma growing into and occluding splenic vein | Not stated | Not stated | Peritoneal carcinomatosis, originating in cecum |
| 4 .......... | Christomanos, A. A.: Beitr. z. path. Anat. u. z. allg. Path., 1898, **24**, 519 | Torsion of pedicle and thrombosis of splenic vein | Diffuse abdominal pain localizing to left of epigastrium | Spleen weighed 1,300 gm.; entirely necrotic | Operation with recovery |
| 5 .... ..... | Horch: Verhandl. d. deutsch. Gesellsch. f. Chir., 1885, **10**, 63 | Torsion of pedicle with thrombosis of vein | Enlargement in left hypochondrium; pain on standing or walking; vomiting of blood | Weight, 2,700 gm.; vein filled with dark clot due to torsion of pedicle; cut surface gave appearance of infarct | Recovery following splenectomy |
| 6 . ........ | Heurtaux: Bull. et mém. Soc. d. chir., 1893, **19**, 752 | Rotation of spleen with torsion of vessels | Tumor in abdomen, intermittent fever | Weight, 615 gm.; a rim of healthy tissue surrounded bulk of the organ, which was necrotic | Operation with recovery |
| 7 .. ....... | Vetlesen, H. J.: Forh. med. Selsk. i Kristiania, 1889, p. 84 | Infarction due to malignant endocarditis | Four attacks of pain in region of left costal margin, each associated with splenic enlargement | "Spleen large"; contained four distinct large infarctions corresponding to clinical history | Malignant endocarditis with hemorrhagic nephritis |
| 8 ........ . | Weber, F. P.: Med. Press and Circular, 1908, **87**, 14 | Complete occlusion of splenic artery hy recent thrombus | None | Weight, 12 oz.; organ converted into one large infarct | Pulmonary tuberculosis |
| 9 .......... | Saundby: Brit. Med. Jour., 1908, **2**, 1155 | Splenic thromhosis following pregnancy | Tenderness and occasional pain in left side with enlarged spleen | Not demonstrated | Did not die |
| 10 ...... ... | Edens: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1908, **18**, 59 | Old thrombosis of splenic and portal veins, the former canalized | Not stated | Spleen 25 by 15 by 8 cm.; firm consistency; marked increase in fibrous tissue throughout | Peritonitis |
| 11 .......... | Same | Not known | Sudden pain in left hypochondrium; enlargement of spleen; fever for 3 weeks | Not known; diagnosis of splenic thrombosis or septic infarct | Recovered |
| 12 . .. .. .. | Fisher, W. E.: Proc. Roy. Soc. Med., London, 1908-1909, **2**, Clin. Sec., 128 | Wandering spleen | Not stated | Wandering spleen engorged, owing to traction on vessels and with large infarcts | Splenectomy; recovered |
| 13 .......... | Watson and Stewart: Lancet, London, 1912, **2**, 877 | Associated with tonsillitis | Tenderness in left side with enlarged spleen | Spleen converted into a sac filled with turbid bloody fluid; streptococci found | ? |
| 14 .......... | Goldman: Deutsch. med. Wchnschr., 1913, **39**, 1542 | Endocarditis resulting in infarction of the spleen and thrombosis of the splenic vein | Pain in region of stomach; large spleen; vomiting of blood | Spleen 2 by 14 by 7 cm.; tough consistency; organ filled with old, fibroid infarcts | Portal thrombosis? |
| 15 .......... | Ewald: Deutsch. med. Wchnschr., 1913, **39**, 398 | Thrombosed, partially canalized splenic vein | Large spleen; fatal hemorrhage from stomach, followed by reduction in size of spleen | Spleen 30 by 7 by 6 cm.; same increase of fibrous tissue | Hemorrhage |
| 16 ... ...... | Lavastine and Bloch: Bull. et mém. Soc. anat. de Paris, 1914, **79**, 352 | Atheromatous splenic artery | Not stated | Weight, 500 gm.; spleen pulp entirely filled with infarcts of various ages; one, size of orange | Bronchopneumonia |
| 17 .. ....... | Umber: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1901, **7**, 487 | Complete obliteration of splenic and portal veins | Not stated | Marked enlargement; increase in fibrous tissue | ? |
| 18 .......... | Hektoen, L.: Med. News, 1894, **1**, 325 | Extensive primary thrombosis of all of the splenic veins following typhoid | None referable to the spleen | Spleen 14 by 9 by 5 cm.; weight, 250 gm.; firm; filled with anemic and hemorrhagic infarcts, and all of the vein thrombotic. | Bronchopneumonia |
| 19 to 26 ..... | Durso, G.: Policlinico, Rome, 1896, **3**-c, 1, 63 | Reports one of his own and 7 cases collected from the literature of ectopic spleen associated with infarction and due to torsion of the splenic vessels | In most instances pain in the left side | Spleen enlarged, in one instance weighing 1,050 gm. | |
| 27 .......... | Lefeuvre: Etudes physiologiques et pathologiques sur les infarctus viscéraux, Paris, 1867 | Infarction resulting from aortic valve disease | Local manifestation hidden by an acute rheumatism and a subacute peritonitis; severe pain in splenic region, however | Spleen enlarged, adhering to surrounding structures, pulp filled with infarcts, four of which had softened and become comecysts filled gangrenous material | Pericarditis; peritonitis |
| 28 .. ....... | Durand, M.: Contribution a l'étude des infarctus de la rate, Lille, 1903, Mason | Infarction resulting from an old typhoid fever | Tenderness on pressure in left hypochondrium | Spleen a "gigantesque" cicatrix, fibrous and infiltrated with blood pigment | Cerebral hemorrhage |

Following thrombosis or embolism sufficient to cause complete occlusion of either the splenic artery or the splenic vein, the vessel itself undergoes degenerative changes and becomes obliterated from the point of its occlusion onward to its finer terminals.

From our examples it is evident that an occlusion of either the splenic artery or the splenic vein is sufficient to produce total infarction of the spleen. Simultaneous occlusion of both of these vessels, however, is apt to result in immediate necrosis of the entire spleen, and a fatal outcome may follow from the absorption of toxins. The first of our examples illustrates this. An obturating thrombosis of both the splenic artery and the splenic vein resulted in a much enlarged and entirely necrotic spleen. Death followed in six weeks from continuous absorption of toxic material.

Similar conclusions have been drawn from experiments. Carrière and Vanverts[17] ligated both vessels in dogs and rabbits, and found that in most instances gangrene resulted, the spleen becoming a pus sac. They held that the spleen normally contains bacteria, but that these are of low virulence or of none at all. Among these organisms are colon bacilli, diplococci, staphylococci and streptococci. In ligation of the splenic artery alone, gangrene did not result; and they concluded that since the circulation was not completely interfered with, the spleen cells were able to take care of the bacteria without pus formation. Balacescu[6] likewise found that when both the artery and the vein were tied, many animals died of absorption of toxins from a gangrenous spleen. When one vessel was tied, he found that many adhesions form and that gradually bacteria from the intestinal tract gain admittance into the spleen.

Any discussion of splenic thrombosis is incomplete without a consideration of the possibility of a relationship between this condition and the so-called Banti's disease. The exact status of Banti's disease has not been determined. Banti[18] assumes that a toxic agent produced in the spleen brings about the changes in the splenic and portal vessels, finally the three stages of a typical Banti's syndrome resulting. The first stage includes an enlargement of the spleen; the second, urinary changes and marked anemia; the third, liver changes with ascites and a gradual increase in the severity of all the symptoms. We now know that some mechanical conditions, such as circulatory disturbances in the splenic and portal systems, can produce an illness very similar to Banti's disease. Senator[19] is authority for the statement that splenic anemia cannot be differentiated from Banti's disease during the first stage of the latter. Gilbert and Lereboullet,[20] after a review of the subject, decide that Banti's disease does not exist. They maintain that the histology of Banti's disease is only that of a chronic passive hyperemia of the spleen, and that portal hypertension can make a good example of splenomegaly and can also cause the liver changes found in Banti's disease. As a result of these and similar conclusions, Isaac[21] wonders if Banti's disease is rather a complex of symptoms which may be caused by various etiologic factors.

The importance of recognizing infarction of the spleen of sufficient degree to produce symptoms is evident in considering the treatment. Whether medical attention is sufficient or whether surgical procedures are called for depends on several factors. Among these are the reaction of the patient to the toxic material absorbed from a necrotic spleen, and the presence of hemorrhage from dilated gastric veins. Usually in the total infarction of the spleen, the organ is bound to the surrounding structures by firm, fibrous adhesions. This increases the difficulty of surgical intervention. Perhaps improved methods from recent experiences with splenectomy in pernicious anemia will help to overcome these difficulties.

### SUMMARY

1. Total infarction or necrosis of the spleen has been infrequently reported.

2. Total infarction of the spleen may result from an embolus or a thrombus in either the splenic artery or the splenic vein; from the extension of a thrombus backward from the portal vein into the splenic vein; from pressure on the splenic vessels by a neoplasm; from torsion of the splenic vessels when the spleen is displaced, or from an inflammatory process originating within the spleen and involving the terminal branches of the splenic artery and vein (Bonne's view).

3. Total infarction of the spleen gives rise to definite enlargement of the spleen, pain and tenderness in the left hypochondrium, fever, and occasional vomiting of blood, and from these a correct diagnosis may be made.

4. The treatment, whether medical or surgical, depends on many factors, such as the condition of the patient and the underlying disease of which the splenic infarction may be either the chief expression or only a minor part.

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[17] Carrière and Vanverts: Etudes sur les lesions produits par le ligature expérimentale des vaisseaux de la rate, Arch. de méd. exper. et d'anat. path., 1899, **11**, 498.

[18] Banti: The Treatment of Banti's Disease, Folia haemat., 1910, **10**, 33.

[19] Senator: Ueber Anaemia splenica mit Ascites (Bantische Krankheit), Berl. klin. Wchnschr., 1901, **38**, 1145.

[20] Gilbert and Lereboullet, quoted by Cauchois: Splénomégalie chronique de'origine pylethrombosique, Thèse de Paris, 1908, p. 92.

[21] Isaac: Das Bantische Symptom Komplex und seine Stellung unter den Splenomegalien, Jahrb. d. ges. Medizin (Schmidt's), 1912, **215**, 122.

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# EXCRETION OF INGESTED PURINS IN CHRONIC GOUT

## A STUDY OF TWO CASES

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It is generally accepted that less exogenous uric acid is eliminated by persons subject to gout than by normal persons. It is still disputed whether or not this lessened excretion of exogenous uric acid can be used for diagnosis.

Vogt, Reach, Soetbeer, Pollak, Mallory, Weinberger and Yavein have found that in gout the excretion of exogenous purins is diminished and delayed. This is not always the case according to Magnus-Levy, Weintraud, Rommel and Pratt.

In a recent article, McClure and Pratt[1] present tables showing a summary of all the previous observations on the exogenous uric acid excretions of normal persons, of patients with chronic arthritis, and of gouty patients. They have studied the uric acid excretion in two cases of gout after the feeding of sweetbreads.

They believe that the retention of uric acid is a symptom of questionable importance in the diagnosis of gout.

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[1] McClure, C. W., and Pratt, J. H.: A Study of Uric Acid in Gout, Arch. Int. Med., October, 1917, p. 481.

### METHODS

In the present study, the patients received daily a purin-free diet composed of milk, cream, eggs, Horlick's Malted Milk, sugar, salt and water. The ingested purin was given as sweetbreads (thymus gland). The experimental methods were the same as those described in previous publications.[2]

The accompanying tables contain the data obtained in this study. It may be noted from Table 1 that following the addition of purins to the diet in the case of a nongouty person there is an increase in the excretion of uric acid. When the intake of the purins is doubled, there is again an increase in the amount of uric acid excreted.

TABLE 1.—EFFECT OF INGESTED PURINS ON URINARY EXCRETION OF URIC ACID AND PURIN-NITROGEN IN A NORMAL PERSON

| Day | Urine | | | | | | | | | | | Diet | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Urea-Nitrogen | | Ammonia-Nitrogen | | Uric Acid | | | Purin-Nitrogen | | | | |
| | Volume, C.c. | Total Nitrogen, Gm. | Gm. | Total Nitrogen, Per Cent. | Gm. | Total Nitrogen, Per Cent. | Gm. | Nitrogen | Total Nitrogen, Per Cent. | Gm. | Total Nitrogen, Per Cent. | Protein, Gm. | Nitrogen, Gm. | Purin-Nitrogen, Gm. |
| 1 | 2,200 | 10.10 | 8.59 | 85.1 | 0.515 | 5.1 | 0.35 | 0.117 | 1.5 | 0.22 | 0.21 | 80 | 12.7 | 0 |
| 2 | 1,900 | 9.42 | 7.97 | 84.6 | 0.471 | 5.0 | 0.34 | 0.113 | 1.4 | 0.24 | 0.25 | 80 | 12.7 | 0 |
| 3 | 1,960 | 10.21 | 8.65 | 84.8 | 0.500 | 4.9 | 0.36 | 0.120 | 1.4 | 0.19 | 0.19 | 80 | 12.7 | 0 |
| 4 | 1,900 | 11.30 | 9.65 | 85.4 | 0.587 | 5.2 | 0.96 | 0.32 | 2.5 | 0.26 | 0.23 | 100 | 16.0 | 0.195 |
| 5 | 1,940 | 11.34 | 9.77 | 86.2 | 0.533 | 4.7 | 0.94 | 0.310 | 2.7 | 0.24 | 0.21 | 100 | 16.0 | 0.195 |
| 6 | 2,320 | 14.20 | 12.02 | 84.7 | 0.696 | 4.9 | 1.43 | 0.480 | 3.4 | 0.29 | 0.20 | 120 | 19.2 | 0.390 |

TABLE 2.—EFFECT OF INGESTED PURINS ON URINARY EXCRETION OF URIC ACID AND PURIN-NITROGEN IN A CASE OF CHRONIC GOUT

| Day | Urine | | | | | | | | | | | Diet | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Urea-Nitrogen | | Ammonia-Nitrogen | | Uric Acid | | | Purin-Nitrogen | | | | |
| | Volume, C.c. | Total Nitrogen, Gm. | Gm. | Total Nitrogen, Per Cent. | Gm. | Total Nitrogen, Per Cent. | Gm. | Nitrogen | Total Nitrogen, Per Cent. | Gm. | Total Nitrogen, Per Cent. | Protein, Gm. | Nitrogen, Gm. | Purin-Nitrogen, Gm. |
| 1 | 1,940 | 7.82 | 6.59 | 84.3 | 0.40 | 5.1 | 1.34 | 0.45 | 5.8 | 0.087 | 1.12 | 80 | 12.7 | 0 |
| 2 | 2,200 | 10.08 | 8.58 | 85.1 | 0.53 | 5.2 | 0.383 | 0.128 | 1.2 | 0.064 | 0.64 | 80 | 12.7 | 0 |
| 3 | 1,600 | 9.41 | 7.96 | 84.6 | 0.49 | 5.3 | 0.378 | 0.126 | 1.3 | 0.067 | 0.71 | 80 | 12.7 | 0 |
| 4 | 1,700 | 11.30 | 9.46 | 83.7 | 0.57 | 5.04 | 0.698 | 0.233 | 2.1 | 0.078 | 0.69 | 100 | 16.0 | 0.195 |
| 5 | 2,050 | 11.31 | 9.51 | 84.1 | 0.71 | 6.3 | 0.690 | 0.230 | 2.0 | 0.077 | 0.68 | 100 | 16.0 | 0.195 |
| 6 | 2,520 | 14.25 | 12.1 | 85.0 | 0.76 | 5.3 | 0.721 | 0.240 | 1.6 | 0.085 | 0.60 | 120 | 19.2 | 0.40 |

TABLE 3.—EFFECT OF INGESTED PURINS ON URINARY EXCRETION OF URIC ACID AND PURIN-NITROGEN IN A CASE OF CHRONIC GOUT

| Day | Urine | | | | | | | | | | | Diet | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Urea-Nitrogen | | Ammonia-Nitrogen | | Uric Acid | | | Purin-Nitrogen | | | | |
| | Volume, C.c. | Total Nitrogen, Gm. | Gm. | Total Nitrogen, Per Cent. | Gm. | Total Nitrogen, Per Cent. | Gm. | Nitrogen | Total Nitrogen, Per Cent. | Gm. | Total Nitrogen, Per Cent. | Protein, Gm. | Nitrogen, Gm. | Purin-Nitrogen, Gm. |
| 1 | 1,430 | 8.25 | 6.95 | 84.2 | 0.41 | 5.0 | 0.32 | 0.106 | 1.28 | 0.084 | 1.02 | 80 | 12.7 | 0 |
| 2 | 1,630 | 11.96 | 10.02 | 83.8 | 0.61 | 5.1 | 0.37 | 0.123 | 1.03 | 0.076 | 0.63 | 80 | 12.7 | 0 |
| 3 | 1,720 | 11.65 | 9.91 | 85.1 | 0.57 | 4.9 | 0.53 | 0.176 | 1.50 | 0.085 | 0.73 | 106 | 16.9 | 0.12 |
| 4 | 1,900 | 13.30 | 11.26 | 84.7 | 0.62 | 4.7 | 0.57 | 0.190 | 1.42 | 0.091 | 0.68 | 126 | 20.1 | 0.36 |
| 5 | 1,620 | 11.80 | 9.93 | 84.2 | 0.58 | 4.9 | 0.52 | 0.173 | 1.46 | 0.074 | 0.62 | 126 | 20.1 | 0.36 |

Table 2 shows distinctly the limit of the patient in relation to ingested purins. On the first addition of purins to the diet, their excretion follows in a fairly normal manner. On a further increase of the purin intake, however, there is no further increased excretion of uric acid, showing that the first increase in the purin intake constitutes the individual's tolerance for purins.

The case outlined in Table 3 also shows the individual's tolerance for purins. On the first addition of purins to the diet, there is an increased excretion of uric acid. When the purin intake is trebled, there is, however, no further increase in the output of uric acid, showing that we have reached this individual's tolerance for purins on the first addition.

### CONCLUSIONS

On the basis of the results obtained in this study of two cases of chronic gout, it seems that some gouty persons do not behave in the same way as the nongouty, as regards the excretion of ingested purins.

We have found, as have other observers, that there seems to be a point of tolerance in certain cases of gout, as regards the excreting of ingested purins.

5737 Forbes Street.

**Casualties.**—In a modern battle from 5 to 25 per cent. of casualties may be expected. The proportion of killed to wounded is usually about one to four.—Col. T. H. Goodwin.

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[2] Einhorn, M., and Rosenbloom, Jacob: Nitrogen Metabolism in Three Cases of Duodenal Alimentation, Am. Jour. Med. Sc., 1911, **143**, 7. Stetten, D., and Rosenbloom, Jacob: Clinical and Metabolic Studies of Case of Hypopituitarism Due to Cyst of Hypophysis with Infantilism of Lorain Type, ibid., 1913, **146**, 731. Diller, T., and Rosenbloom, Jacob: Metabolism Studies in Case of Myasthenia Gravis, ibid., 1914, **148**, 65. Rosenbloom, Jacob: Calcium and Magnesium Metabolism in Case of Chronic Gout, ibid., 1916, **152**, 256. Stadtmüller, Norbert, and Rosenbloom, Jacob: Studies on Sulphur Metabolism, I, The Urinary Sulphur Partition in Various Diseases, Arch. Int. Med., September, 1913, p. 276. Rosenbloom, Jacob, and Cohoe, B. A.: Clinical and Metabolism Studies in a Case of Myotonia Congenita—Thomsen's Disease, ibid., August, 1914, p. 263. Rosenbloom, Jacob, and Price, H. T.: A Metabolism Study of a Case of Diabetes Insipidus, Am. Jour. Dis. Child., July, 1916, p. 53. Rosenbloom, Jacob: Metabolism Study of a Case of Froehlich's Syndrome (Dystrophia Adiposogenitalis), Interstate Med. Jour., 1917, **24**, 475.

# HEART BLOCK AND CONGENITAL HEART DISEASE IN CHILDHOOD *

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With the advent of the new methods of cardiac examination, many disturbances of rhythm, previously unsuspected, have been discovered in the heart during infancy and childhood. It has been shown, however, that, on the whole, the occurrence of cardiac irregularities, with the exception of sinus arrhythmia, is much more commonly found in adult life than in childhood. Of the various arrhythmias, one of the least commonly encountered in childhood is heart block.

Heart block may be defined as "an abnormal heart mechanism in which there is a delay in, or absence of, response of the ventricle to auricular impulses." [1] The cardiac impulse normally arises in the sinus node and passes thence to the auriculoventricular node, and then down the bundle of His and its two branches to the Purkinje fibers and the muscle cells. By means of the electrocardiograph, the time taken for the impulse to travel over this route can be measured, and is found to vary with the age of the individual. In the infant it averages 0.10 second; in early childhood this increases to 0.13, and at puberty it reaches 0.14.[2]

A delay in the conduction time may be graphically recorded and will appear in the phlebogram as an increase in the a-c interval. In the electrocardiogram the distance between the P wave, which corresponds to auricular systole, and the QRS group, which corresponds to ventricular systole, will be lengthened.

The case of heart block here reported is of unusual interest because, first, it has not followed any acute illness, which is by far the commonest cause of block in childhood, and, secondly, it occurs in a boy who is the subject of some congenital cardiac defect. The interesting question arises, therefore, as to whether the block is the result of the mechanical disturbance of the conduction fibers due to a congenital malformation.

## REPORT OF CASE

Theodore G., aged 15 years, appeared at the Mount Sinai Hospital Dispensary, March 14, 1917, having been referred from school on account of "heart trouble." The family history was negative. At 3 years of age he had an attack of pneumonia, but was not very sick and made a perfect recovery. At 5 years he had measles, uncomplicated. Two years before entrance he was told by the school physician that he had heart trouble, but paid no further attention to the matter. Eighteen months before he had an attack of vomiting, followed by fainting, but this had never recurred. On arising in the morning, the boy had a severe frontal headache which lasted for from one to two hours and then disappeared. On exertion, such as climbing stairs, he became dyspneic and complained of severe palpitation. There were no other symptoms referable to the circulatory system. The boy had never been considered strong, and had progressed very slowly at school.

He was rather poorly nourished. His color was good. There was no cyanosis or clubbing of the extremities. His height was 57 inches (the average height at 15 years is 63 inches); his weight, 75 pounds (the average at 15 years is 110 pounds). His mentality was somewhat below normal. The teeth were good. The throat was negative—the tonsils were not enlarged or diseased. The cervical nodes were slightly enlarged. The pulses were equal, regular, of good quality, and slow (40 per minute). After exercise the pulse rate increased to 44. The apex beat was in the fifth space in the nipple line. There was no thrill. The right border by percussion was at the right sternal margin. The left border was one finger breadth outside the nipple line. The first sound at the apex was accompanied by a short blowing murmur transmitted outward for a short distance. Over the second left space there was a very loud, rough systolic murmur, transmitted for a short distance downward but not upward. There was a loud cervical venous hum. The remainder of the examination was completely negative. The urine and blood count were normal. The von Pirquet test and Wassermann reaction were negative. Roentgenoscopy revealed a distinct enlargement of the left side of the heart.

An electrocardiogram (Fig. 1) revealed the presence of a heart block. Lead I showed two types of beats, the normal complexes alternating with idioventricular beats. The normal beat was preceded by a P wave at a constant interval of about 0.2 second. The idioventricular beats had no constant relation to the preceding P wave. The idioventricular rate was 37. The beats whose origin was auricular came slightly in advance of this rate. Leads II and III showed the same phenomenon, except that the two types of beats did not alternate.

In order to rule out so-called functional block due to excessive vagus action, 1/60 grain of atropin sulphate was injected, and a second electrocardiogram was taken about thirty minutes later. This cardiogram (Fig. 2) showed that the block was unaffected. Lead I was taken during a period of complete block, Leads II and III showing occasional beats of auricular origin. The rate was unaffected.

The boy has now been under observation for eight months, and the cardiac condition has remained unchanged.

The diagnosis of a congenital heart affection is justified, we believe, on account of the presence of the loud murmur over the pulmonic region, and the mental and physical retardation of growth.

## COMMENT

In adult life, chronic myocardial changes are the commonest cause of heart block; but in childhood almost all the reported cases of block are ascribed to acute inflammatory conditions. Thus diphtheria, acute rheumatism and less often pneumonia are the most important causes in children. More rarely, a simple slight febrile disturbance may be the precursor of a permanent heart block, as in the case reported by Frank and Polak[3] in a child aged 2½ years. Here the slow pulse appeared for the first time after a slight indisposition, attended by fever and accompanied by considerable dyspnea. Tracings showed that the auricle was beating at the rate of 107, while the ventricle beat at the rate of 42.8 per minute.

Postmortem examination in most of the cases following disease reveals inflammatory and degenerative changes in the node and bundle.[4] In some of the cases, however, the conduction system was found to be structurally apparently normal.[5] Such cases have been attributed by Roemer[6] to toxic functional disturbances. To this group of toxic heart block belong the conditions that arise in digitalis poisoning.

Apart, however, from cases due to acute myocardial degeneration and those due to toxic substances, a few cases of heart block have been reported in children in which both these factors were absent; but there

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* From the Pediatric Dispensary of Mount Sinai Hospital.

[1] Lewis: Clinical Disorders of the Heart Beat, London, 1912, p. 16.

[2] Hecht: Ergebn. d. inn. Med. u. Kinderh., 1913, **11**.

[3] Frank and Polak: Nederlandsch. Tijdschr. v. Geneesk., June 10, 1916.

[4] Naish and Kennedy: Lancet, London, 1914, **2**, 1242. Butterfield, H. G.: Heart, 1911-1912, **3**, 203. Cowan, Flemming and Kennedy: Lancet, London, Feb. 3, 1912.

[5] Hume, W., and Clegg, S.: Quart. Jour. Med., 1914, **8**, 1. Price, F. W., and Mackenzie, I.: Heart, 1911-1912, **3**, 233.

[6] Roemer: Jahrb. f. Kinderh., 1912, **76**.

was present some form of congenital cardiac malformation.

The first of these cases was reported in 1910 by Fulton, Judson and Norris.[7] These authors describe a family in which a father, a daughter, aged 20 years, and an infant, aged 22 months, all showed bradycardia, which from pulse tracings appeared to be due to heart block. The infant's slow pulse rate, varying from 40 to 58, was noted at the age of 1 week, and continued unchanged as long as the case was under observation (twenty-four months). Signs of hypertrophy of the heart and a loud systolic murmur made the diagnosis of a congenital malformation very probable.

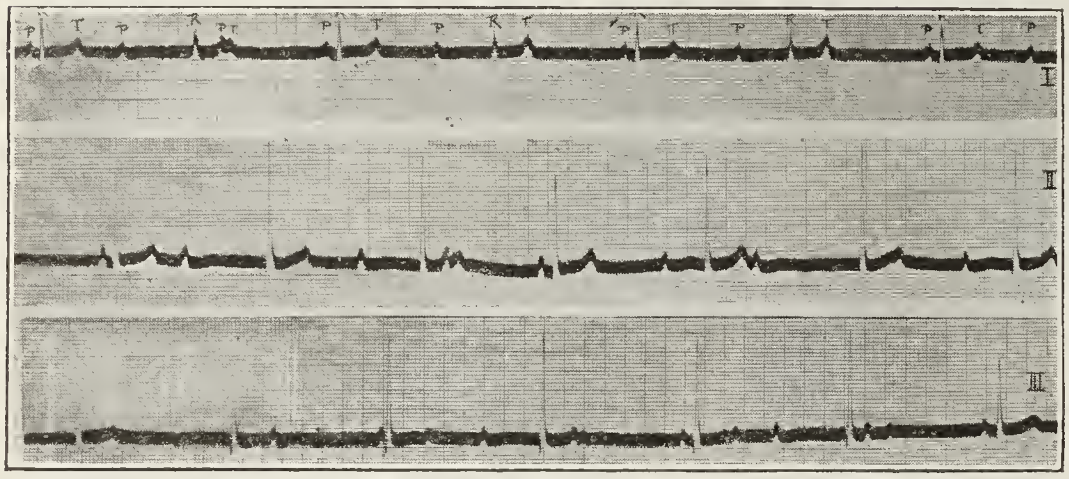

Fig. 1.—Heart block: In Lead I note the alteration of two types of ventricular complex.

In November, 1915, Whipham[8] described two very interesting cases. The first patient, an infant, aged 18 months, presented a constant bradycardia of 48 to 60; a loud systolic bruit over the whole precordium, loudest between the apex and the left sternal border; evidence of cardiac hypertrophy to the right; globular shaped heart in the roentgenogram; polycythemia, 8,400,000 red cells per cubic millimeter, and hemoglobin of 110 per cent. The electrocardiogram showed a regular 2:1 heart block.

Whipham's second patient was a girl, aged 12, in whom a slow pulse had been noted since her sixth year. Here also a loud systolic murmur with maximum intensity in the fourth interspace to the left of the sternum made the diagnosis of congenital cardiac malformation probable. Electrocardiographic tracings showed a complex form of block, complete at times, and at other times incomplete, either 3:2, 2:1 or of mixed type.

Zahorsky,[9] in 1915, reported a case of a child, aged 18 months, with a pulse rate of about 50, and signs pointing to a congenital heart malformation. He considered the case one of heart block, though he has published no cardiographic evidence to prove this.

We have here, then, four cases in which heart block was present in children who were the subjects of congenital heart disease. My own case makes the fifth. Considering that heart block in childhood occurs only very rarely, the fact that at least five cases have been reported in which this irregularity was present at the same time as cardiac malformation must be looked on as more than a mere coincidence. It is quite conceivable, moreover, that the malformation may involve part of the conduction system and thus give rise to disturbance of the heart's rhythm. The particular form of cardiac deformity most likely to involve the conduction fibers would be a defect in the interventricular septum, and it is in this group that the cases of Whipham apparently belong. The other reported cases, including my own, though undoubtedly subjects of congenital cardiac disease, do not, unfortunately, reveal symptoms definite enough to localize the lesion accurately.

One would believe, therefore, *a priori,* that septal defects might frequently involve the conduction system. Such, however, is not the case, as is shown in the following paragraph, quoted from Abbott:[10]

> The distribution of the auriculoventricular junctional bundle in septal defects is of much interest, and has been investigated by Keith, Mönkeberg, Morison and others. As is well known, this bundle emerges from the auriculoventricular node close to the interauricular septum behind the medial cusp of the tricuspid valve, and divides into two branches, the left of which pierces the interventricular septum just in front of the pars membranacea, and passes downward superficially beneath the endocardium of the septum to be distributed to the papillary muscles and the columnae carneae of this chamber; while the right branch runs, more deeply embedded in the musculature of the right side of the septum, to the apex of the right ventricle. In most of the cases of septal defect examined, there was surprisingly little change in this normal arrangement, the fibers streaming over the free border of the septum that formed the base of the defect toward the apices of their respective ventricles. . . . Recent investigations by Flack and Mall have shown that the interventricular septum is formed, not by a process growing up from below, as Rokitansky supposed, but by a hollowing out of the spongy musculature of the embryonic ventricle to form the right and left chambers; the tip of the inferior septum, therefore, represents the wall of the lumen of the original cardiac tube, and this may account for the persistence of the bundle at this point in septal defects.

Though the conduction fibers may not necessarily be involved in an anatomic defect, they may be secondarily affected by inflammatory changes due directly to disturbances of the blood current as suggested by Thalhimer.[11] Be this as it may, we can only conclude that block in childhood occurs in rare instances in hearts affected with congenital defects, and that until we obtain postmortem examinations in cases that have been carefully observed during life, we must remain ignorant of the exact relationship of the cardiac irregularity to the cardiac malformation.

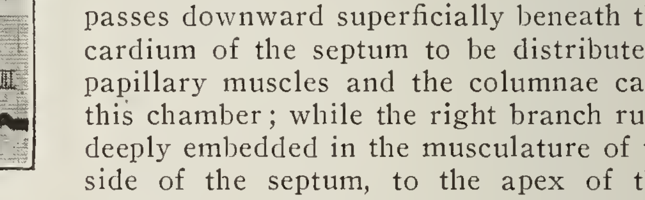

Fig. 2.—Lead I only, after administration of atropin sulphate; complete heart block.

41 West Eighty-Third Street.

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7. Fulton, Judson and Norris: Am. Jour. Med. Sc., 1910, **140**, 339.
8. Whipham, T. R.: Brit. Jour. Dis. Child., 1915, **12**, 321.
9. Zahorsky: Interstate Med. Jour., 1915, **22**, 57.
10. Abbott, Maude: Congenital Cardiac Disease, in Osler's System, **4**, 367.
11. Thalhimer, quoted by Abbott (Footnote 10).

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**False Pretenses.**—Professional services of a physician are held to be within a statute imposing a penalty on whoever obtains from another by false pretenses any money, personal property, or valuable thing, in the Mississippi case of *State* v. *Ball,* L. R. A. 1917 E, 1046.

# SYPHILIS AS A CAUSE OF STILLBIRTHS

## ANALYSIS OF FORTY-EIGHT STILLBIRTHS OCCURRING IN FIFTEEN HUNDRED OBSTETRIC CASES AT THE UNIVERSITY OF MICHIGAN MATERNITY HOSPITAL

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This study was originally undertaken at the suggestion of the American Association for the Study and Prevention of Infant Mortality, to obtain, if possible, further knowledge of some of the most important factors in the causation of stillbirths, and point the way to more efficient means of prevention.

The use of the term "stillbirth" has given rise to considerable confusion and misunderstanding, and as yet, there seems to be no universally accepted definition of the word. The definitions differ as to the stage of gestation at which birth takes place, and are variously set at four months, six months, seven months, viability, etc. They also differ as to what manifestations at birth are to be regarded as signs of life. Ballantyne[1] would limit the term "stillbirth" to the complete expulsion from the maternal birth canals of a child which, while exhibiting one or more of the signs of antenatal life for a time, namely, heart beat or movements, fails to assume those of postnatal life, namely, respiration and crying. According to the same writer, a "live birth" not only shows the characteristics of antenatal life at birth, but assumes those of postnatal life also, whereas a "dead birth" is one in which the characteristics of antenatal life have been lost during or before birth. The American Public Health Association states that "for registration purposes stillbirths should include all children born who do not live any time whatsoever, no matter how brief, after birth."

The fact remains that cessation of cardiac action is the infallible sign of death; hence, for the purposes of this paper, a stillbirth is considered as the birth of a child which has reached the stage of viability, at the twenty-seventh to twenty-eighth week, but in which cardiac action has ceased during or before birth.

The number of stillbirths in this series is 32 per thousand, which falls within the limits found for New York City,[2] where the number varies from 30.3 to 59.2 per thousand. Out of 1,867 stillbirths reported in Manhattan in a period of seven months, 1,331, or 71 per cent., occurred during the period from the seventh month on. Theoretically, these children would have had a chance to be born alive, had the mother received proper prenatal and natal care.

The great majority of the patients admitted to the maternity hospital are illegitimately pregnant, and hence come to the hospital at about the seventh month, as a rule, when it becomes difficult to conceal their condition any longer. On admission, each patient receives a thorough antepartum examination, including a routine Wassermann test; and if the history or the result of the blood test and physical examination indicates syphilis, more careful examinations are made and treatment instituted, if necessary. Other conditions complicating pregnancy are discovered at this time, proper treatment is given and precautions are taken.

In this series, however, it is unfortunate that the report on Wassermann reactions of the mothers is frequently lacking. This is partly accounted for by the fact that some of the patients entered in emergencies, requiring immediate attention, and some of the patients were cared for prior to the time when routine Wassermann tests were made. It is a well known fact that many cases of syphilis, especially in women, escape diagnosis, unless a routine Wassermann test is made, since the history and clinical findings are frequently entirely negative.

At the time of delivery, a routine Wassermann reaction is taken from the cut end of the cord before expulsion of the placenta, and the placenta is at once fixed in 10 per cent. dilution of liquor formaldehydi and sent to the laboratory for histologic examination. Should the child show any evidences of syphilis at birth or within the six weeks following, it is reexamined and another Wassermann reaction taken. Very few of the babies are kept at the hospital more than six weeks. Should the child be stillborn or die before leaving the hospital, a necropsy is performed.

This is the attempted routine in every case; and the fact that many of the data in this series of cases are incomplete should be an incentive to a physician to secure more careful and complete records in the future. It would be highly desirable for him to follow up the development of those infants, born apparently healthy, but with some suspicion of syphilis either in the mother or in the appearance of the placenta, and to obtain data as to the frequency of the transmission of syphilis in such cases.

On analyzing the etiologic factors set forth in the accompanying table, we see that in sixteen cases, or 33⅓ per cent. of the entire series, a diagnosis of syphilis was made on the basis of some one or several positive findings. In only two of these cases was there found any other factor that might have caused stillbirth. To offset these two cases, there were two additional cases in which there was a strong suspicion that syphilis was the etiologic factor.

The Wassermann test was made in seventeen cases. In the cases in which syphilis was diagnosed, a Wassermann reaction was obtained in eight cases, of which three were positive, and the rest negative. In the three Wassermann-positive cases, all the infants were macerated and at necropsy showed congenital syphilis. Spirochetes were demonstrated in two of the cases, and two of the placentas were syphilitic. Two of the Wassermann-negative cases looked suspicious, but not certainly syphilitic. Hence, of the syphilitic cases in which a Wassermann test was made, 50 per cent. were positive. The Wassermann reaction will occasionally be negative in latent cases, as may be seen in Case 790, in which the child was macerated, and showed a history of syphilis, as well as a positive Wassermann reaction and congenital syphilis at necropsy. But statistics covering larger series of cases show a positive Wassermann reaction in a much higher percentage of cases.

Histologic examination of the placenta is a frequently neglected aid in the diagnosis of syphilis, complicating pregnancy. For convenience, distinctions should be made among (1) normal placentas; (2) placentas showing fibrosis, sclerosis or obliterative changes in the vessels to a slight degree; (3) placentas showing the same changes but more marked, with more cellularity and crowding of the villi, probably syphilitic, and (4) placentas showing definite interstitial chorionitis, certainly syphilitic. While it is true that certain etiologic factors, such as lead poisoning, nephritis and chronic intoxications, may produce pathologic changes in the placenta suggesting syphilis, nevertheless such complicating factors can usually be ruled out.

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[1] Ballantyne, J. W.: Stillbirths Registration, Jour. Obst. and Gynec. Brit. Emp., 1914, **25**, 132.

[2] Thomas, L. W.: A Study of Stillbirths, New York Med. Jour., 1913, **98**, 413.

According to Slemons,[3] histologic examination of the placenta confirms or rules out syphilis with few exceptions. It agrees very closely with the Wassermann test, but more frequent exceptions are found in this clinic, although they are not so variable as to make histologic diagnoses unreliable. Some portions of the placenta may be slightly affected or not at all, and the picture may vary according to the part of the placenta that is examined.

Although syphilitic placentas are said to have a typical gross appearance, being characterized by increased size and a pale, dull, greasy look, I am convinced that if the child is born alive, the placenta will differ very little, if any, from the normal. On the other hand, if the child is stillborn and macerated, the placenta shares in the decomposition and may appear dull and greasy. This appearance is likewise produced from cardiac insufficiency or any other cause producing intra-uterine death and maceration.

In thirteen out of the sixteen syphilitic cases, the placenta was examined. It was diagnosed as positively syphilitic in ten cases, or 77 per cent., with suspicions of syphilis in two cases, or 15 per cent., and negative in one case, or 8 per cent. A necropsy on the baby, done in eight of the ten positive cases, showed congenital syphilis in six cases, or 75 per cent. In the other two cases the fetal tissues were too decomposed for diagnosis. It is interesting to observe that in the single syphilitic case in which the placenta was diagnosed as normal, necropsy revealed congenital syphilis, with the presence of spirochetes. Three necropsies were performed on four babies, in whom the placentas were suspected of syphilis. One of these showed congenital syphilis, one was negative, and the third showed nothing on account of extensive maceration.

The records of the maternity hospital contain many cases[4] in which the mothers and babies, both clinically and serologically, are entirely normal, but the placentas have been diagnosed in the pathologic laboratory as positively syphilitic or suspected of syphilis. The question as to whether these cases are truly syphilitic could best be determined by making repeated Wassermann tests and by following up both mother and child and observing the development of any positive manifestations.

Out of the forty-eight cases of stillbirth, twenty-one infants were born in a macerated condition. In sixteen of these twenty-one cases, a necropsy was performed and showed congenital syphilis in nine cases, or 56.25 per cent. Of the other seven negative cases, two were so badly decomposed that no diagnosis could be made, but it is strongly probable that one or both were syphilitic. It has long been recognized that from 60 to 80 per cent. of stillborn macerated babies are syphilitic. In only two of these cases were attempts made to demonstrate spirochetes in the fetal tissues, and in both cases the organisms were found. It is well worth while, in the case of stillborn macerated infants, to remove a piece of the liver, fix it in 10 per cent. dilution of liquor formaldehydi, and examine it for spirochetes by the Levaditi method. To demonstrate the spirochete of syphilis is to prove beyond all doubt the syphilitic nature of the case, no matter what the other tests may be. The chance of success is much greater in examining a fetal liver than in attempting to demonstrate the spirochetes in syphilitic placentas, for they are rarely, if ever, found here.[5]

Analysis of the cases of stillbirth caused by factors other than syphilis shows four cases due to forcible delivery undertaken for eclampsia; four cases due to premature separation of the placenta; three cases due to tight coils of cord about the neck; two cases of prolapse of the cord; two cases of placenta praevia; two cases of maternal heart disease; two cases of version and extraction; two cases of breech extraction; two cases in which the child was a monster, and one case each of nephritis, true knot in the cord, prolonged chloroform narcosis, and forceps in face presentation. There were three cases in which the cause remained undetermined.

The problem of greatest interest and importance in connection with these statistics is that of prevention. I have discussed the factor of syphilis in some detail because of the fact that this disease alone accounts for fully one third of the cases of stillbirth and is by far the largest single factor. In a study of 705 fetal deaths occurring between the seventh month of gestation and the end of the second week after birth, Williams[6] found that syphilis was responsible in 26.4 per cent. of the cases. Hence, the good effects of all measures tending to reduce the frequency of syphilis, which has been estimated at at least 10 per cent. of the population, will be seen at once in a reduction of stillbirths. Syphilis complicating pregnancy will be diagnosed more frequently if the Wassermann test is made more universally available. Many patients are unwilling to assume the added expense of having the test made. In Michigan this obstacle has been removed by the action of the state board of health in performing the test without expense to the patient or the physician. More recently in the same state, syphilis and gonorrhea have been declared reportable diseases, and stringent measures have been provided for isolation and treatment. Although this is more or less a wartime measure, it is to be hoped that it will continue in force after the war.

Even if the pregnant patient is found to have the disease, much benefit can come from energetic treatment during the course of the pregnancy, especially if it is discovered soon after conception. In a series of 127 cases, Marcus[7] found that 90.2 per cent. of the children of untreated mothers were syphilitic; 82.3 per cent. of the children of mothers receiving treatment prior to pregnancy were syphilitic; but if the mothers were treated during pregnancy, only 45.6 per cent. of the children were syphilitic.

The best results for mother and child are obtained by the use of both mercury and salvarsan, the combination being more effective in obtaining healthy infants than either one alone. Hedén[8] found that when salvarsan alone was used, half the babies showed syphilis or a positive Wassermann reaction at birth, whereas with the use of salvarsan and mercury, none of the babies showed clinical symptoms or a positive Wassermann reaction at birth.

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[3] Slemons, J. M.: The Results of a Routine Study of the Placenta, Am. Jour. Obst., 1916, **74**, 204.

[4] Bartholomew, R. A.: Syphilis as a Complication of Pregnancy, Jour. Michigan Med. Soc., 1915, **14**, 325.

[5] Bartholomew, R. A.: The Difficulty of Demonstrating Spirochetes in Syphilitic Placentae, Jour. Michigan Med. Soc., 1917, **16**, 279.

[6] Williams, J. W.: The Limitations and Possibilities of Prenatal Care, The Journal A. M. A., Jan. 9, 1915, pp. 97-101.

[7] Marcus, K.: Klinische Beobachtungen über die Prognose der kongenitalen Syphilis, Arch. f. Dermat. u. Syph., 1913, **106**, 97.

As to the stillbirths due to the various other obstetric complications, better results depend in part on more attention to prenatal care. If detected early, the toxemias of pregnancy are more amenable to treatment than if allowed to progress beyond control. In obstetric emergencies, improvement in results will come with more efficient obstetric training of the physician and with the provision of safer surroundings for the patient during confinement. There will, however, always be a considerable number of stillbirths due to these causes, in spite of good surroundings and the most skilled care.

CAUSATIVE FACTORS IN FORTY-EIGHT CASES OF STILLBIRTH

| Case No. | Syphilis | | | | | | Other Causes |
|---|---|---|---|---|---|---|---|
| | Mother | | Child | | | Placenta | |
| | Wassermann | Clinical History or Findings | Wassermann | Necropsy | Macerated | | |
| 11 | ......... | + | ......... | ......... | + | ......... | — |
| 27 | ......... | — | ......... | ......... | + | ......... | Eclampsia; manual dilation; version; extraction |
| 97 | ......... | — | ......... | ......... | — | ......... | — |
| 143 | ......... | — | ......... | ......... | — | ......... | Monster; craniorachischisis |
| 197 | ......... | + | ......... | ......... | + | Suspicious | — |
| 260 | ......... | + | ......... | ......... | + | + | — |
| 270 | ......... | + | ......... | + | + | + | — |
| 291 | ......... | — | ......... | ......... | — | ......... | Eclampsia; manual dilation; forceps |
| 294 | ......... | — | ......... | ......... | — | ......... | Breech extraction |
| 386 | ......... | + | ......... | + | + | Suspicious | — |
| 435 | ......... | — | ......... | — | — | — | Prolonged chloroform; cord around neck |
| 450 | ......... | — | ......... | ......... | — | — | Contracted pelvis; face presentation; forceps |
| 470 | ......... | + | ......... | + | + | ......... | — |
| 495 | ......... | — | ......... | ......... | — | ......... | Breech extraction |
| 544 | ......... | — | ......... | ......... | — | ......... | — |
| 571 | ......... | — | ......... | — | + | ......... | Mitral regurgitation; pleurisy with effusion |
| 600 | ......... | — | ......... | ......... | — | — | Inefficient pains; version and extraction |
| 609 | ......... | — | ......... | ......... | — | — | Premature rupture of membranes; prolapsed cord |
| 619 | ......... | — | ......... | + | + | + | — |
| 634 | ......... | — | ......... | — | — | ......... | Eclampsia; manual dilation; high forceps |
| 675 | ......... | + | ......... | + | + | + | — |
| 698 | — | — | ......... | ......... | — | ......... | True knot in cord |
| 750 | ......... | — | ......... | ......... | + | — | Myocardial degeneration; P. I. P., antepartum infection |
| 771 | ......... | — | ......... | ......... | — | — | Premature separation of placenta; hemorrhage |
| 790 | — | + | + | + | + | ......... | — |
| 827 | — | — | ......... | + | — | + | Nephritis |
| 944 | — | — | ......... | ......... | — | — | Inefficient pains; no result from pituitary solution; version extr. |
| 979 | ......... | — | ......... | ......... | — | — | Pulmonary stenosis; exophthalmic goiter; prem. sep. plac. |
| 1002 | — | — | ......... | — | — | — | Nephritis; pituitary solution |
| 1012 | ......... | — | ......... | ......... | — | — | Placenta praevia; hemorrhage; forceps |
| 1049 | — | — | — | — | + | ......... | — |
| 1056 | ......... | — | ......... | — | — | — | "Twilight sleep" used; coils of cord around neck; asphyxia |
| 1172 | — | — | ......... | — | — | — | Hydramnios; twisted cord around neck; asphyxia |
| 1196 | ......... | + | +++ | ......... | — | + | Transverse pres.; prem. sep. plac.; hemorrhage |
| 1229 | ++++ | + | ......... | +<br>Spirochetes found | + | + | — |
| 1258 | — | — | ......... | — | + | + | — |
| 1270 | — | — | — | — | + | — | Premature separation of the placenta |
| 1285 | — | — | ......... | ......... | — | — | Eclampsia; version and extraction |
| 1303 | — | — | ......... | — | — | — | Hydrocephalus; spina bifida; craniotomy |
| 1324 | ......... | + | ......... | — | + | + | Erysipelas |
| 1335 | ++++ | + | ......... | + | + | + | — |
| 1362 | ......... | — | ......... | — | — | ......... | Central placenta praevia; pack; manual dilation; version and extraction |
| 1436 | ......... | — | — | ......... | — | — | Pre-eclampsia; edema of lungs; induction of labor with bag; prolapse of cord; version; extraction |
| 1467 | ++++ | + | ......... | +<br>Spirochetes found | + | — | — |
| 1581 | — | — | ......... | ......... | — | — | Nephritic toxemia; prem. sep. of plac. |
| 1589 | — | — | — | — | + | Suspicious | Prem. sep. of plac.; intrapartum infection |
| 1592 | — | — | ......... | — | + | Suspicious | — |
| 1597 | ......... | — | — | — | — | — | Four coils of cord around neck |

## CONCLUSION

1. There is need for the adoption of a uniform definition of stillbirth and of compulsory reporting of stillbirths, in order that statistics on this important cause of infant mortality may be improved.

2. Syphilis is the causative factor in at least one third of the stillbirths from the time of viability to full term, and a Wassermann reaction is strongly indicated in cases in which there have been suggestive clinical symptoms, unexplained abortions, or premature labors with macerated babies.

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[8] Hedén, K.: Klinische Beobachtungen über die Einwirkung des Salvarsans und der Kombination von Salvarsan und Quecksilber auf den Fotus, Dermat. Wchnschr., 1914, 58, 361.

3. A combination of mercury and salvarsan is more effective in assuring the birth of a healthy infant than salvarsan alone.

4. Important confirmative evidence in the diagnosis of syphilis can be obtained from microscopic examination of the placenta, or in case of stillbirth, from examination of the fetal liver by the Levaditi method.

5. More efficient and practical training in obstetrics, and safer surroundings for the patient during confinement will prevent some of the stillbirths resulting from other complications of pregnancy and obstetric emergencies. But there will always remain a considerable number of stillbirths from unavoidable causes.

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# COMMITMENT TO PSYCHOPATHIC HOSPITAL AS RELATED TO QUESTION OF PERSONAL LIBERTY

## ADVANTAGES OF A PROPOSED LAW FOR DETENTION INSTEAD OF THE PRESENT LAW FOR COMMITMENT *

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Mental competence is abolished in insanity, and also in patients not strictly insane, as hysterical subjects, and victims of drink or drugs, of toxic delirium, and of cerebral hemorrhage, tumor or trauma. Patients in each of these conditions are unable to act responsibly and, if placed under treatment or control, must be made the subject of a judicial record of insanity; otherwise admission to institutions is forbidden.

Patients and their friends in great numbers constantly refuse thus to fix what they call the "stigma" of insanity on the patient. They will submit to untold distress before placing a "ban," as they think, on a loved one or on a family, by a public hearing or a court inquest followed by a public record of insanity. Proper care and treatment are thus denied or delayed for weeks, months and years, and incalculable harm results. In the populous communities in every state of the Union, each year, scores, even hundreds, of those suffering from mental disorders reach the incurable stage before treatment is secured. The reports of institutions, which generally show a duration of insanity of a year or more in a majority of all admitted, clearly prove that these cases are often chronic and practically incurable before these patients reach the insane hospital; and it is often too late to hope for recovery when the legal steps are finally taken. In any event, the suffering and injury entailed on all concerned further intensify this evil, which all our communities endure without seeming to be conscious of its extent. Of course, certain cases are incurable at the start; but these may be regarded as a minority. Naturally, the main reason of all this difficulty and misfortune is the proper jealousy of the law regarding personal liberty; and my object in presenting this matter is to inquire whether any method can be adopted whereby personal liberty can be equally well conserved and a source of injustice to the unfortunate at the same time removed.

It is certain that no stigma ought to attach to mental illness any more than to physical illness; yet this is one of the numerous things that *is* although it ought not to be. Probably only advancing education and enlightenment will remove the idea of a supposed stigma attaching to mental disease. I may here mention some of the facts that conspire to produce this unfortunate result.

To the eye of the law, so far as legal proceedings are concerned, insanity and criminality seem to look much alike. In both cases, the individual is under arrest or detention; is in the attitude of an accused person, and in one case is found guilty, and in the other, pronounced *non compos mentis*. Then sentence is passed by judge or jury, and the person held in custody is sent "over the road" to an institution of the state —the asylum or the prison, as the case may be. Each of these two roads, to the undiscriminating public eye, seems to lead to an equally undesirable destination. Another situation exists tending to perplexity on the part of the uninformed. Crime is at times a result of insanity; insanity is also used as a plea in extenuation of crime, and cause and effect are thus confused in the minds of the masses. Finally, the old but still surviving superstition that regards insanity as a "demoniacal possession" adds in some instances to the sense of shame. There is no more reason to associate disgrace with insanity than with rheumatism or Bright's disease. Indeed, when it comes to a question of blame or discredit, the latter are in reality just as often the sequel of evil habits or immoral conduct as is insanity.

In some of our more progressive states, it has been sought to meet the difficulties here described by "voluntary" and "temporary" commitment laws or "emergency" commitments. These have undoubtedly been of great benefit. Their benefit, however, is exceptional and partial. Only in a few instances have these measures been adopted, while the ancient and outgrown methods still generally prevail. It would be well if the patient could go to the psychopathic hospital precisely as to any other; but the possibility of wrongful detention in such hospital, and the necessity of safeguarding personal liberty, have resulted in these legal restrictions which deny admission to all, even though needing such benefit except on condition of a public declaration or verdict of insanity. The same condition also applies to all who enter the state hospitals for the insane.

The law at present accompanies the patient to the door of the hospital and leaves him there subject to all subsequent chances. I believe that a majority of the patients do not need attention from the law before commitment, while there are numerous cases that the law should follow and be cognizant of after as well as before admission to the institution.

I wish here to inquire whether the law cannot follow and surround the patient within the walls of the detention or psychopathic hospital by putting in operation through independent action of the court itself, at regular, short, stated intervals, a method of inquiry personally addressed to each patient which shall give him the opportunity of saying whether he remains in the hospital of his own free will or wishes his liberty. It is believed that if such a method should be adopted, all cases really requiring legal assistance would naturally come to light, and that in the case of a majority, it would be found there was no occasion for court action to be taken.

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* Read before the American Neurological Association, Boston, May 21, 1917.

It is now universally recognized that every city of any considerable size requires an institution for the care and detention of the large number of persons temporarily or permanently incapacitated from a mental standpoint—in other words, the psychopathic hospital is more and more seen as a necessity. Such hospitals are already in beneficial operation, but their usefulness could be largely increased by making them more free of access. Patients should be admitted in the same manner as those admitted to other hospitals and freely discharged as well, except in the case of patients who are in a condition making it unsafe or injurious to themselves or others to be at large.

A considerable number even of those who, strictly speaking, are insane, would offer no objection to their stay in the hospital; while the great majority of those suffering from hysteria or severe neurasthenia, victims of drink or drugs, or patients with toxic delirium or cerebral hemorrhage, tumor or trauma could go to the psychopathic hospital, which is by far the most appropriate place for their treatment, precisely as to any other hospital. If any of either class needed detention against their will, then and then only would occasion arise for invoking the authority of the law, and for detention by order of court. All others might be free to go and come according to their own will. No so-called ban or stigma or verdict of insanity would unnecessarily be placed on any, and the court, with the aid of medical advice, would be able to discriminate between such cases and those of psychoses actually requiring the intervention of judge or jury. Furthermore, the so-called ban or stigma of insanity would be largely removed by the very policy here proposed.

In this connection, it is pertinent to speak of the meaning of the word "insanity." This word has never been defined satisfactorily from either the legal or the medical standpoint. It is as indefinite when applied to the mind as is the word "sick" when applied to the body. Just as there are all possible degrees of sickness, so there are infinite gradations of so-called insanity. Some bodily sickness is so severe that it confines a patient to bed; in other cases, the patient is up and about; patients may be seriously and incurably sick and yet walk the streets and transact business. In the same way the term "insanity" is applied to innumerable conditions. In some cases, it means total loss of mind. In others, a great degree of mental clearness remains. Some patients need close confinement; others can have entire freedom; still others, though decidedly insane, are bright and capable in certain directions; some patients are only temporarily or periodically affected. Insanity is a word without any uniform significance. It would be well if it could be omitted from scientific writings. The term "psychosis" is applicable to all forms of mental disorder or derangement, and carries with it no offense.

The psychopathic or detention hospital as now constituted is in all cases under jurisdiction of the county or city court, which determines the status of the inmates from time to time and warrants their commitment, if necessary, to the state institutions. In some instances, the court sits and keeps its record in the hospital building, provision being made for this in its construction. Such is the arrangement now existing at the psychopathic hospital in Chicago for Cook County, and it is believed that if such arrangements were made at the psychopathic hospitals of New York, Boston and other large cities, the public, especially the "psychopathic" public, would be the gainer. Such provision could readily be made in all cases, and the machinery of the court could be so arranged that at regular and stated intervals each inmate of the psychopathic hospital could be interrogated by the clerk or other independent agent of the court as to his or her desire to remain under treatment or to leave the hospital. All who wished to leave, whose condition required legal control, could readily be dealt with in the same manner as is now customary; the difference would be that under this provision a very much smaller number of cases would require commitment or other interference from the law or court.

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# TREATMENT OF NONTUBERCULOUS LUNG ABSCESS WITH PNEUMOTHORAX

## REPORT OF TEN CASES *

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In a paper published last year, I reported[1] two cases of acute pulmonary abscess treated with artificial pneumothorax, stating that so far as I knew, this was an original method of treatment for acute abscesses. The acute abscess is not a rare condition, since, after the publication of my report, I received a large number of letters from physicians who had abscess cases under treatment. In Washington alone during the past year I have seen fifteen cases following operations on the nose or throat.

In this report, I discuss only the lung abscess that follows an operation on the nose or throat. It may be well to state briefly the etiology, symptoms, etc., common to these cases.

The infection is of the usual mixed type, with the staphylococcus and streptococcus predominating. There are two theories as to the mode of infection: 1. The infecting organisms are carried into the lung by the direct aspiration of infected blood, due to a partial paralysis of the epiglottis while the patient is under the anesthetic. 2. The infecting organisms are carried into the lung from the field of operation by means of an infected clot, with a resulting septic infarct. The symptoms appear from four to ten days after operation, and begin with a rise in temperature, dry cough, pain in the chest on the affected side, and profuse sweating. Blood examination shows a leukocytosis, and physical examination reveals dulness with diminished breathing over the abscessed area. From one to two weeks after onset of the symptoms, the abscess ruptures, and a large amount of foul pus is coughed up. The prognosis under medical treatment is poor. In rare instances, when the abscess is small, healing takes place spontaneously. I have seen this occur in one instance. Forchheimer[2] quotes Kissling's report of 133 cases of lung abscess and lung gangrene treated medically, with less than 10 per cent. resulting in recovery, and 64 per cent. in death. I myself have seen seven cases treated medically without pneumothorax. Of these, four patients died, two are improved, and one made an apparent recovery.

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* Read before the George Washington Medical Society, Dec. 15, 1917.

[1] Tewksbury, W. D.: Acute Pulmonary Abscess Treated with Artificial Pneumothorax, The Journal A. M. A., March 10, 1917, p. 770.

[2] Forchheimer, Frederick: Therapeusis of Internal Diseases, New York, Daniel Appleton & Co., 1913, 3, 441.

The first eight cases reported in this series were acute, being of less than six weeks' duration.

### REPORT OF CASES

Case 1.—Mr. H. G. P., aged 32, seen in consultation with Drs. Reginald Walker, Charles White and Sterling Ruffin, was operated on, June 17, 1916. He developed an abscess of the right lung, June 26, and was becoming progressively worse until August 12, about six weeks after onset of the symptoms, when pneumothorax treatment was started. The lung was gradually compressed by a small and frequent injection of air into the pleural sac, and later, large and less frequent injections were used. Ten treatments were given from August 12 to October 15, on which date the patient was discharged as cured. Roentgenograms taken several months after the discharge showed the lung as normal, with practically no evidence of the abscess scar. The patient is in perfect health now, fourteen months after treatment.

Case 2.—Mrs. O. B., aged 27, seen in consultation with Dr. Charles W. Richardson, was operated on, Sept. 9, 1916. September 16, an abscess of the left lung developed. The patient was extremely septic, becoming rapidly worse. October 15, four weeks after the development of an abscess, pneumothorax was started and six treatments were given, the date of the last being November 20, when the patient was discharged as cured. She remains well thirteen months after treatment.

Case 3.—Mr. A. C. N., seen in consultation with Drs. D. E. Mulcahy and Reginald Walker, was subjected to a double frontal sinus operation, about Nov. 1, 1916, and developed an abscess of the right lung, November 7. Pneumothorax was started, November 24, and eight treatments were given, the date of the last being January 21. The patient had a rather slow convalescence, but the lung was healed by March 1, and he remains well, eleven months after treatment.

Case 4.—Anna J., aged 13, seen in consultation with Dr. Claytor, was operated on, about October 15, developing abscess of the left lung one week later. The patient became progressively worse, and pneumothorax was started, November 27. Five treatments were given, the last one, December 30, when the patient was discharged as cured. So far as I am able to learn, she remains well eleven months after treatment.

Case 5.—Mrs. L. H., aged 24, seen in consultation with Dr. Charles White, was operated on, about Jan. 15, 1917, and developed an abscess of the right lung one week later. I was called in, February 22, one month after the development of the abscess. The patient gave a history of having suffered with asthma and epileptic attacks for a number of years. Examination revealed a probable five months' pregnancy, although there was no fetal motion or fetal heart sounds. The patient was desperately sick. Two treatments were given, producing a partial compression of the lung. The patient coughed up a large amount of pus and seemed somewhat better for tweny-four hours. She went into labor, however, March 1, and delivered a five months' fetus, which had apparently been dead several weeks. No more injections of gas were attempted. She died, March 4, two days after the delivery of the fetus. In this patient, the history of asthma and epilepsy showed a poor general condition, and the additional complication of the pregnancy with miscarriage made the case hopeless.

Case 6.—Miss K. S., aged 24, seen in consultation with Drs. C. W. Richardson and G. N. Acker, was operated on, March 15, 1917. An abscess in the right lung developed, March 20. The patient was very septic, becoming progressively worse. Pneumothorax was started, March 29, nine days after onset of the abscess. Seven treatments were given, the date of the last being May 7, when the patient was discharged as cured. She remains perfectly well at the present time, more than seven months after discharge.

Case 7.—Miss K. K., aged 20, seen in consultation with Drs. C. B. Conklin and Charles White, was operated on, May 9, 1917, and developed an abscess of the right lung one week later. Pneumothorax was started, June 4, nineteen days after the development of the abscess. It was noticed at the first treatment that there was a little fluid in the pleural sac. Three injections of gas were given at intervals during the period from June 4 to June 10. The lower portion of the lung collapsed, but there were adhesions over the upper half of the lung, which prevented collapse. The patient developed considerable pain, and the signs of pleural effusion increased rapidly. We suspected a rupture of the abscess into the pleural sac, and aspiration confirmed our suspicion. We found the pleural sac to contain a thin, slightly turbid fluid, of an extremely foul odor. The patient was immediately taken to the hospital, where Dr. Charles White did a partial rib resection and put in a drainage tube. The infection was extremely virulent, showing chiefly streptococci. The patient showed no improvement after the operation, and died, June 23. This case was a great disappointment, for while the patient was desperately ill before pneumothorax was begun, still her symptoms seemed no worse than those of several patients who were cured. The presence of pleural adhesions was probably the cause of the rupture of the abscess into the pleural sac. This fact impresses on us the importance of collapsing these cases promptly. The longer we wait, the more probable it is that we shall find pleural adhesions.

Case 8.—Hazel H., aged 13, seen in consultation with Dr. J. D. Rogers, was operated on early in June, and developed an abscess in the right lung about June 15. The patient appeared very septic, and pneumothorax was started, June 28, two weeks after the development of the abscess. Five treatments were given during the period between June 28 and July 25, when the patient was discharged as cured. She remains well five months after the discharge.

The following are two cases of chronic lung abscess:

Case 9.—Mr. A. B., aged 25, was seen in consultation with Dr. Herbert Martin, Nov. 24, 1916. His tonsils had been removed one year before, an operation which had been followed by an acute abscess of the right lung. The abscess had apparently been healing gradually, and the patient thought himself nearly well. Early in November, 1916, however, he suddenly began to have a severe pulmonary hemorrhage. Dr. Martin had tried all the usual methods of treatment, but the patient continued to have a severe hemorrhage about every twenty-four hours. Examination revealed signs of an abscess involving the middle and the lower portions of the right lung. Pneumothorax was started, November 24, and was continued until January 24, eight treatments in all being given. It took about three weeks entirely to control the hemorrhage, and it was impossible to get a complete compression of the lung on account of the dense scar around the abscess in the lung tissue. The patient improved somewhat, and was up and around, but still had a slight elevation of temperature, and coughed up large amounts of pus. I understand that he has since had a radical operation performed, consisting of the removal of more than half the right lung, and that he has improved sufficiently to return to work. Pneumothorax probably prevented him from bleeding to death, but on account of the impossibility of our obtaining a complete compression of the lung, a cure could not be effected.

Case 10.—Mrs. J. P., aged 29, was seen in consultation with Dr. Claytor. Her tonsils had been removed two years previously, the operation being followed by an acute abscess of the left lung. The abscess had become chronic and she had continued to cough up pus for a year. She had then been operated on by Dr. James Mitchell, who had resected one rib posteriorly, opened up the abscess and put in a drainage tube. Her general condition had improved, but she had still continued to drain and cough up pus. I started pneumothorax, April 25, 1917, and continued it until May 27, giving six treatments. On account of pleural adhesions and scars in the lung, only a partial collapse was obtained. For a few weeks the expectoration and drainage diminished very materially, but the improvement was only temporary. Her general condition remains good, but she will probably never be well unless she has a resection of the lung.

### SUMMARY AND CONCLUSIONS

Of the ten cases of pulmonary abscess treated, six patients, or 60 per cent., were cured; two, or 20 per cent., were only temporarily improved, and two, or 20 per cent., died. Of the ten patients treated, seven had the abscess in the right lung, and three had the abscess in the left lung. In four cases in which the abscess was of less than two weeks' duration, a prompt cure was effected. In six cases in which the abscess was of longer duration, two patients were cured, two were temporarily improved, and two died.

In view of the poor results obtained by the usual procedures, pneumothorax used promptly appears to be the rational treatment in all cases of acute pulmonary abscess. In most cases of chronic pulmonary abscess the patients will probably not be materially benefited by the use of pneumothorax.

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# HEMORRHAGE INTO AN OVARIAN CYST SIMULATING ECTOPIC PREGNANCY *

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The attention of a small group of observers has been attracted to the clinical resemblance of certain ovarian conditions to ectopic pregnancy. The majority of cases recorded have dealt with the formation of a pelvic hematocele of ovarian origin, usually due to rupture and subsequent hemorrhage from a corpus luteum cyst.

The most important ovarian conditions that may suggest ectopic pregnancy are: (1) a corpus luteum or follicular cyst; (2) torsion of the pedicle of a cyst; (3) rupture of a cyst with or without intra-abdominal hemorrhage; (4) ovarian hemorrhage, and (5) hemorrhage into a cyst. Judging from the literature, the last is infrequent, especially as regards its giving rise to symptoms suggestive of ectopic pregnancy.

The exceedingly close simulation of ectopic pregnancy is well shown in the following instance:

*History.*—Mrs. D., aged 28, secundipara, whose labors had been normal, the last one occurring fourteen months before, consulted me, Aug. 27, 1916, fearing pregnancy. At that time menstruation was one week overdue. She was in good general health, and menstruation had been entirely regular and normal previously except for some slight discomfort until the flow was established. The cervix was of normal consistency, the fundus not enlarged; both ovaries were distinctly palpable, the left being slightly enlarged and tender. The adnexa, otherwise, were negative. Nothing, in short, besides the nonappearance of the menses was found to suggest pregnancy, and an effort was made to reassure the patient of its improbability. When called three days later, I found the patient suffering with severe abdominal pain, and flowing profusely. The husband, insufficiently reassured of the unlikelihood of pregnancy, had procured some "pills" from another physician to "bring her around." Several of these had been taken on the preceding day. During the night, colicky pains in the lower abdomen occurred, increasing in severity, and accompanied by diarrhea and a profuse vaginal flow. Large clots of blood and fragments of "tissue" were passed, all of which, fortunately, were saved and examined grossly and microscopically. The patient's temperature was 101, and the pulse rate 90 and of good quality. There were marked tenderness and rigidity on the left side of the lower abdomen, but no mass could be felt and no free fluid was demonstrable. Nausea was present, but no vomiting.

Bimanual examination revealed the same condition of the uterus and cervix as was found several days previously, except that the external os was slightly patulous. On the left side of the pelvis, however, a tender globular and cystic mass the size of a goose egg could be determined. It was but slightly movable, and corresponded in position to the ampullary region of the tube or the ovary. There was no bulging of the culdesac. As the general condition, quality and rate of the pulse did not suggest intra-abdominal hemorrhage, an expectant procedure was adopted with absolute rest in bed and application of an ice bag over the lower abdomen.

The tissue passed by the vagina was found to consist of practically a complete triangular cast of the uterine cavity, such as will often be passed in cases of ectopic gestation after intra-abdominal rupture or operative removal. Microscopically, the cast was shown to be a rather hyperplastic endometrium, but it showed no decidual reaction or the presence of decidual cells. There was no evidence of chorionic villi or other fetal elements in either the membranes or the clots. Accordingly, the possibility of an intra-uterine pregnancy seemed to be eliminated and the likelihood of an ectopic gestation somewhat in doubt, for the endometrial casts in the latter condition usually show a decidual reaction.

On the following day the patient's condition was about the same with regard to pain in the left side, though perhaps it was more constant and less colicky in nature. The flow had decreased somewhat. A leukocyte count on this day (September 2) showed a total white blood count of 18,000, with polymorphonuclears 82 per cent. The temperature was 99.4. The pelvic condition was the same as on the preceding day, and the general condition, color and pulse manifested no evidence of internal hemorrhage.

During the next week in watchful expectancy the pain became less severe, though persistent, and the flow practically ceased. The temperature varied from normal to 100, while the pulse rate rarely exceeded 90. Loss of appetite and occasional nausea persisted. There was no demonstrable change in the pelvic condition noted previously. As there was no appreciable improvement in the local condition, operation was decided on. The diagnosis at the time lay between (1) hemorrhage into a corpus luteum; (2) a twist of the pedicle of an ovarian cyst; (3) tubal pregnancy unruptured, or (4) a tubal abortion. The clinical course and findings on examination favored the diagnosis of hemorrhage into a corpus luteum.

*Operation and Result.*—Sept. 11, 1916, a transverse incision revealed no free blood in the peritoneal cavity. The uterus was not enlarged; it was in midposition. The left ovary was transformed into a dark, tense cyst the size of a small apple. There was no torsion of its pedicle. The right ovary contained a corpus luteum of normal appearance. Both tubes were normal. Left ovariectomy, the Willis operation for shortening the round ligaments, and appendectomy were followed by dilatation of the cervix and curettage. The curettings were moderately abundant and showed, microscopically, complete regeneration of the endometrium with slight glandular hyperplasia.

Convalescence was uneventful, and menstruation since has been entirely painless and otherwise normal. Grossly, the left ovary was practically replaced by a tense, dark, thin-walled, unilocular cyst with dark bloody content. Microscopically, the cyst wall was shown to consist of fibrous and scanty stroma tissue without definitely distinguishable epithelial lining. No lutein cells were in evidence. In the basal portion of the cyst wall, where more ovarian tissue was present, there were numerous small areas of petechial or interstitial hemorrhage.

## COMMENT

A retrospective analysis of this case presents several features of speculative interest:

1. *The Causal Relationship of Ovarian Cysts to Perverted Menstruation.*—The inhibitory influence of ovarian cysts, either of follicular or corpus luteum origin, on the periodicity of menstruation has been observed by Halban[1] and more recently corroborated and substantiated by Rubin.[2]

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* From the surgical and pathological departments, University of Nebraska College of Medicine.

[1] Halban: Jour. Gynec., 1915, 34.

[2] Rubin: Surg., Gynec. and Obst., 1917, 24, No. 4.

In the case I have reported, menstruation was delayed one week in spite of an apparently fully developed corpus luteum in the other or normal ovary. Naturally, a very early uterine pregnancy and abortion must be considered a possible explanation for this delay; but careful microscopic examination of the tissues passed by the vagina failed to reveal even suggestive evidence of pregnancy, and subsequent operation did not reveal an ectopic gestation.

It seems reasonable to attribute the unusually profuse flow, the severe dysmenorrhea, and the passage of an endometrial "cast" to the emmenagogic action of the drug which was taken in this instance for that purpose.

2. *The Etiology of Ovarian Hemorrhage.*—Apparently, in this instance hemorrhage occurred into the cyst coincidently with the onset of the menstrual flux. Accordingly, pelvic congestion accentuated by an oxytocic agency is to be considered as a probable etiologic factor. Novak,[3] in discussing the etiology of ovarian hemorrhage, regards hyperemia, either active or passive, as a predisposing factor. He states that frequently hemorrhage occurs in the walls of atretic follicles, but even more often in corpus luteum or corpus luteum cysts. Subsequent rupture and free intra-abdominal bleeding will depend on the proximity of the follicle or cyst to the surface.

Ohman,[4] in reporting six illustrative cases, classifies ovarian hemorrhage into three groups: (1) intrafollicular hemorrhage; (2) intrastromal or interstitial hemorrhage, and (3) hemorrhage into a corpus luteum. Groups 1 and 2 may be combined. He regards the direct etiologic factors as being obscure. In none of his cases, however, is there definite relationship to menstruation. Jones,[5] too, is of the opinion that menstrual congestion is probably an unusual factor in ovarian hemorrhage. Cantoni,[6] on the other hand, points out the fact that the ovary is peculiarly liable to circulatory disturbance, and has a normal predisposition to periodic hemorrhage, as in the case of bleeding from the walls of the graafian follicles after rupture and extrusion of the ovum. Physiologically, an active hyperemic condition of the ovary occurs in the premenstrual phase, in coitus, and during pregnancy. Pathologically, hyperemic (passive) states result from venous stasis due to pressure of a pelvic tumor, fixed displacements of the uterus, and torsion of the pedicle of the ovary. It would seem quite rational to attribute to hyperemia, either active or passive, at least a predisposing feature in the etiology of ovarian hemorrhage. The direct or exciting factor will often remain obscure. Perhaps it will be some slight trauma, or a mild temporary torsion that momentarily increases capillary tension to the breaking point.

Certainly in the case I have cited, temporary torsion cannot be disregarded as a possible cause of hemorrhage, for, given an enlarged cystic ovary, let us say, actively congested and buffeted around by the intestine in violent peristalsis following the administration of an oxytocic, a slight degree of torsion would be sufficient to produce capillary rupture in the cyst wall and then into its cavity. The presence of multiple minute interstitial hemorrhages in the basal part of the cyst wall would further this suggestion.

3. *Intracystic Ovarian Hemorrhage Simulating Ectopic Gestation.*—The perversion of menstruation due to ovarian cyst, more particularly corpus luteum cysts, may give rise to the suspicion of tubal pregnancy. Rubin[2] cites several instances illustrating this close clinical resemblance. Early uterine pregnancy associated with an ovarian cyst may likewise suggest tubal gestation. Dorman[7] reports such an instance in which operation revealed a two months' intra-uterine pregnancy, and a large corpus luteum cyst.

Intracystic hemorrhage, as an additional feature in furthering the simulation of ectopic gestation, is, apparently, an unusual coincidence. Its occurrence would usually give rise to more acute manifestations suggestive of tubal abortion or rupture. The case I have reported is rather unique, since practically all of the symptoms of tubal pregnancy, both subjective and objective, were present, even to the passage of a cast of the endometrium.

A meager literature bearing on this subject brings to light only a few paralleling instances. One reported by Weinbrenner[8] is particularly comparable to mine in that after a delay in menstruation, the sudden onset of a severe dysmenorrhea, with other clinical evidence, strongly suggested ectopic pregnancy. Operation, however, revealed hemorrhage into a corpus luteum cyst. A somewhat similar instance is reported by Lee.[9]

### CONCLUSION

It should be kept in mind that corpus luteum or follicular cysts of the ovary may be the cause of delayed menstruation, may, further, give rise to pain, and may thus suggest ectopic pregnancy. With the foregoing manifestations, and in the absence of shock or evidence of intraperitoneal hemorrhage, the diagnosis of unruptured tubal pregnancy or of a corpus luteum or follicular cyst of the ovary will often be in doubt. The rational and safe procedure is early exploratory operation.

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# THE PLACE OF INTRASPINAL THERAPY IN UROLOGY *

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The introduction of various therapeutic agents into the spinal canal in attempts to cure neural syphilis is a comparatively new procedure. In spite of over five years of its rather general employment, however, and the varied series of reported cases by many workers, its exact status is still somewhat uncertain. The demonstration by Noguchi and Moore[1] in 1913 of *Spirochaeta pallida* in stained sections from the brain tissue of persons who had died of general paresis, and the close relation between this condition and tabes dorsalis, leave little doubt as to the causative agent in these diseases. To Swift and Ellis,[2] however, belongs the credit for the really remarkable discovery of the efficacy of intraspinal therapy in certain types of syphilitic involvement of the cerebrospinal system.

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[3] Novak, Emil: Abdominal Hemorrhage of Ovarian Origin, The Journal A. M. A., April 21, 1917, p. 1160; Hematomata of the Ovary, Including Corpus Luteum Cysts, Bull. Johns Hopkins Hosp., 1917, **28**, 349.

[4] Ohman, K. H.: Monatschr. f. Geburtsh. u. Gynäk., 1913, **38**, 283.

[5] Jones: Surg., Gynec. and Obst., 1913, **16**, No. 1.

[6] Cantoni: Arch. Gynäk., 1914, **103**, No. 3.

[7] Dorman: Tr. New York Acad. Med., Sec. Obst. and Gynec., Nov. 24, 1912; abstr., Am. Jour. Obst., 1913, **67**, 422.

[8] Weinbrenner: Monatschr. f. Geburtsh. u. Gynäk., 1906, **24**, No. 3.

[9] Lee: Brooklyn Med. Jour., **19**, 209.

* Read before the Buffalo Academy of Medicine, Dec. 5. 1917.

* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital, Baltimore.

[1] Noguchi and Moore: Jour. Exper. Med., 1913, **17**, 232.

[2] Swift and Ellis: New York Med. Jour., 1912, **96**, 53.

Through the observations of Taege,[3] who noted that the milk of a syphilitic mother, under salvarsan therapy, had a markedly curative effect on her syphilitic child, and also those of Meirowsky and Hartman,[4] of Plant,[5] and of Gibbs and Calthrop,[6] who observed improvement in primary and secondary syphilis under subcutaneous injections of serum in patients treated with salvarsan, the way for this newer specific serum therapy was unquestionably paved. Wechselmann[7] in 1912, using neosalvarsan, was the first to employ intraspinal therapy. In his hands the results were doubtful and the reactions very severe. Marinesco[8] in 1913, following essentially the same technic, came to practically the same conclusions. In 1912, Swift and Ellis reported their results of the use of autosalvarsanized serum intraspinally in cases of tabes and general paresis, and since then their method has been rather generally employed in this country. Ravaut[9] in 1913 reported two cases of cerebrospinal syphilis treated subdurally with injections of neosalvarsan and mercury, and later, in 1914, began using unchanged neosalvarsan intraspinally in hypertonic solutions in freshly distilled water. At the same time Marie and Levaditi[10] were making similar studies by the same method in cases of general paresis. In 1914, Ogilvie[11] modified the Swift-Ellis method by adding definite amounts of salvarsan directly to the patient's serum that was used for intraspinal injections.

In 1914, Byrnes[12] advocated the use of mercurialized human serum intraspinally. He found that from $\frac{1}{50}$ to $\frac{1}{25}$ grain of mercuric chlorid added to 12 c.c. of a patient's serum to form an albuminate of mercury, and the whole brought up to 30 c.c. by the addition of physiologic sodium chlorid solution could be introduced into the spinal canal with impunity. At that time Byrnes reported the results of treatment in thirty-two cases. His series included thirteen cases of tabes, two of taboparesis, three of specific meningitis and fourteen of general paresis. Of the bladder symptoms in tabes, Byrnes briefly reports that these were greatly improved. Haller,[13] in a series of patients receiving intraspinal treatment, mentions one having incontinence. This patient improved under specific intraspinal treatment. Also Wolfsohn,[14] in a recent report of a number of intraspinal cases, cites two tabes patients having incontinence of urine, both of whom recovered normal urinary control under mercurialized serum administered intraspinally. More recently, Burns,[15] describing the bladder changes due to specific lesions of the central nervous system, has reported twenty-one cases, in some of which there was urinary incontinence; many of these patients regained normal urination under intraspinal injections of mercurialized serum.

## INTRASPINAL THERAPY IN SIXTEEN UROLOGIC CASES

For the purpose of this study, sixteen cases of tabes and cerebrospinal syphilis presenting essentially urologic symptoms, namely, incontinence or other irregularities of urination, together with certain sexual symptoms, were selected from the recent records of the Brady Urological Institute. The cases selected were only those in which the urologic symptoms predominated, and these have thus been grouped:

1. Complete or marked urinary incontinence occurred in three, or 18.75 per cent.
2. Slight incontinence of urine, often at night, was present in seven additional cases, or 43.75 per cent.
3. Increased frequency of urination was noted in eight, or 50 per cent.
4. Dribbling after urination was present in ten, or 62.5 per cent.
5. The feeling of inability completely to empty the bladder was complained of by three, or 18.75 per cent.
6. Change in sexual powers, ranging from a diminution to a complete loss of potentia, was present in fifteen, or 93.75 per cent.
7. Pain in the back and legs, varying from a dull ache to the characteristic lightning pains, was complained of by eleven, or 68.75 per cent.
8. Ataxia, while not a urologic symptom, was noted in eight, or 50 per cent., of the cases.

The bladder examination in these patients showed that twelve, or 75 per cent., had residual urine, usually over 100 c.c., and the largest 900 c.c. Among the cardinal diagnostic points, eight, or 50 per cent., showed a dilatation of the internal vesical sphincter, while a certain laxness or diminished tonicity in the rectal sphincter was noted in ten cases, or 62.5 per cent. The capacity of the bladder was increased above normal in six cases, or 37.5 per cent., the largest being 1,200 c.c. The blood examination revealed a negative Wassermann reaction in ten cases (nine of which gave a history of some form of specific antisyphilitic treatment). In six cases the Wassermann reaction was positive in the blood serum.

In the presence of the clinical symptoms and suggestive objective findings, the definite evidence of specific spinal cord disease was found in the spinal fluid in every case. The spinal fluid examination has consisted in the determination of the spinal fluid pressure, the Wassermann reaction, a cell count, a study of the excess of globulin present as evidenced by the Ross-Jones and the Pandy tests, and finally the determination of the colloidal gold reaction. Fifteen of the patients showed a positive Wassermann reaction in the spinal fluid on admission, and the sixteenth was found strongly positive after one intraspinal treatment, which measure acted unquestionably as a provocative step. Eleven cases had a cell count above 10 per c.m. The globulin test performed by both the Ross-Jones and Pandy tests showed a positive precipitation in every instance. Fifteen cases showed a definite change in the colloidal gold reaction, giving typical paretic or syphilitic curves. One case showed practically a negative curve, decolorizing only the second tube in the dilutions of 1 : 40 and 1 : 80.

The form of treatment in these cases has consisted in every instance of intraspinal injections of mercurialized serum. The serum has been the commercial product made up with $\frac{1}{25}$ and also $\frac{1}{50}$ grain of mercuric chlorid dissolved in normal horse serum and the whole brought up to 30 c.c. by the addition of physiologic sodium chlorid solution. The strength of 1/50 grain of mercuric chlorid has been found the most satisfactory, and has been generally used. The treatments have in the main been given one week apart until four have been received, when a rest of from four to eight weeks is advised. At the end of this time further serologic studies are made, and if the findings warrant, the series of injections is repeated. The technic of the injection has been the ordinary lumbar puncture between the second and third or third and fourth lumbar vertebrae after the skin has been thoroughly cleaned with iodin. The spinal fluid is allowed to run from the needle until the pressure is reduced to 20 mm. of water or lower. The rubber tube with the ampule of serum is then attached to the needle, and its contents are allowed to run into the spinal canal. The rapidity of flow is regulated by slightly elevating or lowering the ampule of serum. The full 30 c.c. is allowed to flow in usually without difficulty. The foot of the bed is then elevated 8 inches for from thirty minutes to two hours. In cases with a positive Wassermann reaction in the blood serum, intravenous salvarsan or diarsenol is administered at weekly intervals in doses of from 0.4 to 0.6 gm. each until four are taken, in addition to the intraspinal therapy. The individuals with residual urine and incontinence and also those with frequency and dribbling have in addition been treated locally every five to seven days with dilations of the posterior urethra, and internal and external sphincters with the Kollman dilator. It has seemed of some benefit in these cases with urinary symptoms thus to stretch the poorly innervated sphincteric fibers in an attempt to improve their diminished tone.

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[3] Taege: München. med. Wchnschr., 1910, **57**, 1725.
[4] Meirowsky and Hartman: Med. Klin., 1910, **6**, 572.
[5] Plant: Deutsch. med. Wchnschr., 1910, **26**, 2237.
[6] Gibbs and Calthrop: Brit. Med. Jour., 1911, **1**, 809.
[7] Wechselmann: Deutsch. med. Wchnschr., 1912, **38**, 1446.
[8] Marinesco: Ztschr. f. phys. u. diät. Therap., 1913, **17**, 194.
[9] Ravaut: Ann. d. méd., 1914, **1**, 49; Gaz. de hôp., 1913, **86**, 1061.
[10] Marie and Levaditi: Bull. et mém. Soc. méd. d. hôp. de Paris, Nov. 18, 1913.
[11] Ogilvie, H. S.: The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength, THE JOURNAL A. M. A., Nov. 28, 1914, p. 1936.
[12] Byrnes, C. M.: The Intradural Administration of Mercurialized Serum in the Treatment of Cerebrospinal Syphilis, THE JOURNAL A. M. A., Dec. 19, 1914, p. 2182.
[13] Haller, D. A.: The Treatment of Syphilis of the Central Nervous System, Arch. Int. Med., June, 1917, p. 997.
[14] Wolfsohn: Am. Jour. Med. Sc., 1917, **153**, 265.
[15] Burns: Surg., Gynec. and Obst., 1917, **24**, 659.

To the sixteen patients have been given seventy-one intraspinal injections, an average of over four to each patient, while the most any one patient received was thirteen. These have been given with no deleterious effect whatsoever. Despite the fact that the mercuric chlorid was in a solution of horse serum, there have been noted no cases of anaphylaxis, nor has there been found any report in the literature of such a complication following intraspinal medication when mercurialized serum made in this manner was used. The reactions following this treatment have varied from none to moderately severe. Usually one dose of morphin and rarely two have been sufficient to control all pains, which for the most part are confined to the back and legs. Frequently no sedative is required. A moderate elevation of temperature ranging from normal to 103.5 F. may be expected. This reaches the maximum about ten hours after the injection, and usually returns to normal by the end of from thirty-six to forty-eight hours and frequently before. Headache of a moderate grade is occasionally present. Nausea and vomiting may occur, but are very rare. Absolute rest in bed, the patient lying flat on the back, with the administration of a sedative when indicated, seem to be the most important measures for the comfort of the patient.

Under therapy the changes in the spinal fluid findings have been striking. In seven cases the Wassermann reaction was changed from positive to negative, and in six additional cases the degree of fixation was greatly reduced, frequently requiring four times the usual amount of fluid to give even a 25 per cent. fixation. In five cases the colloidal gold curve was made negative after a previous syphilitic or paretic zone, and in five additional cases the gold curve was notably reduced in strength. A reduction in the cell count was noted in eleven cases, and is the first finding to change under this form of therapy. The excess of globulin was reduced in six cases. The colloidal gold test appears more sensitive than the Wassermann reaction in detecting a specific involvement in the cord,

TREATMENT AND RESULTS IN SIXTEEN CASES *

| Name | B. U. I. No. | Blood | Symptoms | Diagnosis | Treatment | Spinal Fluid Findings† | | | | Results |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Wassermann | Cells | Globulin | Gold | |
| W. R. W. | 4929 | Negative | Incontinence; lightning pains; diminished sexual powers. Residual urine, 820 c.c. | Tabes | | | | | | Lightning pains gone; no incontinence; residual urine, 60 c.c. |
| | | | | 3/ 7/16 | 1/50 gr. Hg serum | 4 4 4 | ‡ | ‡ | | |
| | | | | 3/21/16 | 1/50 gr. Hg serum | 4 4 4 | 25 | + + | 23332000 | |
| | | | | 2/22/17 | 1/50 gr. Hg serum | | | | | |
| R. A. F. | 5365 | Positive | Incontinence; frequency; dribbling; loss of sexual powers. Residual urine, 500 c.c. | Tabes | | | | | | Incontinence improved; dribbling gone; frequency improved; residual urine, 120 c.c. |
| | | | | 6/ 8/15 | Salvarsanized serum | 4 0 0 | 3 | + + | 5544432000 | |
| | | | | 6/15/15 | Salvarsanized serum | | | | | |
| | | | | 6/22/15 | Salvarsanized serum | 4 4 4 | 8 | ++ ++ | 3333220000 | |
| | | | | 9/22/16 | 1/50 gr. Hg serum | 4 0 4 | .. | + + | 2224441100 | |
| | | | | 9/25/16 | 1/50 gr. Hg serum | | | | | |
| | | | | 10/ 3/16 | 1/50 gr. Hg serum | 4 4 4 | ‡ | ‡ | | |
| | | | | 10/11/16 | 1/50 gr. Hg serum | 4 4 3 | 16 | + + | 2333332100 | |
| | | | | 12/18/16 | 1/50 gr. Hg serum | 4 4 4 | .. | + + | 2223311000 | |
| | | | | 1/ 4/17 | 1/50 gr. Hg serum | 2 0 4 | 2 | + + | 1112331000 | |
| | | | | 1/11/17 | 1/50 gr. Hg serum | 4 0 4 | 6 | + + | 1111210000 | |
| J. H. G. | 4648 | Negative | Incontinence; lightning pains; loss of sexual powers; ataxia. Residual urine, 450 c.c. | Tabes | | | | | | Incontinence unimproved; lightning pains gone; residual urine 250 c.c. |
| | | | | 10/15/15 | 1/50 gr. Hg serum | 0 0 0 | 4 | 0 0 | 1110000000 | |
| | | | | 10/22/15 | 1/50 gr. Hg serum | 4 4 4 | 25 | + + | 554331100 | |
| E. L. B. | 5117 | Positive | Frequency; dribbling; slight incontinence; decreased sexual powers; ataxia. Residual urine, 900 c.c. | Tabes | | | | | | Frequency and dribbling gone; slight incontinence gone; sexual powers improved; residual urine, 0 |
| | | | | 5/29/16 | 1/60 gr. Hg serum | 4 4 4 | 36 | +++ + | 5555421000 | |
| | | | | 6/13/16 | 1/50 gr. Hg serum | 4 4 4 | 5 | ++ + | 55555442210 | |
| | | | | 6/20/16 | 1/50 gr. Hg serum | 4 4 4 | 13 | ++++ ++ | 5555543210 | |
| | | | | 6/27/16 | 1/50 gr. Hg serum | 4 4 4 | ‡ | ‡ | | |
| | | | | 11/ 8/16 | 1/50 gr. Hg serum | 3 4 4 | 6 | + + | 3333200000 | |
| | | | | 11/16/16 | 1/60 gr. Hg serum | 4 4 0 | .. | + + | 4443332100 | |
| B. H. B. | 4296 | Positive | Frequency; dribbling; slight incontinence; lightning pains. Residual urine, 125 c.c. | Tabes | | | | | | Incontinence improved; pains gone; residual urine, 50 c.c. |
| | | | | 5/11/15 | 1/50 gr. Hg serum | 4 4 4 | 36 | + + | 5555554300 | |
| | | | | 8/10/15 | 1/50 gr. Hg serum | 0 0 0 | 5 | 0 0 | | |
| | | | | 1/11/16 | 1/50 gr. Hg serum | 0 0 0 | 4 | 0 0 | 5555432000 | |

TREATMENT AND RESULTS IN SIXTEEN CASES—Continued

| Name | B. U. I. No. | Blood | Symptoms | Diagnosis | Treatment | Spinal Fluid Findings |  |  |  |  | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  | Wassermann | Cells | Globulin |  | Gold |  |
| J. F. H. | 4573 | Negative | Slight incontinence; decrease in sexual powers; lightning pains; ataxia. Residual urine, 125 c.c. | Tabes |  | 50% in 0.5 c.c. |  |  |  |  | No incontinence; no pains in legs; sexual powers normal; residual urine, 0 |
|  |  |  |  | 9/19/15 | 1/50 gr. Hg serum | 0 0 0 | 83 | + | + | 4444322100 |  |
|  |  |  |  | 9/28/15 | 1/50 gr. Hg serum | 0 0 0 | 29 | + | + | 444332100 |  |
|  |  |  |  | 10/11/15 | 1/50 gr. Hg serum | 0 0 0 | 40 | + | + | 3332221000 |  |
|  |  |  |  | 10/19/15 | 1/50 gr. Hg serum | 0 0 0 | .. | ++ | + | 5554443210 |  |
|  |  |  |  | 3/13/16 | 1/50 gr. Hg serum | 0 0 0 | 8 | + | + | 222110000 |  |
|  |  |  |  | 10/13/16 | 1/50 gr. Hg serum | in 1 c.c.<br>0 0 0 | 2 | + | 0 | 224320000 |  |
|  |  |  |  | 10/23/16 | 1/50 gr. Hg serum |  |  |  |  |  |  |
| J. F. S. | 5486 | Negative | Slight incontinence; dribbling; diminished sexual powers | Tabes |  |  |  |  |  |  | No incontinence; no dribbling; sexual powers improved |
|  |  |  |  | 10/28/16 | 1/50 gr. Hg serum | 4 4 4 | 42 | + | + | 0003330000 |  |
|  |  |  |  | 11/21/16 | 1/50 gr. Hg serum | 3 4 2 | 16 | + | + | 4455532100 |  |
|  |  |  |  | 1/ 3/17 | 1/50 gr. Hg serum | 0 3 0 | .. | + | + | 1112321000 |  |
| E. G. B. | 5101 | Positive | Slight incontinence; lightning pains. Residual urine, 60 c.c. | Tabes |  |  |  |  |  |  | Incontinence improved; pains relieved; residual urine, 0 |
|  |  |  |  | 5/15/16 | 1/50 gr. Hg serum | 4 4 4 | 70 | + | + | 2233210000 |  |
|  |  |  |  | 5/22/16 | 1/50 gr. Hg serum |  |  |  |  |  |  |
|  |  |  |  | 5/29/16 | 1/50 gr. Hg serum | 4 4 4 | 36 | ++ | ++ | 4444321000 |  |
|  |  |  |  | 6/ 6/16 | 1/50 gr. Hg serum | 4 4 4 | 33 | ++ | ++ | 4444321000 |  |
|  |  |  |  | 10/12/16 | 1/50 gr. Hg serum | 0 0 0 | .. | 0 | 0 | 0022200000 |  |
| P. H. | 4430 | Negative | Nocturnal incontinence; loss of sexual powers; weakness in right arm and leg; slight ataxia. Residual urine, 250 c.c. | Tabes |  |  |  |  |  |  | Incontinence less marked; much stronger; gained 24 lbs. in weight; residual urine, 20 c.c. |
|  |  |  |  | 7/18/15 | 15 c.c. salv. serum | 3 0 0 | 9 | + | + | 1111000000 |  |
|  |  |  |  | 7/27/15 | 1/25 gr. Hg serum | 0 0 0 | 3 | ± | 0 | 1111100000 |  |
|  |  |  |  | 12/ 6/15 | .................. | 0 0 0 | 3 | 0 | 0 |  |  |
| V. W. | 4717 | Negative | Slight incontinence; loss of sexual powers; pain in legs; slight ataxia | Tabes |  | 75% in 1 c.c. |  |  |  |  |  |
|  |  |  |  | 11/20/15 | 1/50 gr. Hg serum | 0 0 0 | 8 | + | + | 4444321100 |  |
|  |  |  |  | 11/27/15 | 1/25 gr. Hg serum | 0 0 0 | 8 | + | + | 11233 1110 |  |
|  |  |  |  | 12/12/15 | 1/50 gr. Hg serum | 0 0 0 | 8 | + | 0 | 2111100000 |  |
| L. M. | 2541 | Negative | Difficulty in urinating; dribbling; frequency; slight diminution in sexual powers. Residual urine, 525 c.c. | Tabes |  |  |  |  |  |  | Urinary symptoms all improved; sexual powers improved; residual urine, 60 c.c. |
|  |  |  |  | 5/ 1/15 | 1/50 gr. Hg serum | 2 3 2 | 11 | + | + | luetic |  |
|  |  |  |  | 5/20/15 | 1/25 gr. Hg serum | 0 0 0 | 26 | + | + | negative |  |
|  |  |  |  | 5/31/15 | 1/50 gr. Hg serum | 0 2 2 | 8 | + | + | negative |  |
| G. B. T. | 1669 | Negative | Slight frequency; dribbling; diminished sexual powers; slight ataxia; slight pain in legs. Residual urine, 175 c.c. |  |  |  |  |  |  |  | Pains relieved; frequency and dribbling improved; residual urine, 0 |
|  |  |  |  | 1/29/16 | 1/50 gr. Hg serum | 1 4 1 | 6 | + | + | 4455431000 |  |
|  |  |  |  | 2/ 7/16 | 1/50 gr. Hg serum | 100% in 0.5 c.c.<br>0 0 0 | 11 | + | ++ | 4443320000 |  |
|  |  |  |  | 2/17/16 | 1/50 gr. Hg serum | 100% in 0.5 c.c.<br>0 0 0 | 13 | ++ | + | 5555533100 |  |
|  |  |  |  | 10/22/16 | 1/50 gr. Hg serum | 0 0 0 | 3 | + | + | 5544331000 |  |
| D. C. O. | 4723 | Negative | Slight frequency; dribbling; loss of sexual powers; pains in legs; ataxia |  |  | 50% in 1 c.c. |  |  |  |  | Frequency and dribbling much improved; pains in legs gone; sexual powers improved; ataxia less marked; residual urine, 10 c.c. |
|  |  |  |  | 11/21/15 | 1/50 gr. Hg serum | 0 0 0 | 5 | + | + | 2333321000 |  |
|  |  |  |  | 11/28/15 | 1/50 gr. Hg serum |  |  |  |  |  |  |
|  |  |  |  | 12/ 9/15 | 1/50 gr. Hg serum | 1 2 0 | 20 | ++ | + | 3344333210 |  |
|  |  |  |  | 12/17/15 | 1/50 gr. Hg serum | 3 4 2 | 46 | ++ | +++ | 2333321000 |  |
|  |  |  |  | 1/12/16 | 1/50 gr. Hg serum | 100% in 0.5 c.c.<br>0 0 0 | 5 | + | 0 | 4444310000 |  |
|  |  |  |  | 1/21/16 | 1/50 gr. Hg serum | 100% in 0.5 c.c.<br>0 0 0 | .. | + | ++ | 2333321000 |  |
|  |  |  |  | 3/28/16 | 1/50 gr. Hg serum | 100% in 0.5 c.c.<br>0 0 0 | 4 | ++ | + | 2233210000 |  |
|  |  |  |  | 4/13/16 | 1/50 gr. Hg serum | 100% in 0.5 c.c.<br>0 0 0 | .. | + | + | 2332100000 |  |
|  |  |  |  | 5/20/16 | 1/50 gr. Hg serum | 0 0 0 | 6 | ++ | + | 2233210000 |  |
|  |  |  |  | 9/ 4/16 | 1/50 gr. Hg serum |  |  |  |  |  |  |
|  |  |  |  | 9/11/16 | 1/50 gr. Hg serum | 25% in 1 c.c.<br>0 0 0 | ‡ | ‡ |  |  |  |
|  |  |  |  | 9/18/16 | 1/50 gr. Hg serum | 0 0 0 | ‡ | ‡ |  |  |  |
|  |  |  |  | 9/27/16 | 1/50 gr. Hg serum | 0 0 0 | .. | + | + | 1113332100 |  |
| M. S. F | 5451 | Positive | Frequency; dribbling; diminished sexual powers; pains around waist | Tabes |  |  |  |  |  |  | Pains disappeared; no urinary symptoms; sexual powers improved |
|  |  |  |  | 10/21/16 | 1/50 gr. Hg serum | 4 4 4 | 51 | +++ | +++ | 5555554200 |  |
|  |  |  |  | 10/28/16 | 1/50 gr. Hg serum | 4 4 4 | 30 | +++ | +++ | 5555442100 |  |
|  |  |  |  | 11/ 4/16 | 1/50 gr. Hg serum |  |  |  |  |  |  |
|  |  |  |  | 11/11/16 | 1/50 gr. Hg serum | 4 4 4 | 20 | ++ | +++ | 5555555100 |  |
| Q. L. B. | 4955 | Negative | Urinary frequency; dribbling; pains in legs | Tabes |  | 100% in 1 c.c. |  |  |  |  | Pains relieved; urinary symptoms gone |
|  |  |  |  | 3/ 7/16 | 1/50 gr. Hg serum | 0 0 0 | 5 | + | + | 2234320000 |  |
|  |  |  |  | 3/16/16 | 1/50 gr. Hg serum | 100% in 0.5 c.c.<br>0 0 0 | ‡ | ‡ |  |  |  |
|  |  |  |  | 4/10/16 | 1/50 gr. Hg serum | 50% in 0.5 c.c.<br>0 0 0 | 8 | + | + | 2332100000 |  |
|  |  |  |  | 9/12/16 | 1/100 gr. Hg serum | 0 0 0 | .. | + | + | 1111000000 |  |
|  |  |  |  | 12/23/16 | 1/100 gr. Hg serum | 0 in 0.5 c.c.<br>100% in 1 c.c.<br>0 0 0 | 3 | ++ | ++ | 1112222111 |  |
| F. O. E. | 5364 | Negative | Diminished sexual powers; pain in back and legs | Tabes |  |  |  |  |  |  | Pains completely relieved; sexual powers normal |
|  |  |  |  | 9/25/16 | 1/50 gr. Hg serum | 3 4 3 | ‡ | ‡ |  |  |  |
|  |  |  |  | 10/ 2/16 | 1/50 gr. Hg serum | 0 4 3 | ‡ | ‡ |  |  |  |
|  |  |  |  | 10/11/16 | 1/50 gr. Hg serum | 4 4 4 | 4 | + | + | 0012331000 |  |
|  |  |  |  | 10/18/16 | 1/50 gr. Hg serum | 100% in 1 c.c.<br>0 0 0 | 33 | + | + | 4454321000 |  |

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* In the spinal fluid examinations, three different antigens were used in determining the Wassermann reaction, and the amount of fluid used was 0.25 c.c. The figures signify: 4, 100 per cent. fixation; 3, 75 per cent.; 2, 50 per cent.; 1, 25 per cent. When negative results were obtained, the amount of fluid was increased to 0.5 c.c. and 1 c.c., and in certain cases positive results were obtained in double and quadruple quantities as indicated. In cases in which an increased amount of fluid was used, a positive result was obtained only with the most sensitive antigen, the other two still showing negative results. In the globulin tests the Pandy results are tabulated in the first column and the Ross-Jones results in the second.

† In each instance the spinal fluid findings were determined before the injection of the serum.

‡ Bloody fluid.

and frequently will show positive results for some time after the Wassermann reaction has become negative. After the first treatment, the entire serologic findings may be increased in strength; but following subsequent treatments, they show a reduction, even returning to normal in certain cases. It is perhaps more correct to interpret this as a provocative finding than as an irritative chemical phenomenon. Contrary to some observers,[16] it seems that the gold test as well as the Wassermann test may show a provocative reaction, as was obtained in one case, which after the first treatment gave a paretic gold curve and 100 per cent. fixation with all three antigens, whereas previously the spinal fluid findings were absolutely negative.

As regards the symptomatic improvement, one patient with marked incontinence was cured, one was improved, being able to urinate normally and having no incontinence at any time when he passes the catheter once in twenty-four hours to relieve the residual urine, and the third was unimproved. Three patients having slight incontinence were cured and four additional were greatly relieved, now rarely having any nocturnal incontinence except after taking a considerable amount of water before retiring. Four patients having an increased frequency now hold the urine three to four hours, and four additional patients are markedly improved. The dribbling after voiding has disappeared in four cases, and has notably improved in six others. The improvement in sexual powers has been noted in eight cases, and of these, two report that they are normal. Five have noted no change in their sexual powers since taking treatment. Of those having pain in the back and legs, the entire eleven report that the pains have disappeared. Of twelve patients having residual urine, the catheter now reveals in every case a reduction in the amount, five showing no residual and in three others it being less than 60 c.c. The most striking case showed a reduction from 900 c.c. to none.

From this rather limited series of cases it seems that there is a definite indication for spinal treatment in many if not all persons having specific cord disease, and that we are justified in holding out a certain hope of improvement in many instances. The fact that bladder symptoms occupy often a very prominent place in syphilitic cord involvement and that the secondary kidney lesions contribute in no small measure to their impaired health place these patients often under the care of the urologist. In view of the chronicity of the disease and the not infrequent periods of spontaneous improvement, it appears in spite of all this that this form of treatment has a very definite value. The last word on the worth and place of intraspinal therapy is yet to be said; but until then it appears to offer a certain symptomatic relief in these heretofore rather hopeless cases.

### CONCLUSIONS

1. In syphilitic involvement of the spinal cord, mercurialized serum administered intraspinally relieves in a considerable measure the urologic symptoms, that is, incontinence, frequency, dribbling and diminished sexual powers. Residual urine is reduced in amount.

2. Coincident serologic improvement also is noted, but this may not be commensurate with the symptomatic relief.

3. The colloidal gold test as well as the Wassermann test may show a provocative positive after an intraspinal treatment.

4. No anaphylactic symptoms were encountered in this series, in which mercury in a foreign serum was used.

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# *Military Medicine and Surgery*

## SOME LESSONS FROM THE DRAFT EXAMINATION *

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The general death rate is a rough index to the health of a nation. This factor, however, is a product of so many influences — age, sex and race distribution, and social, industrial and agricultural distribution — that, standing alone, it is not a final and complete indicator of the inherent vitality of a nation. A complete and accurate morbidity rate would supply information of enormous value; but such rates are, of course, lacking. The ideal method for determining the vitality of a nation or of a body of individuals is to ascertain the morbidity rate and death rate corrected for age and sex distribution and, so far as possible, for other influential factors, and to make a complete and accurate physical survey of the individuals composing the group. The survey of a group having a death rate favorable according to accepted standards will reveal astonishing conditions. It becomes quickly apparent that the morbidity rate, as ordinarily understood, could not, in the present state of knowledge, convey a clear idea of the actual condition of the group. It is safe to say that among medical men and those familiar with morbidity and mortality records, there has been a general disposition to classify people into three groups, the well, the sick and the dead, if the dead can properly be regarded as people. It is only when we leave the records of the hospital and the cemetery, and the data derived from general observation in the private practice of physicians and, taking the group classified as well, subject it to a critical and standardized physical analysis, that we secure a true pathologic map of humanity in its progress from the cradle to the grave.

I have previously dwelt with some emphasis on these principles, and have presented figures revealing the degree of impairment that has been found to exist among groups of supposedly healthy persons. I now present figures from other sources, with no flavor of so-called idealism surrounding them. They are derived from the stern reality of war. They were elicited through the operation of military machinery established to carry through a tremendous physical "try out" of the nation, or at least, of the very core of the nation, our young men between the ages of 21 and 31.

In the examinations of large groups of supposedly healthy persons, busy at their work, the Life Extension Institute found practically all showing some form of impairment, and more than 50 per cent. in need of medical or surgical attention. These findings led to the forecast, before the draft examinations took place, that among the population of military age, from 19 to 45, at least 50 per cent. would be found unfitted for military service, even under relaxed war standards, which are necessarily less rigid than those for the maintenance of a small and select peace army. The figures for all local boards are not yet available, but I have collected figures from local boards of different types, the average of which may be fairly accepted as representing the conditions in the age group covered by the draft. In these boards investigated in Detroit, Brooklyn and New York, the total number called were 8,875, the total number examined 7,611, and the total number rejected for physical reasons 2,232, giving a rejection rate for physical reasons of 29 per cent. The rejections in the cantonments of those passed up by the local boards have varied between 2 and 11 per cent. It is safe to say, therefore, that the total rejection rate for physical reasons would lie between 30 and 40 per cent. and this in the most favorable age group. It is true that under the tremendous strain of an emergency organization for doing this work, the work was not always done in an ideal way.[1]

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[16] Black, J. H.; Rosenberg, Louis, and McBride, R. B.: The Colloidal Gold Test, The Journal A. M. A., Dec. 1, 1917, p. 1885.

* Delivered before Section I, American Association for the Advancement of Science, Dec. 31, 1917.

Any one who doubts the adaptability of this country to war conditions need only observe the modifications that have been made in the selective service regulations based on lessons learned from these early examinations. The organization for the coming examination of registrants will be done in a far more systematized and intensive way and involve a more complete and expert sifting of the material with a view to employing men in the capacity for which they are best fitted. The creation of special classes of registrants who are not fitted for regular military service, but are still available for sedentary work, is an excellent feature of the new regulations. The same is true of the establishment of consulting or advisory boards of experts to pass on borderline cases and refer them back to the local boards, thus insuring absolute fairness and accuracy in the work and eliminating, so far as possible, the rejections at the cantonments, which are burdensome and expensive for the military establishment. Making all due allowance for the haste and more or less coarse sifting characterizing the first draft examinations, it is evident from the figures herein presented that there are substandard physical conditions among the young and supposedly vigorous groups in our population that only the tremendous emergency of war could bring clearly into the consciousness of our people.

### CAUSES OF REJECTION

An analysis in detail of the causes of rejection clearly indicates the preventable nature of these impairments, and also clearly points the way to remedial and preventive work. It is true that some individuals show a combination of impairments, and that in the classification only the prominent defect is noted. It should be remembered that these examinations were not complete, and did not, as a rule, go beyond the defect necessary to warrant rejection. The classification of the causes of rejection under these conditions is, therefore, an exceedingly difficult matter and can be accomplished in only a rough and approximate way; nevertheless, the figures given in Table 1 have an important suggestive value.

As some boards included two prominent causes of rejection, the total of this column will exceed the total of those actually rejected.

It may be said that some of these defects are purely structural and, in a sense, anatomic, and do not reflect substandard general health conditions; but when we find such a very heavy percentage of eye defects, for example, to a degree that disqualifies for military service, then we are justified in regarding such a degenerative tendency as reflecting some fault in nutrition or in the care of the body or in the use of the eyes, and failure to secure early correction of refractive errors. It is not safe, therefore, to dismiss these cases as those of local structural defect only, having no bearing on the general health or hygiene of the people.

TABLE 1.—ANALYSIS OF SEVEN LOCAL BOARDS IN DETROIT, BROOKLYN AND NEW YORK

| | Number | Percentage of Those Examined |
|---|---|---|
| Number of men called | 8,875 | .... |
| Number of men examined | 7,611 | .... |
| Number of men discharged for physical reasons | 2,232 | 29 |
| Prominent Causes of Rejection: | | |
| Eyes | 462 | 6 |
| Teeth | 366 | 4.8 |
| Underweight | 350 | 4.6 |
| Hernia | 223 | 2.9 |
| Heart | 184 | 2.4 |
| Feet | 180 | 2.3 |
| Injured or amputated limbs | 169 | 2.2 |
| Ears | 88 | 1.2 |
| Tuberculosis of lungs | 77 | 1 |
| Tuberculosis of joints | 2 | .... |
| Undersize | 53 | .7 |
| Genito-urinary, bladder, etc. | 37 | .5 |
| Varicose veins | 35 | .4 |
| Overweight | 32 | .4 |
| Syphilis | 32 | .4 |
| Varicocele | 28 | .3 |
| Deformity of trunk | 38 | .5 |
| Asthma, bronchitis, etc. | 21 | .3 |
| Mental and insane | 14 | .2 |
| Debility and poor physique | 16 | .2 |
| Miscellaneous injuries | 15 | .2 |
| Hemorrhoids | 13 | .2 |
| Kidney disease | 10 | .1 |
| Rheumatism | 8 | .1 |
| Miscellaneous defects | 7 | .1 |
| Epilepsy | 7 | .1 |
| Fistula | 5 | .06 |
| Alcoholism | 4 | .05 |
| Hydrocele | 4 | .05 |
| Diabetes | 4 | .05 |
| Goiter | 6 | .08 |
| Deaf mutes | 6 | .08 |
| Skin | 4 | .05 |
| Liver and gallbladder | 3 | .04 |
| Drug habit | 3 | .04 |
| Injury to nervous system | 3 | .04 |
| Kidney removed | 2 | .02 |
| Neurasthenia | 1 | .01 |

When we come to the other prominent causes of rejection, there can be no dispute as to their significance. Underweight, to a degree that has caused rejection in the recent examinations, is, as a rule, a reflection of a distinctly substandard physical condition. After the examinations were in full progress, most of the examiners were quite liberal in their ruling on weight, passing up to the cantonments men who showed any possibility of reconstruction and improvement; hence the residue must be regarded as of poor type, undernourished and distinctly unfitted for military service. They need to be placed under close observation either for hookworm disease, tuberculosis or malnutrition, and they are certainly in urgent need of physical training in the open under proper government.

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[1] This was written a few days before the appearance of the Provost Marshal General's report in which a rejection rate, for physical reasons in all local boards, of 29.11 is given. The following is a digest of the Provost Marshall General's figures, which shows that the total percentage of rejection actually lies between 30 and 40 per cent. as predicted. It must be remembered that there will be further rejections before the troops are inducted into active service.

| | |
|---|---|
| Total called | 3,082,946 |
| Total examined by local boards | 2,510,706 |
| Total rejected by local boards for physical reasons | 730,756 |
| Percentage of those examined | 29.11 |
| Add 5.8 per cent. rejected at cantonments (estimated) | 33.1 |

About teeth there can be no dispute. Mouth infection is a menace to health, and missing teeth indicate probable past impairment. A young man who has lost so many teeth that he is not eligible for military service on that ground alone should be an object of concern to the community. Grave conditions of mouth infection are liable to develop into actual organic disease.

Hernia, another leading cause of rejection, is not a manifestation of ill health, but is a menace to the individual.

With the exception of mutilations, practically all the other impairments listed evidence ill health; flatfoot and foot deformities are mostly reflections of muscular impairment or faulty footgear and improper posture.

While the figures showing the rejection rate among applicants for enlistment in the United States Navy and Marine Corps are not so representative of average groups in the population, and the standards and technic of the examinations are different from those maintained in the recent draft, nevertheless, their testimony is along the same general lines and similar to that furnished by the Life Extension Institute. These figures are given in Table 2.

TABLE 2.—ANALYSIS OF PHYSICAL CAUSES FOR REJECTION FOR MILITARY SERVICE, U. S. NAVY AND MARINE CORPS, 1915 (REPORT OF SURGEON-GENERAL)

| | Number | Percentage of Men Examined |
|---|---|---|
| Total number of applicants | 106,392 | .... |
| Total number rejected for all causes | 74,280 | .... |
| Causes of Rejection: | | |
| Eye | 12,374 | 11.6 |
| Flatfoot | 8,188 | 7.7 |
| Defective teeth | 7,751 | 7.3 |
| Varicocele and varicose veins | 4,598 | 4.3 |
| Deformities | 4,292 | 4.3 |
| Heart affections | 3,149 | 2.0 |
| Hernia, or tendency to hernia | 1,647 | 1.5 |
| Venereal diseases | 1,455 | 1.4 |
| Ears | 1,349 | 1.3 |
| Skin diseases | 1,196 | 1.1 |
| Hemorrhoids | 1,105 | 1.04 |
| Tuberculosis or suspects | 730 | .07 |
| Nasal abnormalities | 597 | .06 |
| Mental diseases | 273 | .03 |
| Other miscellaneous causes | 25,621 | 24.3 |

## CORRECTION OF PHYSICAL DISABILITIES

In considering these figures, the question at once arises, Are the conditions that they reveal inevitable? Is this high percentage of unfitness for general life struggle as well as for military struggle a necessary by-product of our civilization? The most superficial analysis shows very clearly that at least 60 per cent. of these rejected men owe their impairments either to ignorance or to neglect. While it is impossible to attain that perfect degree of social adjustment whereby all such ignorance or neglect can be removed, and complete and successful attention to the needs of defective humanity assured, at least there will be a long step forward when the degree of preventable impairment is known and the lines along which prevention must move are laid down. Now that the fundamental error, that practically all persons who are busy at their work are sound and fit, has been removed, the way is open for action.

Action at the present time is not merely a matter of plainly indicated social reform, it is a matter of military necessity. President Wilson has said, "It is not an army we must shape and train for war; it is a nation." If this be true, as no one alive to the magnitude of the struggle can doubt, that part of the nation unfit for military service surely needs our attention. If 40 per cent. of those between 21 and 31 are unfit, what may be expect beyond 31? Sixty per cent. of unfitness between 31 and 45 would be a conservative estimate if reasonable standards are maintained, standards that aim to exclude men who would almost certainly be injured and broken by war service, even though unwounded. When a nation puts its final reserves into the field, it must utilize even those who can be of temporary service, and the present standards in the European armies are approaching that point. With our vast population, we may be able to throw into the balance sufficient men to end the war without calling on our final reserves for field service. But if we do call on them, it is needless to dwell on the military loss we shall sustain if, as a class, they show an undue and preventable degree of physical impairment. Regardless of possible need for soldiers, and holding closely to President Wilson's diagnosis of a nation at war, it is a military obligation to reduce to the lowest figure the proportion of unfit in the population. Such efforts, however, must be governed by a due sense of proportion. The one great need of the hour is to place five million able-bodied fighting men in the field. These we must secure as quickly as possible, and no instinct for social reform or health conservation should swerve us from this central purpose. We must not halt in the work of mobilizing able-bodied men in order to make men able bodied. Mark this, I do not say we are not to make men able bodied and fit, but that we must not halt or embarrass the organization that is forming the Army, in order to force our quota of five million from a particular group in the population. Let us enter the higher age groups if necessary, but let us proceed swiftly to secure and equip the men. Fortunately, much can be done and is being done to reclaim physically those who are not fit at the time of the examination.

To a certain extent, the new selective service regulations will reduce the number discharged for physical reasons, as many types of impairments will be ignored and the registrant accepted for sedentary work. While at such work the registrant will be under medical supervision, and it is probable that some of these types will be improved and will qualify for field service. Also, it is planned to instruct the registrant discharged for physical reasons regarding his patriotic duty, and urge him to improve his physical condition for such service as he may be able to perform, civil or military. This will be done by means of a pamphlet approved by the medical section of the Council of National Defense and issued by the Provost Marshal General to the local boards, each rejected registrant to receive one. Such information widely disseminated throughout the homes in the land will reach those in the higher age groups, and not only inform them as to their needs, but also sound the note of patriotic service that is peculiarly needed to offset the apathy of the rejected. The man who has a remediable defect and hides behind it is really a slacker, although he may not be conscious of it. He needs to be enlightened, and the attitude of the community toward him should be the same as toward the slacker of the first class, as he is surely a slacker of the second class. I have hoped and yet believe that well organized and systematic measures will be taken to reach the rejected man and assist him to correct his defects after his rejection, as even physical disabilities do not relieve him absolutely, and he is liable to be recalled and reexamined.

He should try to make himself fit. Let him consult his family physician or any physician; and if he does not receive cooperation, let him apply to the nearest hospital, dispensary or the local council of defense, as any citizen is privileged to do who has military assistance to offer. The chief objection to extensive surgical work of this description by the Army Medical Corps is the burden it would lay on the military establishment, struggling in the throes of organizing from the civil profession a trained and efficient body of Army surgeons. Such work might be accomplished in civil hospitals, and the cost defrayed by the War Department when the hospitals require it, although many hospitals are doing such work without charge. The reconstruction hospitals now in process of organization with their trained staff in readiness to receive the wounded soldiers who need to be reconstructed could be used for a time perhaps as reclamation centers for the physically unfit registrants who need operation. It must be remembered, however, that the majority of these men were not declined because of surgical defects; they need physical training and hygiene and proper diet. I do not say that if the war is prolonged for several years it might not be necessary or advisable to adopt some extensive reclamation system in the Army Medical Corps; but it seems probable that sufficient men can be secured for the field from available classes, and that the wiser method is to save what we can by the general cooperation and coordination of civil agencies in assisting registrants that are not sent to the cantonments to qualify for the best service they can perform.

There should be a center of information in each community to which the registrant can turn for information and guidance as to channels of relief. Physicians, dentists, hospitals, the United States Public Health Service, and health departments all stand ready to render some form of relief without charge to those of moderate means. The man who can pay to have himself made fit should do so. What is needed is an organized machinery to bring the registrant to the source of relief.

Many have doubted that much could be accomplished in this class until a law is passed making reclamation by medical treatment or operation compulsory. This is repugnant to our ideals of personal liberty, and yet it is not as chimerical a plan as many would suppose.

### PHYSICAL REFORM

The enlisted soldier is subject to court martial if he refuses an operation that would make him fit for service. The registrant is really in the service; and once at the cantonment or reconstruction hospital, the majority needing operation would no doubt consent, which, I understand, is the case in England.

Entirely apart from the actual reclamation of registrants, an immense stimulus can be given to the movement for physical reform, for higher ideals of health and hygiene. The intense interest in the findings of the draft examinations can be utilized to arouse the people to a sense of their need. Can there be any doubt, with these figures facing us, of the need for child hygiene, for better government of the hygiene of the young, of the tremendous importance of universal military and physical training, of standardized periodic physical examination? Are we going to wait another fifty or a hundred years for another world devastating war before we again have a physical try-out of our young men? Let us move swiftly to correct the evils that the war has revealed with pitiless verity. Like a soft and pampered athlete out of training, this nation goes to war. Only the exhaustion of our enemy and the devoted sacrifices of our allies put us on anything like an equality with our trained and prepared antagonist. Only our immense population with its nucleus of stalwart and eager fighting men saves us from a shameful exhibition of inferiority in equipment to maintain our civilization and our ideals of government.

Let us remember that 60 per cent. of this substandard condition is preventable; that 30 per cent. is due to poor general physical condition remediable by proper nutrition and physical training and personal hygiene; that 30 per cent. is due to defective eyes and bad mouth conditions, and that 10 per cent. is due to neglected surgery.

This is no time for ridiculous national self-sufficiency. There is real work to do; and the reactionary, the standpatter, the man who thinks everything is as it should be, is as dangerous as an alien enemy. Let us face the truth and then cheerfully and bravely assume the work of making up for lost time. It is contemplated to give a standard lecture on this subject, crystallizing the lessons from this try-out of the nation and carrying a strong message to the people, such a lecture to be delivered simultaneously in each county and important town in the country and published through the country in all newspapers. A clarion call should be made to better health ideals and to a stronger and more virile race, to a manhood and womanhood of the future that shall have to show, as a by-product of this frightful war, ideals and standards of living that shall make future wars impossible because of a wholesome and really human civilization completely prepared against war.

## THE PREDISPOSING FACTORS OF WAR PSYCHONEUROSES

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### INTRODUCTORY NOTE

A brief summary of the reports of eight medical officers, detailed for study in special shell shock hospitals in England during the summer and fall of 1917, may be of interest in connection with the paper of Captain Wolfsohn.

These officers have been given every opportunity by the officers of the Royal Army Medical Corps in charge to make complete studies and observations in the special hospitals in both England and Scotland.

The types that they have observed, grouped under the general term of shell shock, represent many different conditions. Probably the most frequent of these has been the hysterical types. Functional monoplegias, hemiplegias, dancing gaits, tics, mutism, functional deafness and blindness, choreiform movements, tremors, etc., have been very prevalent. The officers likewise have observed psychasthenic cases, such as obsessions, states of anxiety and fear of high places, and patients suffering from frightful nightmares and dreams. The more purely neurasthenic reactions on a basis of exhaustion after long and fatiguing service are observed, but appear to be relatively infrequent. True shell shock cases, so called, in which some obscure organic disorder is suspected, are likewise infrequent, and as yet their clinical entity has not been very clearly established. Other conditions, such as epilepsy, including petit mal, are not infrequent, and the epileptic types are regarded as particularly unfavorable. Mental deficiency is observed, but insanity is comparatively rare, at least in these institutions.

In respect to etiology, these observers lay much stress on constitutional predisposition; such patients very often have a family history of nervous and mental disease, as well as a past history of neurotic symptoms of some form or other. The immediate existing causes are often of minor significance. It is true that, in many instances, there is a history of the soldier being buried or "blown up," but others have only minor wounds, which could in no way be related to the neurosis. Again, other cases developed in the interior in men who had not been near the front.

A perusal of these reports shows that in England no very well defined method of treatment has as yet been agreed on. Numerous procedures have been instituted, all offering considerable promise, but none of which have been fully satisfactory. The questions of discharge from the service and of pensions, and of special detail with labor battalions, have complicated an already difficult problem.

The forms of treatment have undergone considerable change with added experience. At first it was advised that these patients be sent from the evacuation hospitals in France to the special hospitals in England as soon as possible. There was much in favor of this recommendation, because many nervous patients were allowed to remain in general base hospitals without special treatment. Some such patients did not get back to the special hospitals for six months or a year, or even longer.

The treatment at the special hospitals has consisted of such general measures as massage, baths, special diet, and rest associated with diversional occupations, namely, carpentry, gardening and basket work. Special psychic therapy has been given, consisting of persuasion, suggestion to a considerable degree, and psychanalysis to a slight extent. Hypnotism, at first used to a limited extent, has been entirely disapproved. Particular efforts were made to protect the men from excitement of any kind, and various forms of entertainment were offered.

This general method of procedure has not been so successful as could be desired. The unavoidable delay in reaching the special hospitals in England allowed the symptoms to become fixed. Moreover, a number of patients, returned as cured, promptly relapsed, even before they reached the line. Under these circumstances, the medical officers entertained doubts as to the wisdom of returning to the front patients that had ever suffered from shell shock.

Quite recently the attitude in respect to the management of this condition has undergone a marked change. Eighty-five per cent. of all shell shock patients are not now returned to England at all. It has been found much better to treat them nearer the front, and any release from military discipline is regarded as unfavorable for recovery. Moreover, the general methods of treatment, such as diversional occupation, extra diet and entertainments, have been replaced by more rapid and much more satisfactory procedures. Electricity given for psychic effect, which at first was disapproved, has been found to be a valuable agent. This is accompanied by strong persuasion. Cases are reported cured in this way in a few hours which had formerly endured for months, and had resisted all other methods. The personality of the medical officer is a most important factor.

It would appear, therefore, that the experience in England has substantiated what has been observed in similar cases in France, namely, that such patients should be kept under strict military regimen. They should not be sent to the interior. Suggestive measures properly applied and accompanied by electricity for its psychic effect are successful. Delay in the treatment allows the fixation of the neurosis, and once a soldier has reached the interior because of shell shock, it is very difficult to utilize his services again.

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Throughout the massive literature that has sprung up within the past three years, one reads passing references mostly to the relation of the symptoms of war psychoneuroses to a previous neuropotentially unsound soldier. Most authors have elicited an inherited or acquired neuropathy in the majority of their patients afflicted with shell shock, neurasthenia or any of the neuroses resulting from the strain of the war, but enough actual specific data on the inherited and acquired neurotic factors in these cases have not been published.

To Major F. W. Mott, R. A. M. C. (T.), I wish at this time to express my sincere thanks for suggesting this investigation, for his kindly advice, and for free access to his wards at the Maudsley Hospital.

In previous publications, Mott has laid considerable stress on the former temperament in soldiers suffering from war neuroses. He writes:

> A large majority of shell shock cases occur in persons with a nervous temperament, or persons who were the victims of an acquired, or inherited, neuropathy: also a neuropotentially sound soldier in this trench warfare, may, from stress of prolonged active service, acquire a neurasthenic condition. If in a soldier there is an inborn timidity or neuropathic disposition, or an inborn germinal or acquired neuropathic or psychopathic taint causing a *locus minoris resistentiae,* it necessarily follows that he will be less able to withstand the terrifying effects of shell fire and the stress of trench warfare.

Pierre Marie, Carcot, Nonne and others have come to similar conclusions. Thus, in order to evaluate properly the effects of environment on an individual, either in peace time or during the war, it is necessary to study the forces inherent in that individual.

Before drawing general conclusions on this subject, one should try to answer some of the following pertinent questions:

1. Of what kind of forebears is the patient a representative?
2. What is the personal temperament of the patient?
3. What was his former calling, and how has he shouldered his responsibilities during active war service?
4. Do acquired war psychoneuroses occur, and what are the causes thereof?
5. What is the relation of the last "shock" to the production of the war neurosis?
6. Why do not all soldiers suffer from war neurosis?

Before answering any of these questions, one must examine all available data up to the time of active service, and also the actual causes and circumstances exciting the outbreak of the neurosis, realizing that every individual's nervous system will react according to his inherited tendencies superimposed on the effects produced by environment. The object of this paper, therefore, is to make an intensive study of the causal factors of war neuroses as presented by the family and the personal histories (up to the time of, and including the cause of, disablement) in 100 cases of war psychoneurosis, namely, shell shock, neurasthenia, hysteria and exhaustion. Insane cases are not included.

As a control, 100 cases of somatic injuries produced on the firing line, namely, enucleation of an eye, fracture of the skull, jaw, and femur amputations, and wounds with or without sepsis have been similarly studied.

The exhaustive history in most of the cases was given by the patient himself. In some cases the help of the wife or mother was necessary in order to get as many first hand available data as possible.

### FAMILY HISTORY

Table 1 shows that, in the neurosis group, insanity occurred in the family in 34 per cent.; epilepsy, in 30 per cent.; stigmata of degeneration, as onychophagy, adherent ear lobules, high arched palate, etc., in 10 per cent. This is in marked contrast with the entire absence of insanity, stigmata and epilepsy in that of the control group. Likewise, nervousness, as evidenced by a history of phobias of various kinds, insomnia, superstitions, "nerves," or hysterics, is present in 64 per cent., and irritability of temper in 36 per cent. of the neurotics' forbears, while these are only present in 15 and 12 per cent. in those of the controls, respectively.

TABLE 1.—FAMILY HISTORY

| | Neurosis, Per Cent. | Wounded, Per Cent. |
|---|---|---|
| Nervousness | 64 | 15 |
| Alcoholism (parents and grandparents) | 50 | 24 |
| Teetotaler (parents and grandparents) | 30 | 16 |
| Irritability of temper | 36 | 12 |
| Insanity | 34 | 0 |
| Epilepsy | 30 | 0 |
| Tuberculosis (immediate family) | 12 | 4 |
| Tuberculosis (relatives) | 6 | 4 |
| Stigmata | 10 | 0 |
| Positive history for one or several of foregoing | 74 | 38 |

The question of alcoholism is interesting, as there was a history of excessive use of alcohol in 50 per cent., and of total abstinence in 30 per cent. of the parents or grandparents of the neuropaths. Alcoholic excess was found in 24 per cent., and abstinence in only 16 per cent. of the controls.

From Stockard's experiments we know the deleterious effects of chronic alcoholism on the germ plasm. Can we not conclude that it is very significant to have 50 per cent. of our neurotics with alcoholic forebears, while only 24 per cent. of the controls were so affected? Another interesting fact brought out is that most of the teetotalers were found in fathers of neurotic patients whose grandfathers or uncles suffered from alcoholism, the abstinence of the father representing the opposite extreme. This will be again dealt with in the personal history of the patient. The teetotalers usually possessed some nervous traits, such as nervousness or irritability of temper.

The lesson learned from these figures is that, so far as the family history of patients suffering from war psychoneurosis is concerned, certain factors are much more in evidence than in the control series.

If, as White says, "in epilepsy there is a lack of some factor in the germ plasm," we have a direct cause for faulty inheritance, which, as well contrasted above, is found to be lacking in the control cases, and assumes the large total of 34 per cent. in the neurotic group. The presence of insanity also shows almost the same disproportion as epilepsy, and bears out what Mott has shown in his former reports on the incidence of insanity in families. It is interesting to note that this author, in his report to the Board of Control, London, 1915, lays stress on the fact that "it is common in insanity and mental deficiency to have lack of mental control leading to indulgence in alcohol." Many of the insane patients of this group suffered from periodic excesses of alcoholism.

At this point, it might be well to give an example of hereditary traits in a case of shell shock, following burial:

Case 1.—A. V., aged 37, shoemaker, was partially buried by the detonation of a high-explosive shell; short loss of consciousness followed, and later he became stupid, shaky and weak. He had terrifying dreams, was very fearful of the dark, and twice attacked his companions with murderous intent while in a dazed state. He had no recollection of these attacks. He had always possessed a violent temper, the outbursts usually being followed by attacks of petit mal. He was always afraid of the dark. The patient is married; one child has "fits"; three others are hysterical, and have fits of impulsive temper. The patient's father, brother and sister are now in a hospital for the insane. Three other brothers are very irritable; one has convulsions; three sisters are very "nervy." One other sister is an exceptional musician. His paternal grandfather was very excitable, and died in a "passion of temper." An uncle was a rebel leader, very excitable and brilliant, and had a child with an intolerable temper and another with "St. Vitus' dance." Another uncle was a rogue and a crook, and his son was a crook. A normal aunt has six children, one of whom is insane and five very excitable. His great grandfather had an intolerable temper and died in a hospital for the insane. One great uncle, with an intolerable temper, had an insane son. Another aunt by her own brother had three children, one of whom became a prostitute and the other two were imbeciles.

Another history showing the excessive use of alcohol is instructive:

Case 2.—Corporal V., aged 34, suffering from shell shock, had been in active service two months when he was blown into the air by the detonation of a high-explosive shell. He was unconscious for twelve hours, after which time he was dazed, and suffered from marked tremor of the limbs, stuttering, frightful dreams and insomnia. His father was a psychasthenic and drunkard; his mother was alcoholic, and finally committed suicide in a fit of depression. One brother had a "mental collapse"; another had "fits." One sister is a psychasthenic now, and two other sisters are nervous. One maternal cousin is an imbecile. The patient himself drinks to excess.

These two of many similar histories bring out the familial traits and degeneracies, and need no further comment.

Onychopagy as a stigma of a neurotic disposition was present in 10 per cent. of the neurotics' families, and was lacking in that of the controls. Finally, a positive family history was obtained in 74 per cent. of the neurotics and in only 30 per cent. of the controls.

### PERSONAL HISTORY

Taking up now the personal history of our patients, previous to enlistment, a cursory glance at Table 2 will show that in all the characteristics named, except occasional alcoholic excesses, the percentage of neurotics always exceeded the control. It will be noted that 38 per cent. of the neurotics gave histories of previous injury to the head. In not one case was there injury severe enough to cause unconsciousness. Usually the patients "saw stars" and were momentarily dazed only; no cases of known fracture of the skull occurred. This is true also of the 12 per cent. head injuries in the controls.

A preponderating percentage, 66 against 12, occurred in favor of the neurotics, who suffered from previous nervousness manifested by irritability, easy blushing, timorous, hypersensitive disposition, inclined to worry about small things. Fifty per cent. as contrasted with 8 per cent. of the controls had fears of heights, dark open places, traffic, etc. Forty-eight per cent. were teetolars, compared with 20 per cent. of the controls, whereas the latter were more apt to imbibe liquor too freely at times. No cases of chronic alcoholism occurred in either group.

TABLE 2.—PERSONAL HISTORY

| | Neurosis, Per Cent. | Wounded, Per Cent. |
|---|---|---|
| Stigmata | 34 | 4 |
| Previous nervousness | 66 | 12 |
| Fears | 50 | 8 |
| Head injury | 38 | 12 |
| Epilepsy | 8 | 0 |
| Tobacco (excessive) | 8 | 4 |
| Alcohol (excessive) | 6 | 16 |
| Alcohol (teetotaler) | 48 | 20 |
| Married | 42 | 28 |
| Moody | 55 | 8 |
| Previous breakdown | 2 | 0 |
| Enuresis | 12 | 4 |
| Frights in childhood | 4 | 0 |
| Excessive religion | 6 | 0 |
| Positive personal history | 76 | 12 |
| Positive family and personal history | 70 | 6 |
| Recurrences and relapses | 14 | 0 |
| Acquired neurosis | 12 | 3 |

The neurotic patient was usually moody (55 per cent.), liked to be by himself, did not mix well with his comrades and was either very happy or depressed. Eight per cent. of the controls who showed previous depression of spirits also showed in their present examination mild neurasthenic signs, such as fine rapid tremor of the fingers and lids, hyperactive reflexes and cold, clammy hands, or hysterical manifestations in the affected limbs. Frights in childhood were recalled in only 4 per cent. of our neurotics, but in none of the controls. The former have a tendency to be excessively religious (6 per cent.), and this religiosity was found in every case among the teetotalers. Enuresis occurred in 12 per cent. of the neurotics and 4 per cent. of the controls. An example or two typifying these characteristics might not be out of place:

Case 3.—F. S., aged 24, a constitutional psychopath, suffering from shell shock, had been in active service for seven months. A high explosive shell had detonated near by. He was unconscious for three days, was dazed, and had retrograde amnesia, much insomnia and bad dreams. The chief symptoms and signs found were excessive fatigue, depression, suicidal tendencies, physical manifestation of fear, wide eyelids, tachycardia, clammy hands and increased reflexes. The father was a teetotaler and nervous. His mother was a suicide. The patient was always moody, depressed and antisocial. He had suicidal tendencies.

Case 4.—J. K., aged 25, a constitutional psychoneuropathic, suffering from shell shock, had been in active service one month. Aug. 17, 1917, a high-explosive shell had burst near by, badly dazing the patient. He had amnesia for several days following, terrifying dreams, much general tremor, and had occipital and frontal headache. He remained in one place, very sad and morose. There were physical manifestations of fear but no somatic injury. The father used alcohol to excess; one sister was insane and two sisters were nervous. He never did well at school: he could not learn; he bit his nails until 14 years of age. He was always of a timorous nature, nervous and fearful. He smoked excessively and was a staunch teetotaler. He had many attacks of "melancholia," and always liked to be alone; he suffered much from depression, and was asocial; he practiced masturbation.

Many similar histories could be recounted here, but these two examples will demonstrate on what data this series is built. Contrast this with the following history of a control patient:

Case 5.—L. G., aged 27, who had a compound fracture of the tibia and fibula, had been in active service twenty-three months. In 1915 he was wounded by shell fire, and returned to active service in two months. In August, 1917, he was struck by a piece of shrapnel which fractured his tibia and fibula, after which he crawled 900 yards for help. He had no tremors: memory and concentration were good; he had no fears, no insomnia, and only occasional dreams; he was very cheerful, and showed no signs of nervousness. The family history was negative throughout. The personal history was negative throughout. The patient was always cheerful, experienced no fears, and drank moderately of liquor. He had never previously been nervous or timorous.

This case is a fair example of over 88 per cent. of the control histories. It needs no further comment.

## PRESENT ILLNESS

The neuroses in this series are grouped under the general term "war psychoneuroses," as being applicable to all the functional cases encountered. In no case was there found a somatic wound in the neurotic group. The history generally obtained was the bursting of a shell near the patient, who was knocked over, buried, or just dazed — with the symptoms of neurosis following, as shown in Table 3. It will be seen that in a soldier who was excessively fatigued, as a great many are, at the moment of the disability, or who had been under undue mental anxiety during days and nights of trench duty, expecting at any time to be blown to pieces, emotion must play an important part in the great nervous strain, which nears the collapsing point. Sometimes merely the sight of carnage or of companions killed around him, or the shrieks and groans of the wounded, is sufficient to bring about the termination of his nervous or mental control, and the patient is brought back with the typical neurasthenia or psychoneurosis due to war strain. With this affliction, a soldier need not even have been to the front, as merely anticipation and apprehensive fear might have been the exciting factors of the psychic or neurotic manifestation. Or if the shell burst near his right side and knocked him over, he suddenly develops right-ear deafness, or paralysis of the right arm or leg

TABLE 3.—PRESENT ILLNESS

| | Neurosis, Per Cent. | Wounded, Per Cent. |
|---|---|---|
| Service | 12 months | 10 months |
| Unconsciousness | 55 | 24 |
| Dazed | 84 | 24 |
| Tremor | 84 | 12 |
| Poor memory | 88 | 4 |
| Poor concentration | 88 | 4 |
| Insomnia | 86 | 0 |
| Fears | 76 | 0 |
| Dreams | 88 | 50 |
| Fatigue | 94 | 40 |
| Headache | 88 | 36 |
| Moody | 92 | 0 |
| Vertigo | 74 | 8 |
| Fits | 10 | 0 |

(and this paralysis is almost universally located on the side nearest the explosion); or the patient even loses his voice suddenly, a typical hysterical paralysis, which can as suddenly be cured as produced; but when commotio cerebri is added, sustained as a result of concussion, unconsciousness immediately or soon may follow, with its accompanying amnesia. In the greater number of cases, emotionalism is accompanied by an exaggeration of all the symptoms.

Where the emotional factor is paramount, there is generally found weakness of the will, hypersuggestibility, anxious tension and apprehension as the mildest complex in the series of functional disturbances of increasing gravity (neurasthenia), which culminate in cases of severe nervous symptoms (shell shock). Many combinations of neurasthenia, hysteria and shell shock have necessarily been encountered. This shows strikingly the great difference in the presence of certain symptoms; for example, early fatigue and lassitude in 94 per cent. of the one and only 40 per cent. of the other. In the controls, it might be added that this symptom was here not altogether due to excessive nerve tension and apprehension, which is the basis of the neuroses, but from loss of blood and the necessarily prolonged rest in bed. The controls do not look nervous, nor do they possess the cold, clammy, tremulous hands of the neurotic. Not a single case of insomnia or of depression of spirits occurred in the controls, while among the neurotic cases 86 per cent. were sufferers from insomnia, and 90 per cent. were depressed.

The usual story of the neurotic is the great difficulty in going to sleep (the brain seems in a whirl, etc.), and when sleep is finally attained, it is fitful. He often wakes trembling, with a smothering sensation in his throat and covered with a cold sweat. Somnambulism is not uncommon. Often the patient is afraid to go to sleep, because he knows he is going to have frightful dreams: this occurred in 88 per cent. of the series. Headache (frontal, occipital, temporal and vertical) was found in 88 per cent. of the neurotics and 36 per cent. of the controls (most often following organic head injuries). Vertigo was found in 74 per cent., as against 8 per cent. of the controls. Fears of traffic, heights, crowds, etc., were found in 76 per cent., and not once in the controls. Tremor was found in 84 per cent., as against 12 per cent. A prolonged, dazed period followed the explosion in 84 per cent. of the neurotics, and in only 24 per cent. of the controls. Poor memory and lack of concentration were most common (88 per cent.), and were noticeably lacking (4 per cent.) in the controls. Nervousness followed injuries in 24 per cent., but this was not as much psychic as from real trauma, such as fracture of the skull, enucleation of the eye, amputation of a leg, etc. Moreover, on awakening, these patients did not have the neurotic manifestations, as stuttering, tremors, fits and hysteria, that 55 per cent. of the neurotics showed who suffered unconsciousness. Three cases of hysteric monoplegia in soldiers with wounded arms and legs occurred in the control group.

The symptoms of the neurosis in most cases have had a very gradual onset, with the explosion coming as the final shock. In these cases, the patient was "nervy" for some time before the accident, and suffered from easy fatigue, frightful dreams and loss of self-confidence.

In some soldiers the neurosis was most probably the result of an excessive and protracted nervous strain, coupled with exhaustion. The following is an example of an acquired neurasthenic state in a soldier with a negative family and previous history:

Case 6.—J. P., aged 21, suffering from neurasthenia following nervous exhaustion, had been serving eleven months without rest on the Ypres salient. For several weeks before disablement he was getting "nervy," complaining of easy fatigue, lassitude, pains in the head, and of being easily startled. For several days he was in the front line trenches and was very tired, when a shell burst near by and knocked him over. He was not unconscious, but for one week was quite dazed, shaking all over and stuttering. He suffered with excessive fatigue, occipital headache, marked vertigo on bending or standing, and many frightful dreams; he waked in a fright, feared traffic and the dark, and was depressed; his memory was only fair, and his mind wandered much. The family history was negative. The patient's history previous to enlistment was negative; he had never been nervous in his life.

These soldiers, like so many others who had normal forebears, and whose personal histories presented good credentials as to nervous make-up, can undergo just so much tension, when, by exhaustion, long continued exposure to wet and cold, and the continual nervous strain of an active campaign, the final crash comes in the form of a detonation from a near by high-explosive shell, which knocks them over or buries them. Ten per cent. of the neurotic group had acquired the neurosis from which they were suffering.

The nervously unfit do not stand so much wear and tear as the average example mentioned above. Some of these neurotics suffer from the same symptoms even before actually going to the front: in this case it is rather apprehension and fear than physical exhaustion that produces the final result. The question of relapses and nervousness in war neurosis is important: Fourteen per cent. of the neurotic group were instances of recurrence or relapse of the neurosis.

One patient, who came from a highly strung Jewish family, and who claimed "excellent nerves" himself, entered the hospital with typical shell shock following burial by a high-explosive shell. He was aphonic and had a general coarse tremor of his limbs and head. In three weeks he was much improved, his voice returned, and his tremor had almost disappeared. He was permitted to view a cinema which showed an aeroplane in action. As it seemed to fly near and to grow large, a bomb was dropped, and as it landed, in order to make the scene more real, a drummer in the orchestra hit a resounding peal on the bass drum, and our patient, taken unawares, promptly became aphonic, darted out of the theater in a dazed condition, and was brought back to the hospital in a worse neurotic state than in his first attack. This relapse lasted thirty-six hours.

One has just to visit the wards the day after an air raid or even a thunder storm, to see most of the neurotic patients trembling, nervous and headachy; a few even become aphonic. In marked contrast, the patients in the surgical wards, who rarely suffer from neuroses, are none the worse for this experience; in fact, some of them even go so far as to wish that they could have gone out to view it.

Case 7 presents an interesting case of recurrent shell shock:

Case 7.—G. A., aged 23, had seen ten months' active service in France. Dec. 19, 1915, he was buried by a shell, was unconscious, and later suffered from nervousness and stuttering, depression, insomnia, frightful dreams and tremor. He rapidly improved under treatment, and was returned to the front within a month. Later, a shell burst near him, and again he was dazed and trembled, and had lapses of memory and general nervousness. Again he was treated in the hospital, with mitigation of his symptoms, and again returned to the front, where, in a few days, he saw a bomb burst some distance away. He immediately began to stammer and to wander about aimlessly. He suffered with marked insomnia, tremor of the legs, arms and head; easy fatigue, continual lassitude, occipital and vertical headaches, and fear of aircraft, crowds, etc.; and frightful dreams kept the patient in constant terror and to a great extent caused the insomnia. Frequent lapsus mentis and aimless wanderings occurred, and also one attack of deaf-mutism. He runs now when he sees aircraft, and is easily startled by noises, with marked fear reaction. The father was an alcoholic addict, very nervous and excitable. The mother was always nervous, and had a bad temper. One sister has nervous prostration. The patient was always more or less moody and was an onychophagist.

This case, like most similar ones, shows not only that the patient, once a sufferer from a severe neurosis, is neuropotentially much weaker than before, but also that each subsequent "shock" need not have the same severity to produce a serious relapse of all the patient's former symptoms. As one patient so aptly said, "I seem to have lost my come back."

From a study of a large number of war neuroses, one comes to the conclusion that the intensity of the "shock" is not measured in terms of trauma, but of individual sensitiveness. This is most beautifully seen in the controls who have suffered most serious somatic traumas, but who showed none of the neurotic symptoms found even in the mildest cases of war neurosis.

### CONCLUSIONS

This study of 100 cases of war psychoneuroses and 100 cases of somatic injuries produced on the firing line reveals that:

Cases of war neurosis are very rarely associated with external or somatic wounds. The vast majority of the psychoneurotic cases studied were among soldiers who had a neuropathic or psychopathic soil. In 74 per cent. of these cases a family history of neurotic or psychotic stigmata, including insanity, epilepsy, alcoholism and nervousness, was obtained, while a previous neuropathic constitution in the patient himself was present in 72 per cent.

A gradual psychic shock from long continued fear, together with the sudden change from quiet, peaceful environment to the extraordinary stress and strain of trench fighting, is the chief predisposing cause of war psychoneurosis in soldiers with neuropathic predisposition. In fact, these factors may be the cause of the neurosis per se.

The history of the individual previous to enlistment has an influence on the character and gravity of the symptoms of the neurosis.

Acquired neuroses, with their less severe symptoms, appeared only after excessive fatigue, with the concussion from the high-explosive detonation acting as the exciting factor. On the other hand, in the same abnormal environment, and with the same powerful factors obtaining, wounded soldiers do not suffer from war neuroses except in rare instances. In the wounded soldiers studied, no neuropathic or psychopathic stigmata occurred in the family history.

Previous neuropathic tendencies were found in 10 per cent. of these patients (controls), all of which number presented mild neurasthenic tendencies.

Hysteric manifestations, such as monoplegia in a wounded limb, are occasionally encountered in injured soldiers.

# CORRECTABLE DEFECTS AND TUBERCULOSIS IN DRAFTED MEN

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The physical examinations in connection with the selective draft revealed many thousands of cases of early tuberculosis, not previously recognized, and a large number of other correctable defects. The purpose of the examinations was to exclude from the Army all men physically unfit for military service. The knowledge gained was of a sort to make possible the early treatment and control of a vast number of cases of tuberculosis, and the correction of many disabling physical defects of other sorts. Here was a chance to give to the men rejected for the causes mentioned opportunity to remove their handicaps and to become eligible for the fighting army or more efficient in the industrial army.

TUBERCULOSIS REPORT CARD

The State Law Requires You to Report All Cases of Tuberculosis

**A** **CALIFORNIA STATE BOARD OF HEALTH**
**BUREAU OF TUBERCULOSIS**
**Sacramento, California**

**Report of a Case of Suspected or Known Tuberculosis**

Name of person examined..........................................
Street and number..........................................
City or town..........................................
Type of disease { suspected / known } tuberculosis of lungs, larynx, lymph glands, peritoneum, bones, intestines, meninges, skin..............
Stage of disease: Early, moderate, advanced. (Cross out words which do not apply.)
Place of examination..........................................
Date of examination..........................................

..........................................
Examining surgeon

I request a thorough examination by a tuberculosis expert and advice about the need for treatment and opportunities for receiving it.

..........................................
Person examined

The signer of the request will be notified when and where to report for examination.

In the absence of a national plan, the California State Board of Health attempted, in the short time available, to organize a system of follow-up examinations, treatment, and supervision for the men rejected during the first draft for tuberculosis and correctable defects. The experience of the board is given here in the hope that it may be of some value to those who will make the better and more comprehensive plans for reclaiming rejected conscripts or discharged soldiers in the future.

The approval of the state board of registration was first obtained for the plan formulated. Then Adjutant-General J. J. Borree, acting under the direction of Governor Stephens, sent a letter to all examining physicians of local exemption boards calling their attention to the fact that the state law required the reporting of tuberculosis to the health authorities. They were instructed to send reports of all cases of tuberculosis and of correctable defects to the state board of health on the very brief forms supplied. The state board of health furnished two forms for the purpose, one for tuberculosis and one for correctable defects, and also supplied stamped and addressed envelops. The tuberculosis report card, Card A, is reproduced herewith. The report card for correctable defects, Card B, was similar in general arrangement, and was headed, "Report of a Person Refused Admission to the Army or Navy Because of a Correctable Defect."

A volunteer staff on correctable defects and a volunteer staff of tuberculosis examiners were next organized. The members of the staffs were appointed by the state board of health, but received no salary. Their duties were thus set forth in the letters of appointment:

> The duties of the members of the staff on Correctable Defects will be:
>
> 1. To make a thorough examination of each person sent to him.
> 2. To determine whether his defect could be easily corrected.
> 3. If the defect can easily be corrected, to make the correction without charge for service, or to arrange for the correction elsewhere, or to give appropriate advice about securing proper treatment independently, according to the circumstances of the case. When hospital care is necessary, or when dental materials must be used, the man receiving the treatment can appropriately be required to pay for them, but he should understand this in advance of his treatment. When the man is unable to pay necessary expenses incidental to his treatment, an attempt should be made to interest public-spirited individuals or institutions in securing the necessary funds. In such cases hospitals can appropriately be requested to give special rates. In some instances they may have public funds which are available for the expenses of these patients.
> 4. To report to the state board of health, on the card furnished, such data as may be required, including the nature of the defect, the advice and treatment given, and the results, together with recommendations to the state board of health relative to further treatment or supervision.
>
> The duties of the tuberculosis examiner will be:
>
> 1. To make a thorough examination of the persons sent to him.
> 2. To advise the patient regarding his condition, the need for any special care or treatment, the precautions against spreading the disease, and the opportunities for obtaining supervision, care and treatment. In order to give the needed advice to those who require assistance, it will be necessary for the examiner to ascertain in advance what public provisions have been made for home or sanatorium care in his part of the state.
> 3. To report the cases to the state board of health by forwarding the official data cards properly filled out.
> 4. To enter on the card which will be sent for each patient such data as will be required, including a brief statement of presence or absence of tuberculosis, its extent and location, the advice given the patient, and any recommendations to the state board of health regarding the "follow-up" of the case.

It was stipulated that no compensation was to be received from the patient for the services outlined.

As the report cards were received by the state board of health, they were segregated geographically, and form letters were sent to the men who had signed the request for further examination and advice. In this way, appointments were made for the men with the appropriate specialists on the staffs. Many of the failures to report for these appointments can be explained by the considerable travel and loss of time which would be necessitated by a trip to the specialists, as few of them were located outside the larger cities.

Whenever an appointment was made between a rejected man and a physician, a card was sent to the physician notifying him of the appointment, giving the reason for referring the man to him, and providing space for his report to the board on the essential data of the case. If the man did not report within fourteen days after the date of his appointment, that fact was to be noted on the record, and the card returned.

### RESULTS OF THE WORK

| | Number |
|---|---|
| Reports of correctable defects from exemption boards | 1,348 |
| Reports of tuberculosis from exemption boards | 1,313 |
| Reports of tuberculosis from army camps up to Jan. 4, 1918 | 1,110 |
| Total reports | 3,771 |

#### CORRECTABLE DEFECTS

| | | |
|---|---|---|
| Cards bearing request for examination and advice | | 1,129 |
| Cards without signed request | | 219 |
| Total reports for correctable defects | | 1,348 |
| Correctable causes for rejection as reported by examining physicians: | | |
| Defects of vision | 89 | |
| Defects of hearing | 137 | |
| Defects of teeth | 22 | |
| Defects of nose and throat | 38 | |
| Defects of heart | 20 | |
| Appendicitis | 5 | |
| Other defects of digestive tract | 3 | |
| Displacements of abdominal organs | 2 | |
| Hernia | 563 | |
| Hemorrhoids | 53 | |
| Fistula | 19 | |
| Typhoid fever, dysentery | 3 | |
| Syphilis | 30 | |
| Gonorrhea | 36 | |
| Varicocele, hydrocele | 83 | |
| Disease of the kidneys | 2 | |
| Other defects of genito-urinary tract | 13 | |
| Diseases of the skin | 9 | |
| Varicose veins | 31 | |
| Tumors and cysts | 4 | |
| Abscesses and sinuses | 4 | |
| Deformities | 69 | |
| Defective feet | 52 | |
| Underweight | 45 | |
| Bursitis | 3 | |
| Partial paralysis | 2 | |
| Unclassified | 8 | |
| Defect not specified | 3 | |
| Total | | 1,348 |
| Number reporting for examination: | | |
| Men who reported for examination | 319 | |
| Men who failed to report | 594 | |
| Letters to men returned unclaimed | 24 | |
| Men not referred, because of no local staff | 147 | |
| Men referred, but no final report from staff | 45 | |
| Total number of men requesting examination | | 1,129 |
| Disposal of cases: | | |
| Men advised and treated by staff | 78 | |
| Men advised and referred to other physicians | 13 | |
| Men advised who declined treatment | 83 | |
| Men reported under care of private physicians | 26 | |
| Men advised but not offered treatment because they claimed exemption on other grounds than their physical condition | 32 | |
| Defects as reported by exemption board physician not confirmed | 3 | |
| Men reported as not unfitted for Army service by defects | 13 | |
| Defects reported by staff as not correctable | 16 | |
| Men not in position to accept treatment at present | 34 | |
| Men reporting to office of board in person or by letter | 21 | |
| Total | | 319 |

#### TUBERCULOSIS

| | | |
|---|---|---|
| Reports of tuberculous men rejected by exemption boards | | 1,313 |
| Cards bearing request for examination and advice | 1,152 | |
| Cards without signed request | 161 | |
| Reports of tuberculous men discharged from Army camps up to Jan. 4, 1918 | 1,110 | |
| Total reports for tuberculosis | 2,423 | |

#### MEN REJECTED AT TIME OF DRAFT

| | | |
|---|---|---|
| Number reporting for examination: | | |
| Men who reported to staff for examination and advice | 420 | |
| Men investigated and advised by tuberculosis nurses | 142 | |
| Men who failed to report and not seen by nurses | 457 | |
| Men who had left the state before notification | 25 | |
| Letters to men returned unclaimed | 42 | |
| Address of men not given on report card | 3 | |
| Men not referred because of no local staff | 28 | |
| Men referred, but no final report as yet from staff | 196 | |
| Total reports of tuberculous rejected men | | 1,313 |
| Disposal of cases: | | |
| Men who reported to staff or seen by tuberculosis nurses | 562 | |
| Men reported as under care of private physicians or sanatoriums | 118 | |
| Men found by staff not to have tuberculosis | 21 | |
| Cases investigated by visiting nurses and reported to bureau of tuberculosis | 142 | |

#### MEN DISCHARGED FROM ARMY CAMPS ON PACIFIC COAST

| | |
|---|---|
| Men belonging to California | 514 |
| Men belonging to 41 other states and District of Columbia | 596 |
| Total men reported by seven Army posts and the marines up to Jan. 4, 1918 | 1,110 |

As soon as this system was well under way, it was decided to extend the tuberculosis work to include the tuberculous men who were not recognized by the examining physician of the local exemption boards, but who were afterward discovered and rejected during the more thorough examination at the camps. It also developed that this follow-up work was needed for men rejected from the National Guard camps. At Camp Lewis in the state of Washington, the medical officers cooperated by reporting the discharged cases in California men. In the California camps, all men discharged or rejected on account of tuberculosis were reported to the board. The bureau of tuberculosis, under the direction of Mrs. E. L. M. Tate-Thompson, in addition to the follow-up work for California men, arranged through correspondence, as far as possible, for the care and supervision of the others in their home states.

The bureau of tuberculosis sent a tuberculosis specialist and a public health nurse into a few communities in which there were no tuberculosis examiners. They held examining clinics for the rejected men. In a number of cities, the duties of the tuberculosis examiners were taken over by the staffs of the clinics of local tuberculosis associations, and the tuberculosis nurses of tuberculosis associations or health departments assisted in the follow-up work. Literature was mailed by the bureau of tuberculosis to all tuberculous rejected men who reported for examination or were seen by the tuberculosis nurses.

To complete the tuberculosis program, there should have been created a tuberculosis camp to which patients with early cases could have been sent and given at least several months of medical supervision and schooling in tuberculosis. As yet such a camp has not been made a reality by either public or private funds. As far as possible the men were brought under the supervision and care of sanatoriums, private physicians, clinics, and the nursing services of health departments.

The results of the work are shown in the accompanying table.

Space will not permit individual mention of the many dentists and physicians who gave their valuable time to this work as tuberculosis examiners or members of the staff on correctable defects, but the complete list is accessible in the January number of the *Monthly Bulletin* of the California State Board of Health.

The staff on correctable defects included six institutions or groups of physicians and seventy-seven additional physicians and dentists. The work for San Francisco and neighboring cities was taken care of by the University of California Medical School, the Leland Stanford Junior University School of Medicine and the University of California Dental School, and was organized by Dr. E. F. Glaser. In Los Angeles, the staff was organized by Dr. Walter V. Brem; in Sacramento, by Dr. F. F. Gundrum; in Stockton, by Dr. William Friedberger and Dr. Linwood Dozier; in Fresno, by Dr. Clifford D. Sweet, and in Chico, by Dr. D. H. Moultin. In San Diego the men were referred to the San Diego Diagnostic Group Clinic, and in Eureka to the Sequoia Hospital staff:

The staff of tuberculosis examiners contained the staffs of eight clinics and forty-three additional physicians. The clinics of the associations for the study and prevention of tuberculosis in San Francisco, Alameda County and Santa Clara County, the Scripps Diagnostic Clinic in San Diego, the Sacramento Settlement Association, and the Sequoia Hospital staff in Eureka took part.

The work in correctable defects in future drafts will in all probability be taken care of by the national plan that is being arranged by the Commitee on States Activities of the Medical Section of the Council of National Defense. It has been proposed that the program be operated through national, state and district committees. Even with this arrangement for taking care of correctable defects, the tuberculosis problem will remain one that will concern primarily the state and local boards of health.

Greater use should be made of the information obtained through the physical examinations of drafted men, for the purpose of lessening tuberculosis and increasing the man-power of the nation.

## TRENCH FEVER

The following review of the present knowledge of trench fever is taken from a summary in the *Medical Bulletin,* published by the American Red Cross in Paris, December, 1917, **1**, No. 2, p. 132:

Fever known among the British troops as P. U. O. (pyrexia of undetermined origin) has greatly increased in the British troops in France during the past year. Under this term, which it is admitted is an unfortunate one, have been included through error of diagnosis cases of paratyphoid fever, of influenza, and especially of trench fever.

During the latter part of the year 1915 and in 1916, in northern France, a disease known as trench fever became gradually recognized as a distinct, specific infection. Cases of this disease were also reported from the armies in Saloniki and Mesopotamia, and apparently a similar affection occurred among the German troops. In some of the armies in northern France, trench fever has caused almost one third of all the sickness. In one division during a year, a monthly average of about 350 cases of this affection were sent to field hospitals. Macgregor and Ramsay have given evidence of individuals who have contracted the disease in England. The disease has occurred particularly in France in those who have been in the trenches or among those who have cared for the sick in the hospitals.

*Clinical Features.*—The incubation period of trench fever as determined experimentally varies from six to twenty-two days. The disease appears particularly in two clinical types, one in which there is a short, evanescent fever lasting from a few days to a week, and frequently followed after a few days of apyrexia by a single short relapse; and a second in which there is a series of relapses of the fever interrupted by periods of apyrexia. In both forms as a rule the onset is sudden and the affection is characterized by headache, dizziness, pain in the back and particulary in the legs, constipation, and a sharp rise of temperature, usually to 102 or 103. Pains in the shins or muscles of the legs is a very common complaint. It is often very distressing, and renders the patient restless at night. The pain in the legs occurs particularly at the points of insertion of the muscles to the bone, where apparently an actual inflammatory process takes place. The pain does not affect the joints. The face is usually flushed, but the eyes are clear and bright. The conjunctivae are not suffused, as in dengue fever. The tongue is usually coated, and there is anorexia. The pulse is usually in the neighborhood of 100, and the heart is normal in the early stages of the disease. Pulmonary catarrh is absent. There is no albuminuria and no enlargement of the spleen. His, and later Zollenkopf, also reported under the name of "Volhynian fever" the occurrence of a somewhat similar disease in the German troops. However, His states that the spleen is almost always enlarged; and Zollenkopf, that it is usually increased in size and that a rash is present. Jungmann concluded that Volhynian fever was a form of typhus.

In the first form mentioned, after about the third to the sixth day of fever, there is often a drop in the temperature, and the temperature remains in the neighborhood of normal for several days. Then a short relapse of fever, lasting only a day or two, takes place. In the second type there may be several attacks of fever lasting three or four days or longer, in which the temperature may reach as high as 104 or 105. Between the attacks of fever there are periods of apyrexia of about the same length of time. The periods of fever and relapse, however, may vary; for example, in three cases reported by Herringham, the fever lasted seven, ten and thirteen days, respectively, and the periods of apyrexia, five, eight, and eleven days. Houston and McCloy have also described what they call a myalgic type in which there is one period of fever lasting from a few days to a week. After this the temperature falls to normal, but the severe pain in the legs continues. Occasionally a sudden rise of the temperature during this period occurs. They have also described a septicemic type in which the enterococcus was isolated from the blood. Other observers have not reported on the septicemic type. Albuminuria has usually been reported as not present. Mandel, however, states that albumin is frequently present, and that in severe cases hyaline and coarsely granular casts and red blood cells are present, the casts frequently persisting after the albumin has disappeared. Possibly these cases are related to "trench nephritis."

*The blood* shows a slight relative increase in the large and small lymphocytes and a reduction in the hemoglobin. A punctate basophilia of the red blood corpuscles is present.

*The prognosis* is very good, but the conditioin in the severe form is apt to be followed by a certain amount of debility. The most important sequelae are anemia, which occurs in from 10 to 15 per cent. of the cases, and disordered action of the heart. The latter is very common after the severe cases, and in these tachycardia is also frequent.

*The diagnosis* is often difficult. The pain in the legs in the neighborhood of the shins is the most constant symptom. The disease may be distinguished from relapsing fever by the absence of the *Spirochaeta recurrentis* from the blood. From influenza it is particularly differentiated by the absence of any catarrhal symptoms and by the lack of prostration in trench fever early in the disease. In dengue fever a rash is usually present and the distribution of pain is different. Trench fever may be distinguished from malaria, undulant fever, and enteric infections by the appropriate blood and serum examinations.

*The treatment* is entirely symptomatic. Aspirin and morphin relieve the pain, but seem to exert no influence over the course of the disease. Quinin and salicylic acid and intravenous injections of antimony, salvarsan and eusol did not affect the fever. The injection of the serum of convalescents in several instances also has not appeared to shorten the attacks.

The infectious nature of trench fever was demonstrated by McNee, Renshaw, and Brunt, by the transmission of it to healthy men by the subcutaneous injection of blood taken from patients during the active stage of the disease. In this way it was determined that the shortest incubation period was six days, and the longest twenty-two. It was not possible to produce the infection with the blood serum of infected individuals unless hemolysis of the red blood cells had taken place. The plasma was also not found to be infective unless hemolysis had occurred, and filtered serum and plasma were also inactive. The red blood corpuscles, however, were found to be capable of causing the disease even after being washed several times in saline solution. The infected agent is not apparently filtrable; if the red cells from the patient are ground up with fine sand and the blood then filtered, the filtrate is quite inactive.

*Transmission.*—It is commonly believed that transmission of this infection occurs through the louse. Muir, however, opposed this view and stated that in a small percentage of the cases the absence of lice was certain. Davies and Weedon report one case in which one of them was twice bitten by a louse, the first time just after it had been allowed to feed on a case of the disease and a second time twenty-four hours later. A typical attack of trench fever developed twelve days later in the individual so bitten. Hurst also reports that Captain Urquhart developed the short form of trench fever after allowing lice taken from a patient with this form of the disease to bite him. He also gives some evidence of a soldier who was infected with vermin and who shortly afterward contracted the disease.

*Etiology.*—Extensive investigations regarding the etiology of the disease have been made, but the organism causing it has apparently not yet been definitely detected by the microscope or the ultramicroscope either in fresh or in stained preparations. Sergent, and later Renaux, found semilunar bodies in the blood which occurred particularly from two to four hours following each relapse. Houston and McCloy regarded the enterococcus which was isolated from the urine in the majority of cases as the cause of the infection. Dimond has described a protozoon, a hemogregarine, in twelve cases, both in the venous blood and in material obtained by splenic puncture. He states the organism was only discovered after the blood had been drawn in 1.8 per cent. citrate solution and then hemolyzed by the addition of a 0.5 per cent. solution of saponin. The parasite was found after this solution had been centrifuged. This discovery, however, has not been confirmed. Pappenheimer found discoid bodies in blood films and in specimens taken from near the periosteum, and in cultures from the blood and tissues of trench fever patients. He later concluded that these were not of a parasitic nature. Patterson has very recently found spirochetes in the urine in fifteen cases of trench fever. Nankivell and Sundell have also found a spirochete in twelve of fifteen typical cases of trench fever. No work was done regarding the pathogenicity of this organism for man or animals. In eighty control cases, either healthy or suffering with other diseases, spirochetes were not found in the urine. These authors did not succeed in finding the spirochete in the blood in trench fever cases or in cultivating it from the blood stream, as, according to them, Reimer claims to have done. However, Stoddard has also just reported the presence of spirochetes in 33 per cent. of individuals in the examination of specimens taken from the urethra or the urine. Hence the mere presence of a spirochete in the urine in trench fever cases cannot be regarded as conclusive evidence that this organism is the cause of the disease or that it bears any direct relation to it.

In relation to prevention, it appears that at the present time it is most important to determine definitely whether the disease is transmitted through the medium of the louse. This should not be difficult to demonstrate. The parasite causing yellow fever is not yet discovered, but the disease is prevented and its spread controlled by the knowledge of its method of transmission by the mosquito. R. P. S.

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SATURDAY, FEBRUARY 2, 1918

## THE COST OF ADEQUATE NUTRITION

The commendable program which plans to promote victory under the slogan of "serve by saving" encounters almost insurmountable obstacles when it is brought face to face with the daily life and living problems of the so-called poorer classes. There is a large group of our population in which the balance of income and expenditure leaves little if any margin of resources to be applied to emergencies, such as are represented by sickness or war time. In periods of stress, therefore, a larger income must be provided either by increased wages or by some form of relief, if an adequate supply of food and other necessities of life is to be obtained. Previous to our entrance into the world war, it was estimated that between $800 and $900 a year was the minimum figure at which a decent and efficient standard of living could be maintained for a typical family of five. Stern and Spitz,[1] to whom we owe interesting studies in this field, have pointed out, as found by Scherschewsky, that in a group whose income was $500 or less, undernourishment and sickness were twice as great as in the groups earning from $700 to $900. Thus, practical medicine is directly interested in this topic.

It is a dictum among social economists that not more than 40 per cent. of the family income can safely be spent for food if all the other essential items of rent, fuel, clothing, etc., are to be provided properly. On this basis, an annual income of $900 would allow approximately $7 per week for the food budget. If we estimate the food needs of an average family of five (mother, father and three children) at 12,000 calories per day, the outlay per thousand calories might reach 8 cents. This sufficed to purchase adequate nutrition in 1913. What will suffice today?

A partial answer is afforded by a study of the food supply in 200 families of limited means in Boston during the past summer.[2] More than half of these were spending over 60 per cent. of their weekly income for food; 75 per cent. of the 200 or more families studied were spending more than 50 per cent. In the past, families with incomes of between $15 and $20 a week have generally been regarded as capable of self-support; yet in eighty-eight Boston families in this income group last July, 50 per cent. expended more than half their income for food. When, in the less favorably situated classes, even more than this must go for food and rent, the great difficulty of maintaining a proper family life and the impossibility of providing for emergencies or other future needs are beyond debate.

These war-time statistics bring the minimum cost of the weekly family food to $10. An analysis of what was actually purchased enables us to give some answer to the inquiry, just propounded, as to the present cost of adequate nutrition on the family basis. In about three quarters of the families, the cost of 1,000 calories was over 10 cents; in one third of them it was over 12 cents. As was to be expected, the larger families were able to purchase with slightly more economy; the differences between nationalities were insignificant.

"The general public needs to be much more fully awakened to the serious effect of present food prices on the nutrition of families of small means, particularly families in which there are many young children." This statement of the League for Preventive Work in Boston places a burden of responsibility on the nation; it rests even more heavily on the physician, who sees the direful consequences of rising costs of food. It is true, of course, that wages have increased in considerable degree; yet, if we may depend on a current statement of the California State Board of Charities, that 50 per cent. or more in some communities, at least, earn $1,000 or less per annum, the conclusion seems inevitable that an increase of income as well as food instruction may become necessary — indeed, it is already imperative in the lower income groups of our population. Philanthropic agencies which supply material relief must face this situation in the light of the recent evidence. Our Food Administration must reckon with the psychology and physiology of the current cost of calories.

What can be done? We have recently discussed some of the peculiarities of the dietaries of the poorer classes and the changes which they might advantageously permit.[3] The crux of the situation has been thus summarized in the Boston report:[2] By purchasing little except those foods which provide considerable quantities of energy and are inexpensive (such as the breadstuffs and cereals), it would be possible for families to buy the average 1,000 calories at between 6 and 8 cents; but such a diet would be insufferably lacking in variety, and is not in fact carried out. A reasonably satisfactory diet, with adequate allowance of milk, sufficient vegetables and fat, a little fruit, a very moderate allowance of meat or fish, and no luxuries, could not at the prices prevailing a few months ago, or even at less cost, be purchased by a family of average size for less than 10 cents per thousand calories, and in most instances for not less than 12 cents. The facts seem to be unmistakable. Never was there greater need of competent advice in food economics.

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## CALCIUM IN THE BLOOD

It has been emphasized on numerous occasions in these columns that the routine examination of the blood by chemical as well as by bacteriologic procedures has come to take its place side by side with older long tried methods of clinical diagnosis. First of all, the enumeration of corpuscles and the study of their morphology found a wide application in diagnostic routine; then followed the era of the microscopic search for parasites and the application of improved bacteriologic technic; later the methods of immunology were brought to bear on the problems of disease with a helpfulness illustrated by the daily use of the Wassermann test; and now chemistry, long represented in blood examination primarily by the estimation of hemoglobin, is contributing information in the greatest diversity of analytic facts.

With respect to the calcium content of the blood as a whole, it was pointed out,[1] on the basis of Lyman's data,[2] that small variations at most seem to occur. Values ranging from 5.2 to 9.6 mg. per hundred c.c. are given for apparently normal persons. Occasional figures that were very high or very low were left unaccounted for. The probable explanation for the latter is pointed out in two recent contributions to the subject: one by Halverson, Mohler and Bergeim[3] of the Jefferson Medical College of Philadelphia, and the other by Marriott and Howland[4] of the Department of Pediatrics at the Johns Hopkins University. The blood corpuscles contain little or no calcium, so that any significant changes in the blood calcium values will be shown only by the plasma or serum values. If the whole blood were used in analysis, the calcium content would vary inversely with the corpuscular count, other things being equal. Thus, for example, the extremely low value of 2.8 mg. calcium per hundred c.c. of whole blood has been reported in a case in which a hemoglobin estimation of 160 per cent. of the standard was reported.

Lyman reported an unmistakable difference in the average figures obtained from examination of the blood of males and females, represented by the figures 6.1 and 7.1 mg. per hundred c.c. of blood, respectively. Halverson, Mohler and Bergeim point out that the volume of plasma per unit of whole blood has also been shown to be on the average from about 10 to 20 per cent. greater for women than for men, though of course not constant for the sexes. The different values obtained for calcium, a plasma constituent, are thus readily accounted for. Calcium determinations on whole blood are of little value unless the relative volume of plasma and corpuscles is known.

From what has been said, it might be expected that aside from the factors introduced by the varying proportions of corpuscles and plasma, of anhydremia and anemia, variations in the calcium content of the plasma will occur regularly in relation to its water content or dilution. This appears to be the case. There is now a uniformity of evidence that the serum of normal adults and infants contains from 9 to 11 mg. of calcium per hundred c.c. In nearly all of the pathologic conditions studied, including cases in which the blood clotted with extreme slowness, a similar range was observed, indicating a great constancy of this element in the blood serum. Distinct decreases were noted in cases of hematogenous jaundice, eclampsia, pneumonia, and particularly uremia.

Great reductions have been reported by Marriott and Howland to occur in infantile tetany and terminal uremic conditions.[5] The Philadelphia investigators remark that while these decreases in serum calcium are notable as contrasted with findings in most other conditions, the fact that values of less than 8 mg. are rare, even when the condition approaches coma, rather leads them to emphasize the great constancy of this element as compared with most blood constituents. *A priori*, this might appear remarkable, they continue, in view of the insolubility of the carbonates and phosphates of calcium and consequent difficulties of excretion and metabolism. On the other hand, it appears that the plasma is a saturated or supersaturated solution of calcium bicarbonate. Hence any appreciable or permanent increases are not readily brought about, while at the same time the calcium present is not readily reduced in amount by precipitation, or by excretion on account of the large reserves of calcium in the bones. Thus in nephritis notable decreases in calcium appear to occur only in the most severe types in which we know the blood composition to be in other respects markedly altered. In mild or chronic nephritis or cases mainly cardiac in character, the calcium values were normal or little below normal. In uremia, comatose in character, values of from 7 to 8 were usually obtained, the lowest value being 6.8. The attempts to increase the serum values to any marked degree by administration of even large amounts of calcium salts have not been successful.[6]

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## WHAT CONSTITUTES GOOD MILK?

What constitutes good milk? The fact that in at least one state, New York, milk is frequently sold with a grade label to designate its quality suggests that it is not difficult to establish satisfactory standards for this important food product. An investigation of the current methods of "scoring" milk, where this is done, shows, however, that the usual basis for evaluating market milk and classifying the product is founded essentially on the conditions under which it is produced and only to a limited extent on the inherent quality of the food. The inadequacy of the usually accepted criteria is attested by the fact that for several years the Official Dairy Instructors' Association, now the American Dairy Science Association, has recognized the necessity for a change of attitude in the matter of dairy scores, and has entrusted the problem of revising the current methods to a representative committee of scientists. Their report,[7] recently made public, is a timely one at a period when the questions of milk production and consumption have been brought prominently before this country in relation to the food needs of war time.

In reality, the goodness or badness of milk depends on several factors, and confusion has arisen because at successive periods interest has been concentrated, owing to the trend of the times, on some single feature that is subject to variation. Before the days of modern bacteriology, the watering and skimming of milk constituted the foremost recognized ways of deteriorating this product. The establishment of minimum legal standards of composition, a protective measure that dates back more than half a century in some states, has had a wholesome effect in preventing gross adulteration; but as Harding and his colleagues have pointed out,[7] with the narrow margin of profit that exists in milk production, there has been an unexpected secondary effect of the legal enactments. They have impelled the production, within the law, of milk with the smallest food value that the market would accept without reduction of price. When the law prohibited the reduction of food value by watering milk, the same result was frequently accomplished by the selection of animals producing milk which approached the legal minimum limits. Yet food value ought not to be divorced from quality standards.

At a subsequent period, the recognition of the tuberculosis of cattle as a menace to the milk supply, and still later the discovery of the occasional bacterial contamination of milk which renders it capable of transmitting not only tuberculosis but also sore throat, typhoid fever, scarlet fever and diphtheria,[8] focused attention so forcibly on the occurrence of pathogenic micro-organisms in milk that the hygiene of the supply long overshadowed every other consideration. It has been responsible for much of the ardent controversy about pasteurization and for the medical supervision of animals and employees, culminating in the exhibition of certified milk. Yet we are forced to admit today that bacteria per se do not necessarily render milk unfit for human consumption, else sour milk would find no place in the dietary. Studies of germ life in the udders of cows have made it plain that bacteria are constantly present in all samples of normal milk from the mammary glands to the consumer.[9]

These truths, to quote the experts of the American Dairy Science Association, are gradually bringing home to the public an appreciation of the fact that there is very little connection between the amount of germ life in milk and the healthfulness of the milk. Germs are just as normally a part of milk, we are further assured by the four representative bacteriologists of the association, Harding of Illinois, Breed and Stocking of New York, and Hastings of Wisconsin, as are lactose, fat globules and body cells. The consumer, they add, has little interest in the germ content of milk except for a limited number of disease-producing forms, against which he has a right to insist on adequate protection, and except so far as the germ life produces objectionable changes, such as souring or bad flavors in the milk itself. The keeping qualities of the milk, however, on which the consumer has a right to insist, present a problem involving bacteria. The restriction of contamination and development of micro-organisms is a complex matter; but by learning to discriminate between germ content and healthfulness on the one hand, and germ content and cleanliness (which determines keeping quality) on the other, it ought to become possible before long to improve the latter. It is only now becoming apparent that many mistaken conceptions have been held in the past about the contaminating germs. As we previously pointed out, even clean dairy utensils are a generous source of such organisms if they are not handled so as to obliterate bacteria. Air and dust particles are far less objectionable sources of germ life. We are acquiring new points of view.

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[6] Halverson, J. O.; Mohler, H. K., and Bergeim, Olaf: Calcium in the Blood in Tuberculosis, The Journal A. M. A., May 5, 1917, p. 1309.

[7] Harding, H. A.; Breed, R. S.; Stocking, W. A., Jr., and Hastings, E. G.: What is Meant by "Quality" in Milk? Circular 205, Univ. of Illinois Agric. Expt. Sta., Urbana, Ill., October, 1917.

[8] Kelley, E. R.: The Quantitative Relationship of Milk-Borne Infection, in the Transmission of Human Communicable Diseases, The Journal A. M. A., Dec. 30, 1916, p. 1997.

[9] Ward, A. R.: The Invasion of the Udder by Bacteria, Bull. 178, New York (Cornell) Agric. Expt. Sta., 1900. Harding, H. A., and Wilson, J. K.: A Study of the Udder Flora of Cows, Tech. Bull. 27, New York (Geneva) Agric. Expt. Sta., 1913. Evans, Alice C.: The Bacteria of Milk Freshly Drawn from Normal Udders, Jour. Infect. Dis., 1916, **18**, 437. Sherman, J. M.: Studies on the Production of Sanitary Milk, Ann. Rep., Pennsylvania State College for 1914-1915.

In the light of what has been learned, then, good milk must exhibit several desirable qualities. It should have a high food value, of which the fat content is a good relative index, though by no means the sole criterion. It must be made safe from the standpoint of disease, and thus healthful by being produced under the competent supervision of cows and men or by being properly pasteurized. Milk ought to be clean in the sense of being reasonably free from obvious dirt. Even today it has become one of our cleanest foods. And it must be produced and handled so as to keep well. For these factors — food value, as expressed by composition; healthfulness, or elimination of dangerous contamination; cleanliness, or protection from dirt; keeping quality, as determined by care of utensils, cooling, and prompt delivery — there is a mutual responsibility on the part of producers, distributors, and even consumers.

## Current Comment

### MEASLES AND GERMAN MEASLES IN THE ARMY CAMPS

While much is said regarding measles (morbilli) in the Army camps, it seems to be less generally realized that German measles (rubeola) also is prevalent. Rubeola is practically never fatal and complications are rare, whereas measles is often accompanied by most serious complications (bronchopneumonia, otitis media), besides leaving the subject, if he recovers, strongly predisposed to tuberculosis. Many who have suffered from measles in the Army camps also have suffered from bronchopneumonia due either to streptococci or to pneumococci. A number have died, and for those that have recovered from the complicating pneumonia, convalescence has been in many instances delayed by an empyemic sequel. The differentiation of morbilli from rubeola, though difficult in single instances, is in the majority of cases a relatively easy matter to the closely observant physician. In measles, the prodromal stage with its catarrhal symptoms (coryza, photophobia, conjunctivitis and cough) is, in itself, fairly characteristic; and when the disease is epidemic, such catarrhal symptoms should at once excite suspicion. The preceding incubatory leukopenia with relative lymphocytosis and eosinopenia is of some diagnostic importance. Above all, the pathognomonic "Koplik's spots," small, slightly elevated, white or bluish white, sharply circumscribed white spots, the size of the head of a pin or smaller, surrounded by a narrow hyperemic zone, should be sought for on the buccal mucous membrane — opposite the molar teeth, inside the lips, or at the junction of the gums with the cheeks. They are present in six out of every seven cases of morbilli, and are visible in the prodromal stage. Again, the maculopapular eruption of morbilli, once it has appeared, is very characteristic. It comes first on the face and scalp, often in front of and behind the ears, and extends to the neck, upper trunk and arms, and, later, to the lower trunk, buttocks and thighs, requiring from two to two and a half days after its first appearance for its full development. At first it is pink, but soon it turns darker red and often brownish red. As von Pirquet has shown, the times of appearance of the rash on the different parts of the body stand in definite relations to the cutaneous arterial supply; the rash appears earliest on parts of the skin in which the arterial distance from the heart is least and the circulation liveliest. The crescentic grouping of the maculopapular eruption is often striking. In rubeola, or German measles, the prodromes are mild or absent, Koplik's spots are not present, the rash is macular rather than papular, it is of a lighter rose red, and its macules are rarely confluent. Beginning on the face or scalp, it extends (in crops) over the rest of the body in about twenty-four hours. In a few instances, the rash resembles that of measles; more often it could be confused with that of scarlet fever.

### SOCIAL MEDICINE IN RUSSIA

These are days when national pride and prowess are asserting themselves in all parts of the world. The ideals and the practical efficiency of many peoples are being compared. Medicine has become so thoroughly internationalized, however, that political boundaries have played little part in its recent trend and development. All of the civilized races and the leading nations of the world have contributed in some way to medical progress. The turmoil of war time may sometimes blind us to the just deserts of certain groups, but history will bring the facts into truthful relief. In thinking of Russia, now a land of seething revolution and administrative upset, let us not forget that she gave us one of the earliest Nobel laureates in medicine: Pawlow, the master student of the physiology of alimentation. And similarly Winslow[1] has pointed out the somewhat unique contribution which Russia has made to the art of public health administration in the organization of a combined system of free medical care and health protection for her rural population through the medium of the zemstvos, or local representative assemblies. Since these elective bodies date back little more than fifty years, it is surprising to us to learn that as early as 1870 the introduction of the system of fixed medical districts in remote rural districts, each provided with a small hospital and a qualified physician, was already begun. Thus the care of the sick was clearly recognized by the zemstvos as a natural duty of society rather than as an act of charity. The importance of the service initiated in this way will better be appreciated if it is recalled that 85 per cent. of the 180,000,000 souls in Russia dwell in the country. In emphasizing this remarkable development of social medicine along curative lines, Professor Winslow, who speaks with the experience of his recent trip with the American Red Cross Mission to Russia, says that on account of the peculiarly acute needs of her rural population that nation has already developed the state care of the sick to a point of which we are just beginning to dream. Modern sanitary engineering evidently

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1. Winslow, C.-E. A.: Public Health Administration in Russia in 1917, Pub. Health Rep., 1917, 32, 2191.

still remains to be developed in Russia. The development of public health activities along medical and bacteriologic lines, on the other hand, is modern and progressive. As zemstvo and municipal medicine develop and acquire greater educational and preventive quality, we may look, says Winslow, for unprecedented successes in the control of preventable disease in the great Sister Republic.

### PHYSICAL EXAMINATION OF REGISTRANTS

Two weeks ago we noted the appointment of a board, on the recommendation of the Surgeon-General, to revise that section of the Selective Service Regulations governing the physical examination of registrants. This board[1] has just made its report, which appears on page 317 of this issue. Many changes have been made in the regulations. They consist chiefly of defining certain standards for unconditional acceptance or unconditional rejection by the local boards. One of the chief reasons for defining such standards is that the selective service law permits the acceptance of registrants for special duties. These registrants who have not the physical qualifications for general military service may be otherwise physically and mentally qualified for special military service. Under the new regulations, physicians of the local boards are not required to make a complete examination of every registrant before rejection. They are required to make a complete physical examination before unconditional acceptance, and even then the registrant may appeal to the Medical Advisory Board for a second examination. The result of the new regulations is practically to throw the large burden of the examinations on the Medical Advisory Boards. In other words, the wholly normal or markedly abnormal, which constitute the smallest number of men in general, come within the purview of final action by the local board. All others are referred to the Medical Advisory Boards.

### HONORS TO COLONEL GOODWIN

Col. T. H. J. C. Goodwin, C.M.G., D.S.O., who, during his stay in the United States as liaison officer in the Surgeon-General's Office, endeared himself to every medical officer with whom he came in contact, returned to England a few weeks ago. Now comes the announcement of his appointment as Deputy Director General of the British Army Medical Service on the retirement of Surgeon-General Sir M. W. Russell, K.C.M.G., C.B. Colonel Goodwin was commissioned in the British army in 1893, and acted as staff surgeon in military operations on the northwestern frontier of India. As a result of this work he was mentioned in dispatches and received the Distinguished Service Order. He was with the first English troops to be sent to France, aiding in stopping the German advance, and taking part in the retreat from Mons. During the present war he has been recognized in dispatches and by decoration and promotion, being especially noted for his high administrative abilities. While in this country he delivered numerous lectures, particularly a series in the Army Medical School in Washington. His talks were noted for their intense sympathy, beautiful language and absolute clearness. The final hint given in his recently published manual "Notes for Army Medical Officers" represents, no doubt, the keynote of his well-deserved success:

> "The keystone of efficiency in the Army is *'Loyalty.'* 'Loyalty' to the Army and to the medical profession, 'loyalty' to one's unit and Commanding Officer, 'loyalty' to one's Juniors."

### HE DIED "IN FLANDERS' FIELDS"

A few months ago we published an inspiring and beautiful poem entitled "In Flanders' Fields." It was written by Lieutenant Colonel, at that time Captain, John McCrae. Here is the first verse of the poem; it contains but two:

In Flanders' fields the poppies blow
Between the crosses, row on row,
That mark our place, and in the sky
The larks still bravely singing fly,
Scarce heard amidst the guns below.
We are the dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved, and now we lie
In Flanders' fields.

Thousands of our readers will regret to learn that Colonel McCrae died in France, January 28. Again it is pneumonia. Colonel McCrae was of the Canadian Army Medical Corps, in charge of Medical Division No. 3 of the Canadian General Hospital. He was born forty-five years ago, graduated from the University of Toronto in 1898, was lecturer in medicine in McGill University, assistant physician to the Royal Victoria Hospital, Montreal, and co-author with J. G. Adami of the well-known textbook of pathology. He had become one of the leading medical men of Canada, and at the outbreak of the war volunteered his services. Few men will be missed more than he. May we repeat his message as contained in the other verse of his poem?

Take up our quarrel with the foe,
To you from falling hands we throw
The torch—be yours to hold it high.
If ye break faith with us who die,
We shall not sleep though poppies grow
In Flanders' fields.

### MINNESOTA MEDICINE

The Minnesota State Medical Association has joined those constituent state associations which publish their own medical journals. The January issue, the first number, announces that the journal will be independent and that it will work only for the best interests of the profession and the public. The contents of this first number, as well as its make-up, give promise that this policy will be fulfilled and that the journal will serve the state association in attaining the purpose of the organization—that the profession shall become capable and honorable within itself and more useful in its service to the public. The new journal will accept advertisements for medicinal preparations only when these conform to the rules adopted by the Council on Pharmacy and Chemistry of the American Medical Association for the protection of the medical profession and the public, and it is stated that everything appearing in the advertising pages will be edited as carefully as the reading matter.

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[1] The board consists of: Col. George E. Bushnell, U. S. Army, retired; Lieut.-Cols. Thomas L. Rhoade and Philip W. Huntington, M. C.; Majors Pearce Bailey, Joseph C. Bloodgood, Elliot C. Brackett, William H. Logan, Warfield R. Longcope, Walter R. Parker and Charles W. Richardson, M. R. C.; Contract Surg. Henry H. Morton, U. S. Army; alternate, Contract Surg. William A. Pusey, U. S. Army.

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## *Medical Mobilization and the War*

### Medical Corps Instruction Extended

In order to equip officers and men in the special work required of the medical corps, and its sanitary, dental and veterinary branches, extensions are being arranged for medical camps at Fort Oglethorpe, Ga., and Fort Riley, Kan. There are at present 5,400 officers and men under training at Fort Oglethorpe and 3,800 at Fort Riley. Fort Riley has a capacity of 7,000. Enlargement of the school at Fort Oglethorpe to the same capacity has been authorized, its present capacity being 5,500. There have been graduated from medical training camps since June 1, or are now under instruction, a total of about 9,000 officers and about 20,000 enlisted men. The medical training camp at Fort Benjamin Harrison, Ind., and the one at Fort Des Moines, Iowa, for colored officers and men, which contributed to the total, have been discontinued.

### A Bibliography of the War Cripple

The Red Cross Institute for Crippled and Disabled Men, 311 Fourth Avenue, New York City, has issued a most exhaustive bibliography of references to literature treating of reeducation, employment, and other forms of after-care for crippled soldiers and sailors. It includes references to editorials, articles, bulletins and books in various languages. The compilation was made by Mr. Douglas C. Murtrie, and appears to be quite complete. There are over 1,050 references. The bibliography is timely and will prove of great value for those who are interested in this extremely important question.

### Soldiers and Sailors' Insurance

The Bureau of War Risk Insurance by its Soldiers and Sailors' Campaign Council has addressed a letter to the public through the newspapers and other publications urging the taking of the full amount of insurance provided by the government for soldiers and sailors by every member of the naval and military forces entitled to such insurance. The response to the insurance law has been large, but there still remain a large number who have failed to apply for the insurance, perhaps not understanding that the privilege of applying expires within 120 days after they enter the service. For those in the service before Oct. 15, 1917, the last day is February 12. Medical Reserve Corps officers are entitled to apply for the insurance as soon as they are called to active duty.

### Two Medical Officers Convicted by Courts Martial

Lieut. John G. Dwyer, M. R. C., U. S. Army, Cullom, Ill., a graduate of Chicago College of Medicine and Surgery in 1913, and on duty at Camp Funston, Kan., and Lieut. Charles Willard Cole, M. R. C., U. S. Army, Norton, Kan., a graduate of Central Medical College in St. Joseph, Mo., in 1903, on duty at Camp Beauregard, La., have been court martialled and recommended to be dismissed from the service on account of neglect of duty. In the first case, a soldier who was too ill to be "put to stand attention," is said to have appeared before Lieutenant Dwyer and been ordered to double duty. The following day he was sent back to the hospital, and died from pneumonia, soon afterward. In the case of Lieutenant Cole the evidence showed that several sick soldiers had been transferred from regimental infirmaries to base hospitals, and that no immediate attention had been paid them. They were not admitted but were kept in the ambulances. Afterward Lieutenant Cole went out to see the men and refused to receive them into the base hospital, ordering them returned to the infirmaries. In both cases the proceedings have been returned and the court martial reopened on the ground, as the receiving officer says, that the order for dismissal was wholly inadequate as a sentence.

### SELECTIVE SERVICE REGULATIONS

#### Physical Examinations of Registrants

As already noted in The Journal, a board was appointed to fix more definitely than at present the standards by which is to be determined the final fitness of registrants for duty under the Selective Service Law and of applicants for enlistment. The following is the report issued by this board:

NEW REGULATIONS FOR THE PHYSICAL EXAMINATIONS
OF REGISTRANTS BY THE PHYSICIAN
OF THE LOCAL BOARD

**Section 182. Preliminary Statement.**—In view of the contemplation of a further investigation and classification of registrants physically qualified for special and limited military service, who have not the physical qualifications for general military service, and in view of the decision to accept some registrants for general military service with remedial defects, who are otherwise physically and mentally qualified for military service, the following new regulations for the physical examination of registrants by the physician on the Local Board become necessary.

Local Boards can *accept* registrants for general military service only when they come within the standards for unconditional acceptance with or without remediable defects.

Local Boards can *reject* registrants for general military service only when the registrant comes within the standards of unconditional rejection.

All other registrants must be referred by the Local Board to the Medical Advisory Board for further examination and classification.

Physicians on the Local Board are not required to make a complete examination of every registrant. The moment the physician on the Local Board finds a mental or physical defect placing the registrant within the standards of unconditional rejection the physician on the Local Board shall indicate this on Form 1010, Section 282, page 156, after "physically deficient and not physically qualified for military service by reason of"—in the space following, write the disqualifying defect.

The moment the physician on the Local Board finds a defect which does not come within the standards of unconditional rejection but takes the registrant out of the class within the standards of unconditional acceptance, he will refer the registrant to the Medical Advisory Board and so indicate this in Form 1010, Section 282, page 156.

Registrants cannot be declared physically qualified for general military service (see Form 1010, Section 282, page 156) until the complete examination has been made by the physician on the Local Board with the finding that the candidate comes in every instance within the standards of unconditional acceptance with or without remediable defect. Then it is so noted and recorded in Form 1010, Section 282, page 156, and if there is a remediable defect, this is also recorded after "physically qualified for general military service."

**Section 183. Place, Order and Method of Examinations.**—The physical examination should take place in a large well-lighted room. Question the registrant first about his physical condition, observe his mental characteristics and speech.

Be on the lookout for malingering throughout the entire examination. Examine the scalp and face, nose, teeth, mouth, and fauces. Palpate the skull, then have the registrant strip off all his clothing, and make a general inspection of the skin over the entire body, of the conformation of the back, chest, and abdomen, of the region of the neck and buttocks, and of the upper and lower extremities. Inspect for the bulgings of hernia, inspect the genitals, palpate the testicles, inspect the anus, tell the registrant to move all the joints of the extremities and to bend the neck and body for observations on movements of the spine.

Take the weight and height and chest measurements while the registrant is stripped of all his clothing. The chest measurements are taken on the level just above the nipple with the tape horizontal.

During examination of the chest and of the eye and ear, the registrant may put on his underdrawers, trousers, shoes and stockings.

Guard against the registrant becoming chilled.

The local physician can use his judgment as to the order of the physical examination.

**Section 184. Special Examinations and Standards for Unconditional Rejection, Unconditional Acceptance, with or without Remediable Defects, and Reference to the Medical**

**Advisory Boards.**—Remember that the Local Boards can accept or reject for general military service or refer the registrant to the Medical Advisory Board for further examination and classification. The Local Boards cannot place the candidate in the class "physically qualified for special or limited military service" (see Form 1010, Section 282, page 156) for reasons already given.

(*a*) Mental and Nervous.—Reject insanity, epilepsy, idiots, imbeciles, and proven chronic alcoholism when the examination places the registrants within the standards of unconditional rejection as defined below.

*Insanity.*—All registrants who are committed or who have been committed to a licensed institution for insane or licensed private institution, who bring proof from verified records of institution or State Boards.

*Epilepsy.*—The registrant will be declared an epileptic when verified histories establish the disease as of long duration and of the type of grand mal.

*Idiot.*—A registrant so deeply defective in mind from birth or from early age that he is unable to guard himself against common physical danger.

*Imbecile.*—A registrant so deeply defective in mind from birth or from early age as to be incapable of earning a livelihood but able to guard himself against common physical danger.

*Chronic Alcoholism.*—The registrant on examination must show suffused eyes, prominent superficial blood vessels of nose and cheek, flabby, bloated face, red or pale purplish discoloration of mucous membrane of pharynx, and soft palate; muscular tremor in the protruded tongue and extended fingers, tremulous handwriting, emotionalism, prevarication, suspicion, auditory and visual hallucinations, persecutory ideas.

The history or evidence that the registrant has been frequently and grossly intoxicated is not of itself sufficient for a diagnosis of chronic alcoholism and rejection.

Accept all registrants with apparent normal understanding and whose speech can be understood and who have no definite signs of organic disease of the brain, spinal cord and peripheral nerves.

Refer all other registrants to the Medical Advisory Board.

(*b*) Skin.—*Reject* registrants who have long-existing skin diseases which are so severe or so disfiguring as to be permanently incapacitating, or so disgusting or so disfiguring as to render the sufferers from them unsuitable for common social intercourse, or long-existing ulcers so severe or so extensive as to be permanently incapacitating.

Refer remediable ulcers to the Medical Advisory Board.

*Accept* registrants who have skin diseases which run an acute or temporary course, or are trivial in character, or do not interfere with the general health, or are not incapacitating. Among the common skin conditions coming in this category are: Acne, Anomalies of Pigmentation, Scars, Condylomata, Diseases produced by pus infection, Eczemas which have not been of long duration, all forms of Naevi not producing great disfigurement or deformity, all forms of Pediculosis, Scabies, Psoriasis, all forms of Ringworm, Warts, Callosities.

Refer all other cases of skin diseases to the Medical Advisory Board.

Registrants with infectious, syphilitic and parasitic diseases of the skin of temporary character, or with other acute skin diseases, should be advised to accept treatment immediately pending receipt of orders to report for duty.

*Accept* all registrants with syphilitic lesions of the skin.

(*c*) *Head.*—Accept registrants with depression in the skull or with any abnormalities of the bones of the skull unless they come within the standards of unconditional rejection noted under (*a*) Mental and Nervous. Refer all doubtful cases to the Medical Advisory Board.

(*d*) *Spine.*—Accept all registrants with a normal spine or with slight curvatures which do not interfere with function and weight bearing power.

Reject all registrants with signs and symptoms of undoubted extensive disease of the vertebrae which totally incapacitate. The wearing of a plaster jacket does not of itself reject.

Refer all other registrants and doubtful cases to the Medical Advisory Board.

(*e*) *Ears.*—Reject when it can be absolutely proven that the registrant is totally deaf in both ears.

Accept when the hearing in both ears is above the standard of 10/20.

Refer to the Medical Advisory Board when the hearing is below the standard of 10/20 in one or both ears, or complete deafness in one ear.

To determine hearing, the hearing of the examiner should be normal.

Place the registrant facing away from the assistant, who is 20 feet distant, and direct him to repeat promptly the words spoken by the assistant. If the registrant cannot hear the words at 20 feet, the assistant should approach foot by foot, using the same voice, until the words are repeated correctly. Examine each ear separately, closing the other ear by pressing the tragus firmly against the meatus, the examiner faces in the same direction as the registrant and closes one of his own ears in the same way as a control. The assistant speaks in a low conversational voice (not a whisper) just plainly audible to the examiner, and should use numerals, names of places or other words or sentences until the condition of the applicant's hearing is evident. The acuity of hearing is expressed in a fraction the numerator of which is the distance in feet at which the words are heard by the registrant and the denominator the distance in feet at which the words are heard by the normal ear; thus 20/20 records normal hearing, 10/20 imperfect hearing, etc. If any doubt as to the correctness of the answer is given, the registrant should be blindfolded and a watch should be used, care being taken that the individual does not know the distance from the ear at which it is being held. The watch used should be one whose ticking strength has been tested by trial on a normal ear.

Accept all registrants whose hearing is above the standard of 10/20 in both ears and who have no chronic discharge from the middle ear.

Refer to the Medical Advisory Board all registrants with chronic discharge from the middle ear, and all doubtful cases.

(*f*) Eyes.—*Reject* all registrants with the absence of one eye and when there is no doubt they are totally blind in *both eyes.*

*Accept* all registrants with vision 20/100 in one eye and 20/40 in the other without glasses or 20/100 in each eye without glasses if correctable with glasses to 20/40 in either eye. When the physician on the Local Board is not supplied with test glasses and the registrant has no glasses, refer to the Medical Advisory Board.

*Accept* all registrants who come within or exceed the above visual requirements though they may have the following slight defects:

Slight adhesions of the lids to the eyeball.
Small pterygium.
Slight eversion of the lids.
Ptosis, when not interfering with vision.
Strabismus, if vision up to standard.

Iridectomy, or other operation is in itself not a cause for rejection if condition for which it was performed is relieved.

Color-blindness is not a cause for rejection.

Refer to the Medical Advisory Board all other cases.

Vision.—To determine the acuity of vision, place the person under examination with back to window at a distance of 20 feet from the test types. *Examine each eye separately, without glasses,* covering the eye with a card (not with the hand). The applicant is directed to read the test types from the top of the chart down as far as he can see, and his acuity of vision recorded for each eye with the distance of 20 feet as the numerator of a fraction and the size of the type of the lowest line he can read correctly as the denominator. If he reads the 20-feet type correctly, his vision is normal and recorded 20/20; if he does not read below the 30-feet type, the vision is imperfect and recorded 20/30; if he reads the 15-feet type the vision is unusually acute and recorded 20/15, etc.

(*g*) Mouth, Nose, Fauces, Pharynx, Larynx, Trachea and Esophagus.—*Reject* all irremediable deformities and diseases which interfere with mastication of ordinary food, and interfere with speech so the registrant cannot be understood.

*Reject* registrants who have a permanent gastrostomy or who are wearing a permanent tracheotomy tube.

*Accept* all registrants who have not complete obstruction to nasal breathing.

*Accept* all registrants with nasal polypi, deviation of septum, enlarged tonsils and adenoids if obstruction to nasal breathing is not complete, and all remediable benign tumors.

Refer all other cases and all doubtful cases to the Medical Advisory Board.

(*h*) *Neck.*—*Reject* fully developed exophthalmic goiter when there is present thyroid enlargement, pulse rate above 120 and exophthalmos.

*Accept* registrants with normal necks, moderate enlargement of thyroid with no toxic symptoms; Accept with a few palpable lymph glands with or without healed scars and no sinuses.

Refer all other and doubtful cases to the Medical Advisory Board.

(*i*) *Lungs.*—The examination of the lungs by the physician on the Local Board should in all instances include the following procedures.

Each registrant should be required to exhale his breath, cough, and immediately breathe in. The chest should be auscultated during this process. All men who show moist sounds during cough or during respiration should be referred to the Medical Advisory Board.

All registrants should be referred to the Medical Advisory Board in whom at this examination there is well-marked dullness on percussion, increased transmission of the voice, harsh respiration, and prolonged expiration even though there be no râles present. Men distinctly under weight or with sunken and deformed chests should be referred to the Medical Advisory Board, even if the examinations above noted are negative.

*Accept* registrants when the examinations noted above are distinctly negative, and the physician of the Local Board is of the opinion that there is no evidence of disease of the pleura, lungs, and mediastinum.

Refer all other cases to the Medical Advisory Board.

Reject no registrants for diseases of the lungs, pleura, mediastinum, and chest wall, except men with tuberculosis or other diseases of lungs, pleura, and mediastinum, who are confined to their beds, when verified histories establish unmistakably the existence and long duration of diseases.

(*j*) *Heart and Blood Vessels.*—The physician on the Local Board shall make the following examinations of the heart and blood vessels:

1. The *examination* should in all cases include:

(*a*) Location and determination of character of apex impulse.

(*b*) Auscultation of the heart sounds over apex, lower sternum and second and third interspaces to right and left of sternum, noting accentuation of sounds and murmurs.

(*c*) Exercise test: Hopping 100 times on one foot. At cussion of first interspace on each side of manubrium for evidence of aneurism.

(*d*) Count of radial pulse, observation of its rhythm, and palpation of radial arteries for unusual thickening or high tension.

(*e*) Exercise test: Hopping 100 times on one foot. At close count heart rate with stethoscope over apex, listening for murmur and noting how long tachycardia and unusual dyspnoea persist. After two minutes neither should be marked.

After this examination the Local Board shall accept all registrants who come within the standard for unconditional acceptance, which is as follows:

*Standard for Unconditional Acceptance.*—2. Subjects with apex impulse within the left nipple-line and not below the fifth interspace, of normal, not heaving character, with normal sounds, free from murmurs, without pulsation or dullness above the base of the heart, with regular pulse of normal rate, who have no unusual thickening of the arteries or evidence of high blood-pressure, and who show a normal response to the exercise test, may be unconditionally accepted.

3. The Local Board shall reject all registrants presenting definite symptoms of circulatory failure, viz.: a combination of breathlessness, marked cyanosis and oedema.

4. All other cases shall be referred to the Medical Advisory Board.

(*k*) *Abdomen.*—*Accept* all registrants who after an inspection percussion and palpation of the abdomen show no enlargement of the liver and spleen and no tumor of the abdominal wall or within the abdomen.

*Accept* all registrants who give a history of abdominal trouble suggesting a chronic appendicitis or gall-bladder disease and who on examination present no signs of such diseases.

*Accept* all registrants with small or medium reducible inguinal, femoral, umbilical and post-operative hernia.

*Accept* all registrants with abdominal scars, who give a history of operation for hernia, appendicitis, gall-bladder disease, or for some abdominal injury, providing there is no large hernia in the scar.

Refer to the Medical Advisory Board all registrants who have jaundice, who have enlargement of the liver or spleen or palpable tumor of the abdominal wall or within the abdomen.

Refer to the Medical Advisory Board all registrants who from history and examination suggest very strongly the presence of a gastric or duodenal ulcer or some serious intra-abdominal disease.

Refer to the Medical Advisory Board all irreducible hernia and all very large hernia.

*Reject* no abdominal cases.

When, during the examination of the abdomen a kidney is palpable and even movable, if it is not enlarged, accept the registrant. If it is distinctly enlarged, refer to the Medical Advisory Board.

(*l*) *Anus.*—*Accept* all registrants in which the anus is apparently normal and all with small external and internal hemorrhoids, fissures and condylomata.

Refer all other cases to the Medical Advisory Board.

Reject no lesions in this area.

(*m*) *Genito-Urinary Organs and Venereal Diseases.*—*Reject* extraversion of the bladder, distinct hermaphrodices, and registrants whose penis has been totally destroyed by operation or disease.

*Accept* all cases with no signs of disease of the genito-urinary organs, all acute and chronic cases of gonorrhea and syphilis who have no complications permanently incapacitating.

*Accept* variococele, hydrocele, undescended testicle, and registrants with but one testicle, providing they do not give a definite history that the removed testicle was the seat of malignant disease.

Refer all cases in which the history and examination indicate an acute or chronic nephritis, all cases in which you find blood in the urine, and all other doubtful cases to the Medical Advisory Board.

Registrants with gonorrhoea or syphilis should be advised to accept treatment pending receipt of orders to report for duty.

(*n*) *Affections Common to Both Extremities.*—*Reject* all diseases, injuries and amputations which have destroyed the function of *both* lower limbs or *both* upper limbs.

*Reject* all registrants with an extensive disease of one joint associated with sinuses of long duration.

*Accept* all registrants who have no loss of function of both upper and lower extremities and no restriction of joint function.

Refer to the Medical Advisory Board all registrants with one good arm and one good lower extremity and all other doubtful cases.

(*o*) *Hands.*—Accept all registrants whose function of the wrist and fingers is not permanently impaired and who have not lost either a thumb or the index finger on the right hand, or two fingers on one hand.

Refer all other and doubtful cases to the Medical Advisory Board.

(*p*) *Lower Extremities.*—Accept all registrants with movable joints and no deformity which interferes with walking and weight-bearing power.

*Accept* registrants with varicose veins when not associated with edema and leg ulcer.

*Accept* all foot and ankle lesions, if they do not interfere with the wearing of an ordinary shoe and with walking and weight-bearing power; hammer toe, hallux valgus, bunion, callosities, the different types of flat-, club- and claw-foot are to be accepted if they come within the above requirements.

Refer all doubtful and other cases to the Medical Advisory Board.

Reject no foot cases.

(*q*) *Height, Weight, and Chest Measurements.*—Registrants whose chest measurements do not come within the limits of the table and who have no disqualifying defect are referred to the Medical Advisory Board.

*Accept* registrants above 58 inches in height when exceptionally well proportioned. Refer all other cases to the Medical Advisory Board.

*Reject* registrants of less than 58 inches in height.

Refer to the Medical Advisory Board registrants whose height is more than 58 inches and less than 60.

*Reject* registrants whose weight is less than 100 pounds unless it is plainly due to some recent illness and otherwise the registrants have no disqualifying defect.

Registrants whose weight is more than 100 pounds and less than 114 pounds and who have no other disqualifying defect are referred to the Medical Advisory Board.

Registrants under weight in proportion to their height (see table), unless it is plainly due to some temporary cause, are referred to the Medical Advisory Board. When this underweight can reasonably be explained and the registrant otherwise is physically fit, *accept.*

Registrants with overweight are to be *accepted* unless the obesity interferes with normal physical activity. Refer all doubtful cases to the Medical Advisory Board.

The following weights and measurements should be taken with the greatest care:

STANDARD MEASUREMENTS, AND PERMISSIBLE VARIATIONS

| A Standard Accepted Measurements | | | | The Following Variations from the Standard Shown in Column A are Permissible When the Applicant is Active, Has Firm Muscles, and is Evidently Vigorous and Healthy | | | |
|---|---|---|---|---|---|---|---|
| Height, Inches | Weight, Pounds | Chest Measurement | | Height, Inches | Weight, Pounds | Chest Measurement | |
| | | At Expiration, Inches | Mobility, Inches | | | At Expiration, Inches | Mobility, Inches |
| 60 | 120 | 31 | 2 | 60 | 114 | 30 | 2 |
| 61 | 120 | 31 | 2 | 61 | 114 | 30 | 2 |
| 62 | 120 | 31 | 2 | 62 | 114 | 30 | 2 |
| 63 | 124 | 31 | 2 | 63 | 116 | 30 | 2 |
| 64 | 128 | 32 | 2 | 64 | 120 | 30 | 2 |
| 65 | 130 | 32 | 2 | 65 | 120 | 30 | 2 |
| 66 | 132 | 32½ | 2 | 66 | 120 | 30¼ | 2 |
| 67 | 134 | 33 | 2 | 67 | 120 | 30½ | 2 |
| 68 | 141 | 33¼ | 2½ | 68 | 121 | 30¾ | 2 |
| 69 | 148 | 33½ | 2½ | 69 | 124 | 31 | 2 |
| 70 | 155 | 34 | 2½ | 70 | 128 | 31¼ | 2 |
| 71 | 162 | 34¼ | 2½ | 71 | 133 | 31¾ | 2 |
| 72 | 169 | 34¾ | 3 | 72 | 138 | 32¼ | 2½ |
| 73 | 176 | 35¼ | 3 | 73 | 143 | 32¾ | 2½ |
| 74 | 183 | 36¼ | 3 | 74 | 148 | 33½ | 2½ |
| 75 | 190 | 36¾ | 3¼ | 75 | 155 | 34½ | 2¾ |
| 76 | 197 | 37¼ | 3½ | 76 | 161 | 34¾ | 2¾ |
| 77 | 204 | 37½ | 3¾ | 77 | 168 | 35¼ | 3 |
| 78 | 211 | 38¼ | 4 | 78 | 175 | 35¾ | 3 |

(*r*) *General.*—Refer to the Medical Advisory Board all registrants who, from their history and after their complete examination, suggest the possibility of tuberculosis in some part of the body.

Refer to the Medical Advisory Board all cases who, at the general examination seem to have a marked anaemia even though otherwise physically fit.

Refer to the Medical Advisory Board all cases who, after examination impress you as in an extreme state of debility, even if the other examinations are negative.

Refer to the Medical Advisory Board all registrants who give a history of an operation or any other treatment for a malignant tumor, even if there is no evidence of recurrence, and all registrants who, after examination, have any tumor or ulcer suspicious of malignancy.

Registrants confined to their homes, hospitals, or institutions, who claim to be suffering from hopeless, totally incapacitating diseases, should be thoroughly investigated by the Local Board in consultation, if necessary, with the Medical Advisory Board.

Some of these registrants may have remediable defects. In others, the claim may be incorrect.

**Section 185. Dental Requirements.**—*Accept* registrants who have three serviceable, natural, masticating teeth above and three below opposing and three serviceable, natural incisors above and three below opposing. All these teeth must be so opposed as to serve the purpose of incision and mastication. Therefore, the registrant shall have a minimum total of six masticating teeth and a minimum total of six incisor teeth.

The needed dental treatment will be performed at the cantonment. However, if time permits, a registrant, if he prefers, may have the necessary work done at home previous to his induction into military service.

*Definitions.*—(*a*) The term "masticating teeth" includes molar and bicuspid teeth, and the term "incisors" includes incisor and cuspid teeth.

(*b*) A natural tooth which is carious (one with a cavity), which can be restored by filling, is to be considered as a natural serviceable tooth.

(*c*) Teeth which are restored by crowns or dummies attached to fixed bridge work, when well placed, shall be considered as serviceable natural teeth, when the history and the appearance of these teeth is such as to clearly warrant such assumption.

(*d*) A tooth is not to be considered a serviceable natural tooth when it is involved with excessively deep pyorrhea pockets, or when its root-end is involved with a known infection that has or has not an evacuating sinus discharging through the mucous membrane or skin.

Refer all other cases to the Medical Advisory Board.

*No registrants can be rejected on account of teeth defects.*

**Section 186. Degree of Deficiency for Disqualification.**—In these regulations the standards for unconditional rejection which place the registrant in the class physically deficient and not physically disqualified for military service are clearly defined, When the Local Board is in any doubt, the registrant should be referred to the Medical Advisory Board. The physician on the Local Board is requested to read paragraph 3 of Section 123, page 64 after the side heading *Where Held Disqualified,* which is as follows: If the registrant is held to be physically disqualified by the examining physician, the Local Board shall, unless it decides by unanimous vote that the disqualification is so obvious as to leave no room for reasonable doubt, send the registrant before such Medical Advisory Board in the manner just provided. This shows that there must be a unanimous vote of the Local Board to disqualify the registrant, and the disqualification must be so obvious as to leave no room for reasonable doubt.

The object of this ruling has already been given.

**Section 187. Temporary Defects.**—Registrants confined to their homes, or hospitals, or who present themselves with some temporary defect the result of an acute disease, injury, or operation, or who are waiting for operation, should be granted a reasonable delay for completing the physical examination.

All of those cases should be thoroughly investigated by the physician on the Local Board.

Registrants with contagious, communicable, reportable diseases should be ordered before the Local Board for examination until they are discharged by the Boards of Health.

Registrants recovering from diphtheria should be ordered to the cantonments until two negative cultures have been obtained from the throat. In localities where there is no provision for this bacteriological work, consult the Medical Advisory Board.

**Section 188.—Special and Limited Military Service.**—In view of the importance of a thorough investigation and classification of registrants belonging to this group, it has been considered best to request the Local Board to refer all of these registrants to the Medical Advisory Board.

The physician on the Local Board is urged to consult with the Medical Advisory Board about this group and familiarize himself with the specific regulations and information soon to be given to the Medical Advisory Board concerning special and limited military service.

## HEALTH CONDITIONS IN EXPEDITIONARY FORCES AND TROOPS IN THE UNITED STATES

### Week Ending January 18

The accompanying figures on health conditions in the American Expeditionary Forces for the week ending January 18 are from reports cabled to the Surgeon-General of the Army. Similar figures are given for all troops in the United States. Figures in second line are for the preceding week.

The "admission rate" in these figures is the number of new cases per thousand men first reported during the week covered by the report. The "noneffective rate" is the total number per thousand off duty as the result of any injury or ailment, whether or not the patient was ordered to hospital.

HEALTH CONDITIONS IN THE UNITED STATES ARMY

| | Expeditionary Forces | Troops in United States |
|---|---|---|
| Noneffective rate on January 18 | 55.1 | 47.6 |
| Noneffective rate on January 11 | 54.1 | 46.4 |
| Admission rate: | | |
| Injury and disease | 44.9 | 33.3 |
| | 45.2 | 33.7 |
| Disease only | 42.3 | 32.0 |
| | 42.0 | 32.2 |
| Pneumonia | 1.6 | 0.6 |
| | 1.0 | 0.7 |
| Venereal disease | 1.4 | 1.4 |
| | 1.1 | 1.4 |
| Measles | 1.2 | 2.1 |
| | 1.5 | 2.0 |
| Meningitis | 0.1 | 0.08 |
| | 0.05 | 0.09 |
| Scarlet fever | 0.3 | 0.2 |
| | 0.5 | 0.1 |
| Typhoid fever | 0.004 | 0.0008 |
| | 0.01 | 0.001 |

Note.—Figures above represent rate per thousand.

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Jan. 18, 1918

1. Annual admission rate per 1,000 all troops in U. S. (disease only) .................................... 1,666.7
    Noneffective rate per 1,000 on day of report.............. 47.6
2. National Guard Camps:
    Admission rate per 1,000 all divisions (disease only)...... 1,567.8
    Noneffective rate per 1,000 on day of report.............. 49.1
    Divisions showing admission rate for disease higher than average: Camps Wheeler, Beauregard, Kearny, Bowie, Shelby and Doniphan.
    Divisions showing noneffective rate higher than average: Camps Wheeler, Beauregard, Bowie, Kearny, Shelby and Doniphan.
3. National Army Camps:
    Annual admission rate per 1,000 all divisions (disease only) 1,905
    Noneffective rate per 1,000 on day of report (all divisions) 51
    Divisions showing admission rate for disease higher than average: Camps Travis, Pike, Dodge, Jackson, Funston and Lee.
    Divisions showing noneffective rate higher than average: Camps Travis, Dodge, Pike, Lee, Funston, Jackson, Zachary Taylor and Lewis.
4. Venereal Diseases:
    Annual admission rate Regulars in U. S.................... 76.2
    Annual admission rate National Guard (Divisions in U. S.).. 46.6
    Annual admission rate National Army (Divisions in U. S.).. 90.3
    National Guard camps having rate above average: Camps Logan, Bowie, Wheeler, Shelby and McClellan.
    National Army camps having rate above average: Camps Pike, Dix, Dodge, Travis and Jackson.
5. Number of cases of pneumonia ............................ 710
    Highest number in any one camp (Travis) .................. 73
    Number of cases of meningitis ............................ 86
    Highest number in any one camp (Jackson) ................. 14

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING JAN. 18, 1918

| Divisions | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffective per 1,000 on day of report |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 6 | ... | ... | 25 | .. | .. | 27 | .. | 1 | 3 | 31.5 |
| Hancock | 14 | ... | ... | 11 | .. | .. | 10 | .. | .. | 0 | 27.1 |
| McClellan | 7 | ... | ... | 21 | .. | .. | 27 | .. | 1 | 1 | 37.6 |
| Sevier | 15 | ... | ... | 13 | .. | .. | 17 | 3 | .. | 3 | 38.2 |
| Wheeler | 37 | ... | 3 | 27 | .. | .. | .. | 1 | .. | 11 | 89.5 |
| Logan | 14 | ... | 1 | 85 | .. | .. | 40 | .. | 3 | 1 | 31.5 |
| Cody | 29 | ... | ... | 6 | .. | .. | 4 | .. | 1 | 9 | 43.6 |
| Doniphan | 31 | ... | 1 | 14 | .. | .. | 51 | .. | .. | 9 | 54.3 |
| Bowie | 20 | ... | ... | 42 | .. | .. | 1 | .. | .. | 5 | 69.0 |
| Sheridan | 4 | ... | ... | 14 | .. | .. | 38 | .. | .. | 2 | 31.1 |
| Shelby | 10 | ... | ... | 28 | .. | .. | 4 | .. | .. | 2 | 58.1 |
| Beauregard | 31 | ... | 4 | 9 | .. | .. | ... | 13 | .. | 16 | 87.9 |
| Kearny | 6 | ... | ... | 8 | .. | .. | 19 | 4 | 18 | 4 | 61.2 |
| Devens | 5 | ... | ... | 22 | .. | .. | 73 | 1 | 1 | 4 | 36.9 |
| Upton | 8 | ... | ... | 4 | .. | .. | 5 | 1 | 1 | 4 | 28.3 |
| Dix | 1 | ... | ... | 76 | .. | .. | 27 | .. | 1 | 1 | 42.8 |
| Meade | 51 | ... | ... | 21 | .. | .. | 58 | 4 | 17 | 3 | 30.0 |
| Lee | 23 | ... | ... | 39 | .. | .. | 86 | 2 | 2 | 17 | 67.2 |
| Jackson | 15 | ... | 2 | 34 | .. | .. | 43 | 14 | .. | 11 | 56.1 |
| Gordon | 28 | ... | ... | 15 | .. | 1 | 118 | 3 | .. | 22 | 42.8 |
| Sherman | 3 | ... | ... | 26 | .. | .. | 152 | .. | 33 | 3 | 41.5 |
| Taylor | 23 | ... | ... | 25 | .. | .. | 69 | 3 | .. | 7 | 53.4 |
| Custer | 6 | ... | ... | 24 | .. | .. | 74 | 2 | 5 | 3 | 40.3 |
| Grant | 13 | ... | ... | 12 | .. | .. | 177 | .. | 13 | 4 | 36.1 |
| Pike | 45 | ... | ... | 348 | .. | .. | 62 | 1 | 41 | 37 | 68.2 |
| Dodge | 7 | ... | ... | 36 | .. | .. | 67 | 1 | 5 | 3 | 74.8 |
| Funston | 6 | ... | ... | 6 | .. | .. | 58 | 2 | 3 | 8 | 67.1 |
| Travis | 73 | ... | ... | 55 | .. | .. | 8 | 4 | .. | 17 | 91.0 |
| Lewis | 8 | ... | ... | 34 | .. | .. | 17 | 2 | 30 | 5 | 51.2 |

7. ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

|  | Regulars, U. S. Army, in U. S. only, 1916* | Regulars in U. S., Week Ending Jan. 18, 1918 | National Guard, All Camps, Week Ending Jan. 18, 1918 | National Army, All Camps, Week Ending Jan. 18, 1918 | American Expeditionary Forces, Week Ending Jan. 18, 1918 |
|---|---|---|---|---|---|
| Pneumonia | 2.59 | 23.7 | 34.4 | 38.0 | 82.2 |
| Dysentery | 3.97 | 1.6 | 0.0 | 0.0 | 1.1 |
| Malaria | 12.52 | 0.4 | 1.4 | 0.2 | 0.2 |
| Venereal | 91.23 | 76.2 | 46.6 | 90.3 | 74.3 |
| Paratyphoid | 0.31 | 0.0 | 0.0 | 0.0 | 0.2 |
| Typhoid | 0.21 | 0.0 | 0.0 | 0.1 | 0.2 |
| Measles | 20.28 | 126.8 | 36.6 | 127.4 | 63.4 |
| Meningitis | 0.29 | 3.9 | 3.2 | 4.9 | 5.7 |
| Scarlet fever | 0.59 | 8.6 | 3.7 | 17.6 | 18.4 |

* Enlisted men only, both white and colored.

## CARDIOVASCULAR AND TUBERCULOSIS EXAMINATION

At a meeting of the Philadelphia County Medical Society, held January 9, several reports on cardiovascular and tuberculosis examinations in various camps were presented.

### THE TUBERCULOSIS EXAMINING BOARD AT THE ALLENTOWN CAMP

Lieut. Rae S. Dorsett reported that examinations for tuberculosis at the Allentown camp were conducted by a board consisting of Drs. John J. Robrecht, William S. Wray, Robert G. Torrey, Louis Jurist, Albert E. Blackburn and Rae S. Dorsett. Two hundred and twenty officers were examined, of whom five were found to have active tuberculosis. Of the 5,293 men examined, eighteen had tuberculosis. At the time of the examinations, the board could only recommend to the disability board at the camp, and the disability board saw fit to keep some of these men in service, hoping to improve their condition. Further treatment in four instances proved to be unavailing, and the men were subsequently discharged. One cannot but feel that had the disability board acted promptly on the suggestions of the tuberculosis board, the government would have been saved a measure of expense.

### EXAMINATION OF MEN AT FORTS NIAGARA AND GETTYSBURG

Lieut. A. A. Eshner, a member of the tuberculosis and cardiovascular board, said that 2,000 men were examined in the First Reserve Officers' Training Camp at Fort Niagara, and at Gettysburg approximately 2,200, including, in addition to candidates, a certain number of national guardsmen, artillerymen, quartermasters' men, men on detached service and others. Only a few cases of active tuberculosis were found, and only a small number of cases of disqualifying cardiovascular disease. At Gettysburg, more than 10,000 enlisted men were examined, including twenty-nine with active tuberculosis and sixty-two with disqualifying cardiovascular disease. Lieutenant Eshner called especial attention to the large number of cases in which a murmur was audible in the third left intercostal space near the sternum, often transmitted obliquely upward to the left. He was disposed to attribute this to physical changes of an undetermined character induced in structures at the base of the heart in consequence of the great physical activity to which the men were subjected in the course of their training. He believes also that a third sound or even a well developed presystolic murmur could be generated as a result of temporary or permanent derangement in the relations between the left auricle and ventricle and the mitral orifice, whether in consequence of actual antecedent disease or from abnormal functional demands.

### EXAMINATION OF THE SIXTH INFANTRY, N. G. P., IN PHILADELPHIA IN AUGUST, 1917

Dr. Herman B. Allyn said that this examination, which was part of a general examination of all the National Guard stationed in Philadelphia, was in charge of a tuberculosis board of which Captain, now Major Siner, was president. Dr. Allyn and Dr. John A. O'Connell were assigned to the examination of that portion of the Sixth Infantry stationed in Philadelphia. Their instructions were explicit. They were to recommend the rejection of men with active tuberculosis, as determined by the presence of râles, but were to retain in the service those having old or quiescent lesions. Perhaps it was felt by some that a wider latitude allowed the examiner would have resulted in weeding out some who were not likely to render good service in the Army. Fortunately there was the disability board, so that those who were recommended for discharge by the board were, so far as the examiners knew, all dismissed from the service. Drs. Allyn and O'Connell examined 766 men, among whom were found eleven with tuberculosis and twenty-five with heart disease. Some of these were recommended for discharge and others were referred to the regimental surgeon. Dr. Allyn believes that it would be better in any subsequent examination to keep a record in duplicate on filing cards of every man in whom anything abnormal is found.

### EXAMINATIONS MADE IN CAMPS AND ARMORIES IN PHILADELPHIA, GETTYSBURG, WASHINGTON AND TEXAS

Capt. A. C. Morgan reported that the board of examiners for tuberculosis and cardiovascular disease, of which he was a member, examined 6,308 men in Philadelphia and vicinity during August and September, 1917. There were found in this number thirty-two with tuberculosis, only nine of whom were discharged from the Army. The remainder, showing small arrested lesions, and with otherwise good physical condition, were recommended for retention in the service. There were discharged from the service fourteen men with valvular heart disease, two with adherent pericardium, and one with chronic nephritis with marked arterial hypertension. The work at Gettysburg was in the nature of a study of recalled patients and review of recruits sent down from Harrisburg and other recruiting stations. On one occasion over 50 per cent. of the recruits were rejected. Herein, Captain Morgan believes, lies a great weakness of the Army. Were highly trained medical men to pass on applicants at recruiting stations, the need for specialists in the Army would be very greatly decreased. In the technic insisted on by Col. G. E. Bushnell, when persistent moist râles are present, negative sputum examinations and roentgen-ray findings are not to be given preference, this sign being deemed of sufficient importance to establish diagnosis of active pulmonary tuberculosis, and to justify dismissal from the service. At Waco, nearly 12,000 men from Wisconsin and Michigan were examined. A remarkable finding was that of a great number of cases of hyperthyroidism, many of large size. Many showed cardiac murmurs. A few had tremors and tachycardia, while only a small number presented scars from operative treatment. Five hundred and ninety patients were referred to the cardiovascular board. While no classified table was made, there were apparently an unusually large proportion of cases of aortic regurgitation. The majority of the patients presented a history of acute articular rheumatism. Twenty-seven were referred to the psychopathic department; twenty-five to the orthopedic, and forty-five to the nose and throat departments. Five cases of asthma were discovered. Asthma should undoubtedly exclude the subject from service. In relation to administrative problems, Captain Morgan said that in Army circles, when one is expecting orders or information, one should be content with the apparent slowness of various procedures and, to use the Army phrase, "sit tight" until orders come through.

## NEWS OF THE CANTONMENTS

### Thirty-First Division, Camp Wheeler, Macon, Ga.

Jan. 25, 1918.

The cold rains of this week added to our already high sick report. Even mumps, which had been decreasing, took a new jump. Pneumonia always increases with bad weather. Also a few cases of meningitis suddenly cropped up. Drills and outdoor work were almost entirely suspended during the cold, rainy days. Better weather was followed by a marked lowering of the sick report.

Lieutenant-Colonel Weed, M. C., from the Surgeon-General's Office, inspected the camp, Monday and Tuesday. He happened to be here during the worst weather of the year, so that it was difficult to get about the camp.

Major Lund of Boston has arrived to take charge of the surgical department at the base hospital, replacing Major Cole, who is now with an evacuation hospital at Fort Riley, preparing for France.

Pneumonia convalescents are being sent to the Fort McPherson hospital weekly. They return after four or five weeks' stay there.

Meningitis carriers are now being treated in the gas house, with a weak chlorin gas. This experiment is being watched with much interest. If it will clear up the carriers quickly, it will be of the greatest assistance.

#### BASE HOSPITAL NOTES

A new building for the nurses has been started northeast of the present quarters and fronting the Macon road. This in conjunction with their present quarters will be amply sufficient for the nursing forces, relieving the present crowded condition. Three additional wings are to be added to the officers' quarters, doubling their capacity. The middle wing will be used as an assembly room, dining room and kitchen, the officers' mess being in the quarters instead of the general mess hall, as at present. Ground has been broken for a large septic tank to be used in connection with the sewerage from the hospital until the pipe line built by the city of Macon is completed and connected with our sewerage system.——Ordinary house mice are being utilized for pneumonia type determination by the laboratory forces. The experiment was tried on account of the great difficulty experienced in obtaining white mice.——There are at present in the hospital under treatment only about 850 patients.——An antimosquito campaign is being inaugurated by the city of Macon in cooperation with the sanitary forces of the camp. It was discovered last autumn that unless antimosquito work was done outside of the camp, the work done inside would not be effective; hence, the combination of forces.

#### ONE HUNDRED AND SIXTH SANITARY TRAIN

The examinations of the officers of the train in the drill regulations last week were very satisfactory. The increment of equipment during the past few days, brings us steadily nearer the goal of complete equipment.——Major George F. Keenan, commanding the One Hundred and Sixth Sanitary Train, returned from detail escorting the remains of the late Major Augustus P. Gardner to Washington, and has resumed command.——Lieut. Thomas A. Gaines of the One Hundred and Third Field Hospital has been on leave of absence for the past few days owing to a death in the family.——Lieut. Joseph T. Banks, the genial adjutant of the field hospital section; is convalescent at the base hospital from a severe attack of bronchitis.——Major Cornelius F. Holton insists that his newly reconstructed bungalow surpasses anything in the train.

### Thirty-Eighth Division, Camp Shelby, Hattiesburg, Miss.

Jan. 23, 1918.

#### INFECTIOUS DISEASES

This division has passed through what it believes and hopes to be the worst of its troubles on this side, in that the measles epidemic is over, or very nearly so. In all, about 2,000 cases were treated, the most under treatment at any one time being 664, and the highest admission rate for any one day being 84.

Measles came with the drafted men from Camp Taylor, and spread with lightning rapidity. It started the first of November and died out the last of December. We were somewhat taxed for a while to care for the patients, but by utilizing all the ward tentage from field hospitals, together with the laundry, shop, guard house and garage at the base hospital, we just about came out even. All this tentage was systematically arranged at the base hospital, floored and electrically lighted, and patients made comfortable on spring beds. Telegraphic requests for additional bedding were acted on very promptly, and shipment was expedited by express. All patients were admitted to the base hospital, which furnished female nurses, food and supplies, and was assisted by the personnel of Field Hospital No. 150. This system worked very satisfactorily and without confusion. Mumps patients were likewise admitted to this tent hospital.

#### PNEUMONIA

Two hundred pneumonia patients have been admitted to the base hospital, the majority having bronchopneumonia following measles. There have been in all, fifty-two deaths from pneumonia, thirty-two of which were from bronchopneumonia.

#### MENINGITIS

Meningitis has never reached alarming proportions in this camp, there having been in all twenty-four cases, extending over a period of 100 days. Eight of these cases were in one regiment, and the remainder widely scattered. With the infection present, all concerned are constantly apprehensive, feeling that it is not impossible for a sharp rise in the incidence of these cases. Since the first case, the longest nonincidence has been three weeks. In the twenty-four cases of the epidemic meningitis, there have been four deaths.

#### MUMPS

Mumps is still with us, as they have been for three months, showing beautiful curve rises of about eighteen days' interval, and little sign of abating. There are at present 330 patients under treatment. Aside from padding the sick report and increasing the noneffective rate, these cases are of minor importance, and have few complications.

#### BASE HOSPITAL

As our base hospital is for only 500 beds, it has been overcrowded, with an average of over a thousand cases for the past two months. Ten additional wards are now being constructed, and sewerage and plumbing have been authorized, so that conditions will be materially improved. A unit equipment for the twelve regimental infirmaries has been provided, converting each unit into a twenty-bed hospital. This has relieved the base hospital a great deal, and is working very well.

#### LYCEUM WORK

The medical officers' lyceum, Monday and Thursday nights each week, for all officers, including those of the base hospital, continues with interest. Monday night is devoted to military matters and Thursday night to professional work. At the last regular meeting, bacteriology of throat examinations was reported by Captain Sanderson, and Captain Fowler gave a splendid report with roentgenographic pictures of thirty-six operative cases of mastoiditis. Perhaps it is of passing interest to state that mastoiditis has been epidemic in this camp, and about sixty patients have been operated on. Most of these followed measles.

### PERSONAL NOTES

The sanitary squads, in charge of Lieutenants Traubue and Kyte, have been organized, and are busy with instruction and applied sanitation. The mobile veterinary section and the separate units are likewise organized, and Major Peters has reported as division veterinarian.——The division sanitary inspector, Lieutenant-Colonel Carter, was recently ordered to Newport News as division surgeon, and is greatly missed. Major Green, formerly surgeon of the One Hundred and Fifty-second Infantry, has succeeded him.——Colonel Weed visited this camp last week as sanitary inspector from the Surgeon-General's Office, and the week before we had Colonel Ashburn and Major Welch. The latter attended one of the regular lyceum meetings, and both gave interesting talks.——Colonel Blanchard, the division surgeon, spent two days last week at Camp Beauregard, studying health conditions.——Major Hellman, the division dental surgeon, has gone to St. Louis to take an examination for his majority.——Major Crawford, head of the surgical service, is in New York on postgraduate work, and eight officers from the sanitary train are attending a fracture course in New York and Pittsburgh.

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## Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Jan. 21, 1918.

### PHYSICIANS SERVING AS PRIVATES

Herman W. Smelzer of Connersville, Ind., a graduate of the Indiana University School of Medicine in 1916, arrived here in the draft, October 6, and was assigned to the Three Hundred Thirty-Fifth Infantry. He has just received his commission as a first lieutenant in the Medical Reserve Corps.

Dr. Floyd V. Kilgore, a graduate of the University of Louisville Medical Department, had taken the examination for a commission in the Medical Corps, which was received a short while before he left for Camp Taylor to respond to his notice from the draft board to report as a private at Camp Taylor. He had the unique distinction of holding a commission in the Medical Corps of the Army as first lieutenant while serving as a private, and was unable for several days to have his status straightened out, as his draft notice took precedence over his commission.

### COURT MARTIAL

A first sergeant has been found guilty by a general court martial of improper language to a superior officer and refusing to stay in the base hospital, where he was being treated, and for disobeying orders given by Major Walter Hamburger. He was sentenced to be reduced to the ranks and confined for six months at hard labor, and to forfeit half his pay for that period of time.

### CAMP LIBRARY

The camp library was opened January 16, with addresses by Governor Stanley, Mayor George Weissinger Smith, and Brigadier-General Wilder, acting commander of the division. There are 12,000 books in the library, and they will be distributed as is done by the free libraries of the city. Librarian George T. Settle of the Louisville Free Public Library will have general direction of the camp library. Mrs. Cale Young Rice, the author, will have charge of the distribution of books to the patients in the base hospital, and each Y. M. C. A. building will be a distributing point.

The new camp theater, the largest building at the cantonment, was opened January 21 by the Cincinnati Symphony Orchestra with Victor Herbert as leader. This organization was booked for January 12, but could not come owing to the railroad tie up.

### INSPECTION

Col. W. P. Chamberlain, medical inspector from the Surgeon-General's Office, made an inspection of the base hospital last week. He went through every department, including wards, laboratories, operating rooms, kitchens, dining rooms and dormitories.

Immediate measures will be taken to increase the heating facilities at the base hospital. Two more boilers are to be added to the heating plant to relieve the situation. It is believed that this remedy will increase the power of the apparatus so that it will be sufficient to heat the entire hospital adequately under the most severe weather conditions. During the frigid temperature the past month, it was found impossible to maintain a proper temperature in all departments with the steam heaters. Stoves were put in the receiving ward and other places to meet the emergency. The Red Cross donated a number of coal oil stoves to the hospital, and for a time these were used in the administration building; later, rigid orders were issued putting them under the ban as a precaution against the fire hazard, it being feared that an explosion of one of the stoves might cause a serious conflagration.

### SICK AND INJURED

The report of the sick and injured at the camp for the week ending January 18 reveals: 1,299 sick and 40 injured; of these, 90 were sick of pneumonia; 2 of diphtheria; 74 of venereal diseases; 1 of smallpox; 1 of typhoid; 218 of measles; 15 of cerebrospinal meningitis, and 1 of scarlet fever. There were seven deaths caused thus: Lobar pneumonia, 3; bronchopneumonia, 1; acute appendicitis, 1; empyema, 1; cerebrospinal meningitis, 1. The strength of the command is 25,075.

### PERSONAL NOTES

Announcement of the promotion of four medical officers at the base hospital has been made: First Lieut. John B. Richardson, Jr., of Louisville, has been promoted to a captaincy. He is in charge of ward 4c of the surgical division of the hospital.——Captain Herbert Fox of Philadelphia has been given his majority. He has charge of the laboratory of the hospital. He reported here for duty in September as a first lieutenant, and was promoted twice since then. He was formerly connected with the University of Pennsylvania.——First Lieut. George D. Marshall, orthopedist and member of the reviewing board, is now wearing his double bars as a captain. His home is in Kokomo, Ind. Captain Marshall has made some beautiful orthopedic instruments, and is a skilled metal worker.——First Lieut. Paul B. Coble of the nose and throat section has received his commission as a captain. He is a member of the board examining the candidates for aviation service. His home is in Indianapolis.——Recommendations for these promotions had been made by Lieut.-Col. John H. Allen, division surgeon, and approved by Brigadier-General Wilder, acting division commander, and forwarded through military channels to the War Department at Washington.

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Jan. 28, 1918.

### PHYSICAL EFFICIENCY TEST

The medical arm of the service at Camp Zachary Taylor is to be the first to feel the effect of the new order calling for rigid physical examinations and tests of every officer on duty at the camp. The following officers have been appointed to sit as a board for physical examination: Major Charles J. Imperatiori, Three Hundred and Ninth Sanitary Train; Capt. F. S. O'Hara of the division surgeon's office, and Captain Jordan of the Three Hundred and Ninth Sanitary Train. Major Luther R. Poust, the division sanitary officer, is to be the pace maker of the tests which are to begin within a week. Major Poust is now making his plans to put the medical men to the test of walking. They will first be taken on what is known as tactical walks, and then they will be taken on long hikes. Those who do not succeed in standing the examinations or tests that are to prove them fit for service in France will in all probability be left at Camp Zachary Taylor for medical duty with the next division. General Pershing has recommended to the War Department that no officer be sent him in France who is over 45 years old, but the latest information from Washington is that the department has not looked on this suggestion with favor, and has not acted on it.

### RESTAURANTS UNDER THE BAN

Recommendations have been sent the division commander of Camp Zachary Taylor by the sanitary inspector's office of the U. S. Public Health Service that soldiers and men in uniform be barred from eating in or entering twenty-one restaurants, or eating houses in the city, as a result of the proprietors failing to obey the sanitary regulations. This order was issued today, and military police will visit these places and see that no soldiers enter. On the list are three well known restaurants which the military authorities say have disregarded the advice of the sanitary inspectors and have not even answered letters sent them by Division Surgeon Allen and chief medical officers at the camp.

### DISEASE INCIDENCE

For the week ending January 25, there were in the National Army 1,250 treated during the week, including 28 injuries, 88 cases of pneumonia, 2 of diphtheria, 103 venereal cases, 2 of smallpox, 1 of typhoid, 209 of measles, 12 of cerebrospinal meningitis, and 1 of scarlet fever. Seventy-three measles patients were discharged, leaving 136 sick at the end of the week. There were 3 deaths, 1 from bronchopneumonia, 1 from lobar pneumonia, and 1 from epidemic cerebrospinal meningitis.

In the Regular Army there were 319 cases under treatment during the week, including 3 injuries, 22 cases of pneumonia, 2 of diphtheria, 32 venereal cases, 50 of measles, 4 of cerebrospinal meningitis, and 2 of scarlet fever. There were 2 deaths, 1 from lobar pneumonia and one from bronchopneumonia.

#### PERSONALS

Lieut. Walter R. Leslie, M. R. C., has reported to the division surgeon and been assigned to the Three Hundred and Thirty-Sixth Infantry as medical officer.——Lieut. William Mann, Dental Reserve, on duty at the base hospital for some time, has been ordered to proceed to St. Louis for duty as a member of the board of officers convened for the examination of officers of the Dental Corps to determine their fitness for promotion.——Dr. Charles G. Lucas of Louisville has received notice that he has been commissioned a major in the Medical Reserve Corps, and assigned to the gastro-enterologic section of a base hospital.——Miss Ethel May Miller of Milltown, Ind., is the first Red Cross nurse here to sustain injuries in the performance of her duties. She slipped and fell to the floor of a ward in the medical section and fractured her left forearm.——Capt. Matthew Neil of Sacramento, Calif., a veteran of the Spanish-American War, has arrived at the base hospital to become division supply officer. He will have charge of the distribution of medical supplies, not only to the base hospital, but also to veterinarians at the remount station and all other commands of the division. He will also begin shortly the training of twenty-six men to become medical supply men to be sent to France shortly.

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### Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

Jan. 21, 1918.

#### ORTHOPEDIC INVESTIGATION

A committee of orthopedic surgeons has just completed measuring the feet of 5,000 men of the Eighty-Ninth and Ninety-Second divisions. The purpose of this work is to furnish a table on which to base the percentage of different shoe sizes that will be necessary to equip the new Army. It has been found that the sizes which predominated in fitting the Regular Army in the past are too small for the men in the new Army, and large sizes are much in demand. The company commander of each organization is held responsible for proper fitting shoes on the men in his command. The proper method of measuring a soldier's feet for shoes consists in having him place one bare foot on an Army foot rule, lift the other foot from the ground, and carry a 40-pound sack of rock or bricks on his shoulder. The rule is then adjusted to the foot and the length size read off. A measurement with an inch tape is made around the ball of the foot at the same time, and the width in inches is read off. This is then compared with a table of widths, and the correct width thus ascertained. The shoe is then placed on the foot over the sock, the soldier again places his weight on it, and the person fitting the shoe pinches up the leather across the instep to see that it really does fit and is not too tight or too loose. This procedure is required by regulation, yet it has been found that many Medical Reserve Corps officers are not acquainted with it.

#### DISEASE INCIDENCE

The disease situation in this camp is improving, the percentage of noneffectives steadily decreasing. There have been but six cases of meningitis since the first of the year.

#### PSYCHIATRIC STUDY

A board of psychiatrists is now on duty here, and will examine the entire command. This board consists of Major Frederick H. Newberry, M. R. C.; Capt. William W. Eichelberger, M. R. C., and Lieuts. James K. Pollock, M. R. C., and Floyd W. Aplin, M. R. C. Major Newberry is president of the board.

#### TUBERCULOSIS EXAMINERS

The work of the special board of tuberculosis examiners is now completed so far as the examinations are concerned. Less than 1 per cent. of the division has been found suffering from this complaint. This board has also obtained a record of every man who has had measles since entering the service at this camp, which will be used for future reference with regard to the tuberculosis sequelae that may occur among them.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Fort Myer, Va.,* for duty, Lieut.-Col. SAMUEL J. MORRIS.

*To Camp Sheridan,* Montgomery, Ala., as Divisional Psychiatrist, Major CHARLES W. STONE.

*To Washington, D. C.,* Aviation Section, Signal Corps, for duty in the office of the Chief Surgeon, Lieut.-Col. NELSON GAPEN.

*To Camp Travis,* Fort Sam Houston, Texas, as commanding officer of the base hospital, Col. IRVING W. RAND.

*To Fort Oglethorpe, Ga.,* for duty, Major WILLIAM H. ALLEN.

*To Camp Wadsworth,* Spartanburg, S. C., as commanding officer of the base hospital, Major WILLIAM R. DEAR.

*To Camp Pike,* Little Rock, Ark., as commanding officer of the base hospital, Col. JOSEPH T. CLARKE. As sanitary inspector, Major ALFRED P. UPSHUR. For duty, Major CHARLES E. FREEMAN.

*To Camp Doniphan,* Fort Sill, Okla., to make special sanitary inspection, and on completion *to his proper station,* thence *to Camp Bowie,* Fort Worth, Texas, and *to Camp MacArthur,* Waco, Texas, for the same purpose, and on completion *to his proper station,* Col. WILLIAM F. LEWIS.

*To Camp Lee,* Petersburg, Va., to inspect the genito-urinary venereal disease service and laboratory service, and on completion *to his proper station,* Col. FREDERICK F. RUSSELL.

*To Rockefeller Institute,* New York City, for instruction in laboratory work, Major CLARENCE L. COLE.

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## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Army Medical School,* Washington, D. C., for instruction, from Camp Meade, Capt. JOHN A. KEYTON, Dothan.

*To Camp Gordon,* Atlanta, Ga., for duty, from Army Medical School, Lieut. NUCKOLS T. DAVIS, West Blockton.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. JESSE A. GOODE, Albertville.

*To Fort Oglethorpe,* for instruction, Lieuts. JAMES WILLIAMS, Jacksonville; CARL T. JONES, Mobile.

*To Fort Riley,* for duty, from Camp Sheridan, Capt. WILLIAM M. JORDAN, Birmingham.

*To Oklahoma City, Okla.,* for instruction in orthopedic surgery, Lieut. HENRY B. BURDESHAW, Dothan.

*To St. Louis, Mo.,* Washington University Medical School, for instruction, from Camp Wadsworth, Lieut. LEMUEL B. NICHOLSEN, Gadsden.

### Alaska

*To Western Department,* for assignment to duty, Lieut. JAMES W. JOHNSTON, Sitka.

### Arizona

*To San Antonio, Texas,* Aviation Section, Signal Corps, Kelly Field, for duty, Lieut. ROBERT W. DELL, Carriso.

### Arkansas

*To Camp Dix,* Wrightstown, N. J., for duty, from Army Medical School, Lieut. JOHN F. LIEBERMAN, Pine Bluff.

*To Camp Sevier,* Greenville, S. C., base hospital, from Fort Oglethorpe, Lieut. JAMES W. BUTTS, Helena.

*To Camp Shelby,* Hattiesburg, Miss., for temporary duty, from St. Louis, Lieut. WALLACE D. ROSE, Little Rock.

*To Camp Sheridan,* Montgomery, Ala., for temporary duty, from St. Louis, Lieut. JOSEPHUS J. SHERRILL, Warren.

*To Fort Riley,* for instruction, from St. Louis, Lieut. MILES E. FOSTER, Fort Smith.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Lieut. GEORGE A. CAUSEY, Swifton.

### California

*To Camp Bowie,* Fort Worth, Texas, for duty, Lieut. FRANK A. WOODWARD, Los Angeles.

*To Camp Fremont,* Palo Alto, Calif., for duty, Lieuts. CLAUDE C. LEAVERTON, JOHN J. RICHSTEIN, San Francisco.

*To Camp Gordon,* Atlanta, Ga., for duty, from Army Medical School, Lieuts. MARTIN J. SEID, CLYDE E. SHEDD, San Francisco.

*To Camp Upton,* L. I., N. Y., for duty, from Army Medical School, Lieut. FRANK H. CHASE, Los Angeles.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, Capt. GILBERT R. OWEN, San Bernardino.

*To San Antonio, Texas,* Kelly Field, for duty, Lieut. JAMES S. HALL, Los Angeles.

*To St. Louis, Mo.,* Washington University, for instruction, from Douglas, Ark., Capt. CHARLES J. HARBECK, Hayward.

*To Western Dept.,* for assignment to duty, Capt. LEMUEL A. ANTHONY, Novata; Lieut. CHANNING HALL, Alameda.

### Colorado

*To San Antonio, Texas,* Kelly Field, for duty, Lieut. WILLARD J. WHITE, Longmont.

### Connecticut

*To Army Medical School,* Washington, D. C., for instruction, Lieut. WILLIAM M. JOYCE, Middletown.

*To Camp Devens,* Ayer, Mass., for duty, from Army Medical School, Lieut. CORNELIUS S. CONKLIN, Ansonia.

*To Camp MacArthur,* Waco, Texas, Aviation Section, Signal Corps, for duty, Lieut. EDWIN P. SANBORN, Bristol.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from Camp Meade, Lieut. ELLIOTT H. METCALF, Rockville.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Camp Stuart, Major LOUIS I. MASON, Willimantic.

*To Fort Leavenworth, Kansas,* U. S. Disciplinary Barracks, for duty, from Fort Leavenworth, Lieut. HAROLD A. BANCROFT, Hartford.

*To Fort Sam Houston, Texas,* for duty, Capt. ANSELL G. COOK, Hartford.

## District of Columbia

*To Camp Gordon,* Atlanta, Ga., for duty, from Army Medical School, Lieut. JOSEPH D. STOUT, Washington.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Army Medical School, Lieut. ROY T. HASKELL, Washington.

*To Fort Oglethorpe,* for instruction, Capt. JOHN D. THOMAS, Lieuts. JOHN W. BURKE, SIDNEY C. COUSINS, PAUL S. PUTSKI, Washington.

*To Lakewood, N. J.,* for temporary duty, from Camp American Univ., Major WILLIAM C. MOORE, Washington.

*To Rockefeller Institute, N. Y.,* for instruction, from Camp Hancock, Lieut. EUGENE C. RICE, JR., Washington.

## Florida

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, Capts. JOSEPH M. IRWIN, Crystal River; RALPH DUFFY, Lakeland.

*To Camp Wadsworth,* Spartanburg, S. C., for temporary duty, from St. Louis, Capt. FRANCIS A. H. MURRAY, Lake City.

*To Fort Oglethorpe,* for instruction, Lieut. ROBERT F. McDANIEL, Deland.

*To Rockefeller Institute, N. Y.,* for instruction, Lieut. EMMET B. ANDERSON, Williston.

*To San Antonio, Texas,* Kelly Field, for duty, from Camp Bowie, Lieut. HARPER L. PROCTER, Jacksonville.

*To Southeastern Dept.,* for assignment to duty, Capt. MALCOLM GUNN, Tarpon Springs.

*To their homes* and honorably discharged on account of being physically disqualified for active service, Lieuts. WILLIAM E. SHERMAN, Haines City; RICHARD LEFFERS, Lakeland; HERBERT W. COUNTS, Ocala.

## Georgia

*To Camp Jackson,* Columbia, S.C., for temporary duty, from Camp Lee, Lieut. EVERARD A. WILCOX, Augusta.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, Lieuts. JAMES M. COOK, Ellaville; ROBERT E. CORLEY, Hephzibal; HOMER A. DORSEY, Pitts.

*To Fort Oglethorpe,* for instruction, Lieuts. JAMES Q. FOLMAR, SIDNEY H. JACOBS, Atlanta; CARLTON J. WELLBORN, Blairsville; LE ROY W. RYDE, Fort McPherson; AUGUSTUS H. FRYE, Griffin; ELISHA P. BOMAR, Hephzibah; HENRY M. McGEHEE, Talbotton.

*To Rockefeller Institute, N. Y.,* for instruction, from Fort Oglethorpe, Lieut. ROLAND L. BROOKS, Geneva.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. CHARLES S. SMITH, Edison.

## Hawaii

*To Camp Taylor,* Louisville, Ky., for duty Army Medical School, Lieuts. FREDERICK F. ALSUP, JOSEPH E. STRODE, Honolulu.

## Idaho

*To Camp Taylor,* Louisville, Ky., for temporary duty, from St. Louis, Capt. ERWIN W. KLEINMAN, Hailey.

*To Fort Riley,* for instruction, Capt. JOHN E. WHITE, Twin Falls.

*To his home* and report by telegraph to the Surgeon-General of the Army, Lieut. EDGAR L. WHITE, Lewiston.

## Illinois

*To Army Medical School,* Washington, D. C., for duty, from Army Medical School, Lieut. JOE H. ST. JOHN, Chicago. For instruction, Lieut. JOHN E. STANTON, Chicago; from Army Medical School, Lieuts. CARL W. CLARK, HARRY T. SWANSON, Chicago.

*To Camp Grant,* Rockford, Ill., for duty, from Army Medical School, Lieuts. ALFRED E. JONES, HENRY A. RASMUSSEN, Chicago.

*To Camp Pike,* Little Rock, Ark., base hospital, Capt. GEORGE F. DICK, Evanston.

*To Camp Sherman,* Chillicothe, Ohio, for duty, Lieut. HARVEY C. ASHER, Chicago.

*To Fort Oglethorpe,* for instruction, Capts. JOHN E. DOLAN, PAUL OLIVER, Chicago; Lieut. FRANCIS A. PHILLIPS, Xenia; from Camp Custer, Lieut. EDWIN S. GILLESPIE, Wenona.

*To Fort Riley,* for instruction, from St. Louis, Capt. FRANK C. SIBLEY, Carmi; for instruction, Lieuts. JOHN N. HOFFMAN, Champaign; BENJAMIN RAPPAPORT, Chicago; RUSSELL R. TOMBIN, Easton; FREDERICK M. PHILLIPS, Hulkeytown; JESSE H. ROTH, Kankakee.

*To Lakewood, N. J.,* for duty, from Fort Riley, Capt. THOMAS J. O'MALLEY, Chicago.

*To Rockefeller Institute, N. Y.,* for instruction, from Army Medical School, Lieut. THOMAS A. WAYLAND, Dallas City; from Fort Oglethorpe, Lieut. FREDERICK H. MAURER, Peoria.

*To St. Louis,* Washington University, for instruction, Lieuts. JOHN W. STEWART, Ewing; BYFORD H. WEBB, West Frankfort; in urology and dermatology, from Fort Benjamin Harrison, Lieut. ROBERT L. MORRIS, Decatur.

*To Trenton, N. J.,* for duty, and upon completion *to his proper station,* Major PAUL B. MAGNUSON, Chicago.

*To Williamsburg, N. Y.,* for temporary duty, Lieut. CHARLES S. PHALEN, Harvard.

*To his home* and to the inactive list, Major ALBERT J. OCHSNER, Chicago; on account of being physically disqualified for active service, Capt. FRANCIS M. EDWARDS, Centralia.

*To their homes* and honorably discharged on account of being physically disqualified for active service incurred prior to their entrance into the service, Lieut. HOMER S. WARREN, Chicago; EDWARD W. CUMMINS, Harrisburg.

## Indiana

*To Army Medical School,* for instruction, Lieut. CECIL E. JOHNSON, Rensselaer.

*To Camp Custer,* Battle Creek, Mich., base hospital, from Camp Custer, Lieut. HARRY H. WARD, Coalmont.

*To Camp Taylor,* Louisville, Ky., from duty as a private at Camp Taylor, Lieut. EDGAR F. MAGENHEIMER, Evansville.

*To Fort Oglethorpe,* for instruction, Capt. CLAUDE C. CRUM, Jeffersonville; Lieuts. ARTHUR C. KNIGHT, Butte; CHARLES D. RYAN, Cross Plains; OLIVER C. BENNETT, Culver; BENJAMIN S. POTTER, Cumberland; WILLIAM C. MYERS, Dana; JAY H. GRIMES, Danville; EMERY P. SMALL, Decker; OLIVER E. GRIEST, Delphi; WESLEY M. HALL, East Enterprise; BLAINE A. BLOSSER, Fremont; ELBERT E. FREEMAN, Greentown; ARTHUR G. DOTY, HERMAN H. GICK, ROBERT ELDON REPASS, ELMO R. ROYER, WILLIAM L. ROYSTER, Indianapolis; GROVER C. PRICE, Judson; RICHARD L. RAIBOURN, Lynnville; THEODORE F. SEYMOUR, Michawaka; CHESTER A. MARSH, New Castle; KELLEY C. FITZGERALD, New Harmony; HARRY B. GUDGEL, Princeton; JOHN H. NILES, Seymour; OTT CASEY, JOHN E. FREED. Terre Haute; EARL E. JOHNSON, West Lebanon; JOHN S. ROBINSON, Winchester; from Camp Custer, Lieut. JULIUS J. GROSVENOR, Richmond.

*To Fort Riley,* for instruction, Lieut. HENRY V. LOGAN, Rushville.

*To Rockefeller Institute, N. Y.,* for instruction, from Camp Dix, Lieut. KARL C. EBERLY, Fort Wayne.

*To St. Louis, Mo.,* Washington Univ. Medical School, for instruction, from Camp Custer, Capt. FRANK H. KELLY, Argos.

## Iowa

*To Camp Custer,* Battle Creek, Mich., for duty, from Army Medical School, Lieut. JOHN E. KILEY, Valley Junction.

*To Camp Stuart,* Newport News, Va., to examine the command in nervous and medical disease, from Philadelphia, Capt. SAMUEL C. LINDSAY, Independence.

*To Fort Oglethorpe,* for instruction, from Camp Custer, Lieuts. HARRY R. JENKINSON, Iowa City; HENRY L. McPHERRIN, Perry.

*To Fort Riley,* for instruction, Lieuts. LAURELL L. LUGAR, Corydon; JULIUS L. SHRYER, Durant; LAWRENCE L. CRAVEN, East Peru; LEE W. PRESCOTT, Sloan; HARRY F. RUBEL, Struble.

*To San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Lieut. ARTHUR E. SHAPPELL, Des Moines.

*To his home* and honorably discharged, Capt. ANDREW J. SWEZEY, Decorah.

## Kansas

*To Army Medical School,* Washington, D. C., for instruction, from Camp Dodge, Lieut. ROY W. LAYTON, Kansas City.

*To Camp Gordon,* Atlanta, Ga., for duty, from Army Medical School, Lieuts. EDMUND A. LODGE, Erie; RAYMOND O. DART, Kansas City; BENJAMIN F. FRAZER, Ossawatomie.

*To Fort Riley,* for instruction, Capt. FRANCIS F. CARTER, Seneca; Lieuts. CHARLES M. MILLER, Oakley; SAM M. MYER, Potter; from Fort Riley, Lieut. JOHN H. HANSEN, Elkhart.

*To Rockefeller Institute, N. Y.,* for instruction, from Army Medical School, Lieut. DONALD R. BLACK, Rosedale.

*To St. Louis,* Washington University, for instruction, Capt. CLIFFORD C. NESSELRODE, Kansas City; Lieut. HUGH L. CHARLES, Atchison; from Fort Riley, RAYMOND H. MUNFORD, Dodge City.

## Kentucky

*To Camp Greene,* Charlotte, N. C., base hospital, from Fort Oglethorpe, Capt. BENJAMIN D. CHOATE, Louisville.

*To Camp Hancock,* Augusta, Ga., for duty, Lieut. EMMET F. HORINE, Louisville.

*To Camp Taylor,* Louisville, Ky., for duty, from Army Medical School, Lieuts. ARTHUR N. HENSON, FLOYD V. KILGORE, Louisville; from Fort Riley, Lieut. WALTER W. LESLIE, Lockport.

*To Fort Riley,* for duty, Lieuts. WILLIAM C. WORTHINGTON, Clintonville; HERMAN T. CARTER, Gilbertsville; FRANCIS G. AUD, CHARLES M. GARTH, JOHN C. ROGERS, Louisville; WASHINGTON L. BERRY, Washington; JAMES C. GRAHAM, Webbs.

*To St. Louis,* Washington University Medical School, for instruction, from Camp Sherman, Lieut. GARNETT BELOTE, Mayfield.

*Honorably discharged,* Lieut. MORRIS A. BLACKBURN, Louisville.

## Louisiana

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. TRUSS M. BRIETER, Bogalusa; JAMES C. WILLIS, Jr., Shreveport.

*To Camp Bowie,* Ft. Worth, Texas, for temporary duty, from Fort Oglethorpe, Lieut. RUPERT M. BLAKELY, New Orleans.

*To Camp Pike,* Little Rock, Ark., for duty, Lieut. JOSEPH S. KOPFLER, Kenner.

*To Ft. Monroe, Va.,* for the special examination of the command for tuberculosis, from Newport News, Lieut. DELANE S. CALHOUN, Ruston.

*To Fort Oglethorpe,* for instruction, Lieuts. WINFIELD N. FLOYD, New Orleans; PRESSLEY A. KIBBE, Vermilion Parish.

*To Rockefeller Institute, N. Y.,* for instruction, from Fort Oglethorpe, Lieut. CHARLES W. PHILLIPS, Colfax.

*To St. Louis,* Washington University, for instruction, Lieut. WILLIAM E. BALSINGER, New Orleans.

### Maine

*To Fort Oglethorpe,* for instruction, Lieuts. HARRY. L. KILGORE, Belfast; WILLIAM H. KENNISON, Madison.

*To New York City,* for duty, Lieut. LESTER B. BRADFORD, Rockland.

### Maryland

*To Camp Beauregard,* Alexandria, La., for temporary duty, from Camp Bowie, Lieut. KENNETH F. MAXEY, Baltimore.

*To Camp Dix,* Wrightstown, N. J., for duty, from Camp Jackson, Capt. FRANCIS J. POWERS, Baltimore.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Army Medical School, Lieut. JOHN C. WOODLAND, Crisfield.

*To Fort Monroe, Va.,* for the special examination of the command for tuberculosis, from Newport News, Lieut. ISRAEL J. FEINGLES, Baltimore.

*To Fort Oglethorpe,* for instruction, Capt. CHARLES T. C. BUCKNER, Lieuts. CHARLES H. BURTON, Baltimore; JAY H. STIER, Perryman.

*To Rockefeller Institute, N. Y.,* for instruction, from Fort Oglethorpe, Lieut. VERNON S. WILKINSON, Aberdeen.

### Massachusetts

*To Army Medical School,* Washington, D. C., for instruction, from Camp McClellan, Major EDGAR M. MEDLAR, Boston.

*To Camp Bowie,* Ft. Worth, Texas, for temporary duty, Lieut. HOWARD S. COLWELL, Worcester.

*To Camp Custer,* Battle Creek, Mich., for duty, from Fort Leavenworth, Major CHARLES B. HOLLINGS, Boston.

*To Camp Devens,* Ayer, Mass., for duty, from Army Medical School, Lieut. WALTER L. PERRY, Worcester.

*To Camp Dodge,* Des Moines, Iowa, for duty, from Camp Dodge, ROGER W. SCHOFIELD, Worcester.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. WILLIAM V. KANE, Lynn.

*To Camp Logan,* Houston, Texas, base hospital, from Camp Logan, Lieut. RAOUL G. PROVOST, New Bedford.

*To Camp Upton, L. I., N. Y.,* for duty, from Army Medical School, Lieut. JOHN A. RANDALL, Myricks.

*To Camp Wheeler,* Macon, Ga., for temporary duty, from duty as Medical Aid to the Governor of the State of Massachusetts, Major FRED B. LUND, Boston. For duty, from Ridgewood, N. J., Lieut. FRANK C. LEAVITT, Belmont.

*To Fort Leavenworth, Kan.,* U. S. Disciplinary Barracks, from Fort Leavenworth, Capt. RALPH M. CHAMBERS, Westboro.

*To Fort Oglethorpe,* for instruction, Lieut. HORMIDAS CHOGUETTE, New Bedford.

*To Fort Riley,* for duty, Capt. PAUL WITHINGTON, Boston.

*To Hoboken, N. J.,* for duty, from Fort Myer, Major JAMES B. PASCOE, Fort Revere.

*To New York City,* for intensive training, Lieut. HENRY E. ST. ANTOINE, Jamaica Plains.

*To St. Louis,* Washington University Medical School, for instruction, from Camp Taylor, Capt. CHARLES L. UPTON, Shelburn Falls.

*To Washington, D. C.,* for duty, in the Surgeon General's office, Lieut. HENRY L. MANN, Boston.

### Michigan

*To Camp Custer,* Battle Creek, Mich., for duty, from Army Medical School, Lieut. Don C. Bartholomew, Detroit.

*To Camp Doniphan,* Fort Sill, Okla., base hospital, from Camp Pike, Lieut. Ray L. Fellers, Detroit; from Fort Riley, Lieut. FRANK W. BROWN, Bay City.

*To Camp Gordon,* Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. ABRAHAM W. HUDSON, Detroit.

*To Camp Greene,* Charlotte, N. C., base hospital, from Fort Oglethorpe, Capt. EMILE C. HOULE, Negaunee.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, upon completion of his present duties at Camp Shelby, Lieut. RAY S. MORRISH, Flint.

*To Fort Riley,* for instruction, Capts. WILLIAM H. MARSHALL, Flint; LOUIS H. CHAMBERLAIN, Grand Rapids; ARCHIE C. MAC KINNON, Lewiston; WILLIAM H. DUNHAM, Shaftsburg; Lieuts. EDWARD GOODWIN, Bay City; BURTON L. STEVENSON, Benton Harbor; RUDOLPH H. LAMBERT, Calumet; WILLIAM E. DORAN, Colon; Russell R. Huston, Copenish; LOWELL M. BUSH, Corruna; HAROLD F. CLOSE, BERNARD F. CORBETT, WILLIAM GRAMLEY, JAMES L. HAWKINS, ZENO L. KAMINSKI, ABRAHAM KAVINSKY, LADISLAUS R. MAMINSKI, LYMAN J. PINNEY, HARRY W. REED, PAUL C. ROHDE, WILLIAM G. SCHLEGELMILCH, ARTHUR R. SMECK, CLYDE R. VAN CUNDY, COLIN C. VARDON, Detroit; PAUL H. LIPPOLD, Escanaba; HARRY C. HACKMAN, Flint; OSCAR P. GEIB, Hubbardston; NELSON McLAUGHLIN, Lake Odessa; FORREST R. OSTRANDER, Lansing; WELLINGTON B. HUNTLEY, Lowell; JOHN F. KELLY, Manistee; EARL V. McCOMB, Menominee; HAROLD A. KIRKHAM, CHARLES A. MARTIN, Mount Clemens; ROBERT J. BEEBY, West Branch; ANDREW J. DINSMORE, White Pine Mine.

*To Rockefeller Institute, N. Y.,* for instruction, from Fort Oglethorpe, Lieut. JOHN J. O'LEARY, Ann Arbor.

*To St. Louis, Mo.,* Washington University, for instruction, from Camp Grant, Capts. ELLSWORTH ORTON, Pontiac; HENRY J. MEYER, Saginaw.

*To Washington, D. C.,* Camp American Univ., for duty, from Camp Greene, Capt. EMILE C. HOULE, Negaunee.

### Minnesota

*To Army Medical School,* Washington, D. C., for instruction, Lieut. HARVEY W. SNYDER, Rochester.

*To Camp Sherman,* Chillicothe, Ohio, for temporary duty, from St. Louis, Lieut. LYNN J. WALKER, Wycoff.

*To Camp Wheeler,* Macon, Ga., for temporary duty, from St. Louis, Lieut. FRED F. STOCKING, Riverton.

*To Fort Riley,* for instruction, Capt. GEORGE M. SEWALL, Deerwood; Lieuts. PARKER L. BERGE, Brainerd; SAMUEL R. FRAKER, Cass Lake; HENRY E. BINET, Coleraine; JOSEPH H. COSGROVE, Duluth; ROY C. LOWE, Fairmont; HARRY E. McKIBBEN, Hector; HERBERT A. BURNS, Hutchinson; CHARLES D. RICHMOND, Jeffers; NATHAN F. DELEMON, Tintah.

*To Park Field,* Memphis, Tenn., Aviation Section, Signal Corps, from Park Field, Lieut. ALBERT J. WENTWORTH, Mankato.

### Mississippi

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. GEORGE D. MASON, Clara.

*To Fort Oglethorpe,* for instruction, Lieuts. GRAHAM W. DIGGS, Black Hawk; CHARLES H. OTKEN, McComb; RILEY B. YATES, Sidon; JOHN H. STEEN, Vaughn.

*To Lake Charles, La.,* Gerstner Field, for duty, Lieuts. BENJAMIN J. McRAE, Crandall; BATTON J. FARR, Holcomb; SAMUEL D. NEWELL, Indianola; BRYANT J. NEWITT, McComb; GEORGE C. COFFEY, Myrtle.

*To Rockefeller Institute, N. Y.,* for instruction, from Fort Oglethorpe, Lieut. SWINTON L. LANE, Scott.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. JAMES H. WHITE, Prairie.

### Missouri

*To Army Medical School,* Washington, D. C., for instruction, from Washington, D. C., Lieut. CHARLES R. OZIAS, Kansas City.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Army Medical School, Lieut. ROLLO P. BOURBON, St. Louis.

*To Camp Taylor,* Louisville, Ky., for temporary duty, from St. Louis, Lieut. OWEN P. McPHERSON, Kansas City.

*To Fort Oglethorpe,* for instruction, from St. Louis, Capt. FRANK J. TAINTER, St. Charles.

*To Fort Riley,* for duty, Lieuts. FREDERICK H. BROWN, Billings; JOHN R. BRUCE, Marshfield; ANTHONY McCLORY, St. Louis; from Fort Riley, Lieut. SOLON E. HAYNES, St. Louis. For instruction, Lieut. GROVER C. McCORMACK, St. Louis.

*To Jefferson Barracks, Mo.,* for temporary duty, from St. Louis, Capt. IRA R. CLARK, St. Louis.

*To St. Louis, Mo.,* Washington University, for instruction, Capt. JAMES W. SHANKLAND, St. Louis; Lieuts. HOWARD O. LEINHARDT, North Kansas City; BERNHARDT W. KLIPPEL, St. Louis.

*To his home* and honorably discharged, on account of being physically disqualified for active service, Lieut. JOHN C. PHILSBAUM, St. Joseph.

### Montana

*To Camp Bowie,* Fort Worth, Texas, for temporary duty, from St. Louis, Lieut. ROBERT L. REYNOLDS, Kalispell.

*To Fort Riley,* for instruction, Capt. GEORGE BERNHARD OWEN, Folsom.

### Nebraska

*To Fort Omaha, Neb.,* Aviation Section, Signal Corps, for duty, Capt. FREDERICK E. BRAUCHT, Coleridge; Lieut. JEREMIAH S. ALEXANDER, Omaha.

*To Fort Riley,* for instruction, Lieuts. WARREN M. PHILLIPS, Norfolk; EARL W. FETTER, North Platte; VERNARD A. LANPHIER, Sutton; when able to travel for physical examination to determine his fitness for active service, and on completion, *to his home,* Lieut. IRVIN C. MUNGER, Lincoln.

*To San Antonio, Texas,* Kelly Field, for duty, Lieut. WALTER W. COVELL, North Platte.

*To his home* and honorably discharged on account of physical disability incurred previous to entrance into the service, Lieut. CHARLES P. BREEN, Western.

### New Hampshire

*To Camp Sherman,* Chillicothe, Ohio, base hospital, from St. Louis, Lieut. WALTER L. BARBOUR, Colebrook.

*To Fort Logan H. Roots, Ark.,* for temporary duty, from Fort Oglethorpe, Lieut. GEORGE F. DWINELL, Manchester.

*To Fort Oglethorpe,* for instruction, Lieuts. EDWARD C. DURGIN, East Andover; HARRY C. WILLIAMS, Gilsum; ARTHUR L. WALLACE, Nashua; SAMUEL D. SNOW, North Conway; JAMES C. THOMPSON, North Stratford; LAWRENCE R. HATCH, West Jeffery.

*To Fort Porter, New York,* for duty, from Washington, D. C., Capt. ALBERT E. BROWNRIGG, Nashua.

### New Jersey

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. WILLIAM J. SUMMERS, Boonton; THOMAS M. MORRIS, Cranford; ALBERT C. HULETT, East Orange; DAVID S. CAREY, Freehold; LAWRENCE M. COLLINS, Greystone Park; THOMAS L. PELLETT, Hamburg; WILLIAM L. MADDEN, JOHN P. STOUT, Jersey City; HOWARD R. DUKES, Kearny; WILLIAM W. COX, Montclair; ROBERT N. MAC CUFFIE, Passaic; JACOB J. MANN, Perth Amboy; EARLE C. REYNOLDS, Rutherford; JOHN F. WEBER, South Amboy; CHARLESTON BATES, Summit.

*To Camp Dodge,* Des Moines, Iowa, for temporary duty, from St. Louis, Lieut. WILLIAM H. SMITH, Jr., Trenton.

*To Camp Kearny,* Linda Vista, Calif., for duty, from Presidio, Lieut. RUNKEL F. HEGEMAN, Somerville.

*To Camp MacArthur,* Waco, Texas, for the special examination of the command for tuberculosis, from Camp Pike, Lieut. WILLIAM H. HAINES, Audubon.

*To Camp Sevier,* Greenville, S. C., Aviation Mobilization Camp, for duty, Lieut. CORNELIUS V. CLOCK, Passaic.

*To Camp Sherman,* Chillicothe, Ohio, for duty, Lieut. CHARLES BROWNE, Princeton.

*To Fort Oglethorpe,* for instruction, Capt. PHILIP G. HOOD, Manasquan; Lieuts. JOHN J. LETTIERI, Hoboken; JOSEPH A. BELOTT, Newark; GERDIE G. PATTEN, Pennsgrove.

*To Fort Riley,* as tuberculosis instructor from Fort Riley, Capt. RICHARD BEW, Atlantic City.

*To Hoboken, N. J.,* for duty, Lieuts. MARMION S. BLACK, Elmer; ARCHER C. BUSH, Verone.

*To Mineola, L. I., N. Y.,* Aviation Section, Signal Corps, Hazelhurst Field, for duty, Capt. HARRY M. ANDERSON, Allentown; FERDINAND G. ANGENY, Avon-by-the-Sea; Lieut. CHARLES J. MASSINGER, Butler.

*To Oklahoma City, Okla.,* for instruction in orthopedic surgery, from Fort Clark, Lieut. RAWLEY W. WARD, Carneys Point.

*To Rockefeller Institute, N. Y.,* for instruction, from Fort Oglethorpe, Lieut. VIRGIL H. CORNELL, Cedar Grove.

### New Mexico

*To Camp Cody,* Deming, N. M., for duty, Capt. EDWARD W. HOOPER, Silver City.

### New York

*To Army Medical School,* Washington, D. C., for instruction, Capt. FRANKWOOD W. WILLIAMS, New York City; Lieuts. SYLVANUS J. NUNN, Bingham; JACOB WASHTON, Bronx; A. ARTHUR FELLER, JOSEPH LINTZ, JOHN J. YOUNG, Brooklyn; HARRY G. JOHNSON, EARL H. LERMOR, FRANK H. LONG, HAROLD J. McDONALD, FREDERICK E. SPERRY, Buffalo; VINCENT G. SMITH, Central Bridge; HOWARD B. SWAN, Chestertown; ROBERT G. WARD, Coney Island; FLOYD J. ATWELL, FRANK H. SNYDER, Geneva; MICHAEL A. ROGERS, Greenwich; WILLOUGHBY C. PENDILL, Huntington, Long Island; WILLIAM H. JOHNSON, Ilion; LOUIS M. PASTOR, Kings Park, Long Island; CYRUS W. CULVER, Lowville; WILLIAM J. RYAN, Newport; LEOPOLD ADAMS, HORACE E. AURINGER, THOMAS G. DAVIS, WALTER D. EDWARDS, STANLEY M. KING, JEROME A. McSWEENEY, LESTER L. ROOS, FREDERICK W. SCHAEFFER, New York City; JOHN P. SHARP, Niagara Falls; LLOYD T. McNULTY, Norwood; PHILIP W. DE GARMO, Rhinebeck; PAUL S. PERSONS, Ripley; MARTIN F. NOLAN, Tonawanda; from Army Medical School, Lieuts. WILLIAM J. CARROLL, WESLEY C. COX, JOSEPH W. SMITH, Brooklyn; WILLIAM S. McCANN, New York City; BENJAMIN J. SLATER, Rochester; from Atlanta, Ga., Lieut. STEPHEN H. CURTIS, Albany; from Fort Oglethorpe, Lieut. ROBERT A. CORBIN, New York City.

*To Call Field,* Wichita Falls, Texas, Aviation Section, Signal Corps, from Call Field, Lieut. BARNETT ARONSON, Brooklyn.

*To Camp Beauregard,* Alexandria, La., for temporary duty, from Camp Bowie, Lieut. ROBERT L. LEVY, New York City.

*To Camp Custer,* Battle Creek, Mich., for temporary duty, from St. Louis, Capt. HARRY R. STONE, New York City.

*To Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. HENRY DE W. DURYEA, Buffalo.

*To Camp Gordon,* Atlanta, Ga., for duty, from Army Medical School, Lieuts. HAROLD V. RAYCROFT, Brooklyn; LEO E. REIMANN, Buffalo; HARRY B. HANSEN, New York City.

*To Camp Grant,* Rockford, Ill., for temporary duty, from St. Louis, Lieut. MAX BERNSTEIN, New York City.

*To Camp Greene,* Charlotte, N. C., base hospital, from Fort Oglethorpe, Capt. JAMES R. SWANICK, Saratoga Springs.

*To Camp Jackson,* Columbia, S. C., and *Camp Beauregard,* Alexandria, La., for special sanitary inspection, and upon completion to Washington, D. C., for instruction, from Rockefeller Institute, N. Y., Major SIMON FLEXNER, New York City; and upon completion to his home and the inactive list of the M. R. C., Capt. HAROLD L. AMOSS, New York City.

*To Camp Logan,* Houston, Texas, for temporary duty, from Camp Hancock, Capt. SAMUEL M. STRONG, New York City.

*To Camp MacArthur,* Waco, Texas, for the special examination of the command for tuberculosis, from Camp Pike, Capt. ROB R. McCULLY, Auburn; Lieut. FRANK J. HERBIG, Staten Island.

*To Camp Sevier,* Greenville, S. C., as division psychiatrist, from Camp Sevier, Capt. FRANCIS M. SHOCKLEY, Brooklyn Aviation Mobilization Camp, for duty, Lieut. JEREMIAH WEST, Stottsville.

*To Camp Sheridan,* Montgomery, Ala., for duty as orthopedic instructor from Camp Meade, Lieut. EDMUND B. SPAETH, Elmira.

*To Camp Sherman,* Chillicothe, Ohio, for duty, Lieut. ALEXANDER F. ROBERTSON, Jr., Brooklyn.

*To Camp Stuart,* Newport News, Va., to examine the command in nervous and mental diseases, from Camp Dix, Major MENAS S. GREGORY, New York City; from Philadelphia, Lieut. HOWARD W. DAVIS, Schenectady.

*To Camp Taliaferro Field,* Fort Worth, Texas, Aviation Section, Signal Corps, from Camp Taliaferro, Lieut. ALBERT G. COOK, Brooklyn.

*To Camp Upton, L. I., N. Y.,* for duty, from Army Medical School, Lieuts. JOSEPH PRICE, ALRED A. SCHWARTZ, WILLIAM P. SMALE, New York City; WILLIAM S. MARTENS, Shrubb Oak.

*To Chanute Field,* Rantoul, Ill., Aviation Section, Signal Corps, from Chanute Field, Lieut. LINN V. H. REEDS, New York City.

*To Ellington Field,* Houston, Texas,, Aviation Section, Signal Corps, from Ellington, Lieut. ALBERT VALENSI, New York City.

*To Fort McHenry, Md.,* for duty, from Chandler Field, Lieut. RUSSELL C. PARSON, Brooklyn.

*To Fort McPherson, Ga.,* for duty, from Fort Oglethorpe, Lieut. WILLIAM M. ENNIS, Brooklyn.

*To Fort Oglethorpe,* for instruction, Capt. KENNEDY P. RUBERT, Oswego; Lieuts. HARRY LIPTON, SAMUEL G. SISSKIND, Brooklyn; EDWARD M. SMITH, Central Bridge; BERT G. VOORHEES, Elmira; WILLIAM E. DIEFENBACH, Hunda; WILLIAM LENETSKA, Long Island; JACOB N. FEINBERG, ROBERT FLANDERS, HERMAN MARTINSON, IRVING H. RUSSETTE, New York City; HARRY WRONKER, Rochester; GUNNI JULIUS BUSCK, Westfield; WILLIAM J. MEYER, White Plains; from Camp Jackson, Lieut. EDWARD N. PACKARD, Saranac Lake; from Washington, D. C., Lieut. CHARLES R. HENRY, New York City.

*To Fort Riley,* for duty, Lieut. CARL G. FROST, Buffalo; FRANK A. SHARPE, New York City; from Fort Riley, Lieut. MATHER CLEVELAND, New York City.

*To Fort Sill, Okla.,* Aviation Section, Signal Corps, from Austin, Capt. EDWIN S. INGERSOLL, Rochester.

*To Fort Slocum,* New Rochelle, N. Y., in connection with the establishment of exhibit materials in connection with the campaign to combat venereal diseases, and upon completion *to his proper station,* Capt. ALEC N. THOMSON, Brooklyn.

*To Hazelhurst Field,* Mineola, L. I., N. Y., Aviation Section, Signal Corps, from Hazelhurst Field, Lieut. THEODORE S. WEST, Albany.

*To Hoboken, N. J.,* for duty, Capts. EDWARD E. GREEN, Brooklyn; ROY B. DUDLEY, Clinton; CHARLES B. FITZPATRICK, New York City; ELBERT A. PALMER, Saratoga Springs; JOHN J. ENGLISH, Troy; Lieuts. L. JOHNSON, Binghamton; ALBERT E. GILMARTIN, EUGENE H. GOODFELLOW, PERCY HOUGHTON, Brooklyn; CLARK V. FAIRBANKS, Dansville; THOMAS F. DAVIES, Floral Park; MILTON J. JOHNSON, Jamestown; SILAS L. FILKINS, New York City; ARTHUR T. DAVIS, Pine Bush; FRANK A. AUGUR, South Bethlehem.

*To Langley Field,* Hampton, Va., Aviation Section, Signal Corps, from Langley Field, Lieut. HUGH S. CHIDESTER, Hoboken.

*To Love Field,* Dallas, Texas, Aviation Section, Signal Corps, from Love Field, Lieut. MAX MENSCH, Brooklyn.

*To Newport News, Va.,* for temporary duty, from Fort Oglethorpe, Lieut. MORRIS R. BRADNER, Warwick.

*To New York City,* Neurological Institute, for intensive training, Lieut. EUGENE H. BEUDREAU, Auburn; for intensive training in his specialty, from New York, Lieut. ROYALL G. CANNADAY, New York City; on completion to report in person *to the commanding officer,* Twelfth Regiment Armory, New York, for duty, Lieut. WALTER M. KRAUS, New York City. Post-Graduate School and Hospital, for instruction in urology and dermatology, Lieut. THOMAS P. BURRUS, Brooklyn.

*To Princeton, N. J.,* School of Military Aeronautics, and Camp Merritt, N. J., in respect to the examination of the command for nervous and mental diseases, and on completion to his proper station, Capt. SANGER BROWN, White Plains.

*To Rockefeller Institute, N. Y.,* for instruction, Lieut. HAROLD L. MEIERHOF, New York City; from Army Medical School, Lieut. HERBERT F. JACKSON, New York City.

*To Takoma Park, D. C.,* Walter Reed General Hospital, for temporary duty, from Fort McHenry, Capt. EDWARD DOWDLE, Oswego.

*To Wilbur Wright Field,* Fairfield, Ohio, Aviation Section, S. C., from Wilbur Wright Field, Lieut. SAMUEL TRIPLER, New York City.

*To Williamsbridge, N. Y.,* for temporary duty, Capt. JAMES C. DAVIS, Rochester.

*Honorably discharged,* Capt. MAXMILIAN L. LOEB, New York City.

*To his home* and honorably discharged on account of being physically disqualified for active service, Capt. LEMON D. WASHBURN, Hempstead; Lieuts. ISIDOR KRAUSS, EDWARD H. McCAFFREY, Brooklyn; on account of being physically disqualified for active service, incurred previous to his entrance into the service, Lieuts. PERCIVAL D. BAILEY, Endicott; HEMAN R. MARVIN, Lyon Mountain; LEONARD A. JESLOW, New York City.

*Honorably discharged,* Lieut. RUEL B. MARBLE, New York City.

### North Carolina

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Lieuts. ROBERT K. BECKWITH, Rosemary; ROBERT J. LOVILL, Wingate.

*To Fort Monroe, Va.,* for the special examination of the command for tuberculosis, from Newport News, Capt. THOMPSON FRAZER, Asheville.

*To Fort Oglethorpe,* for instruction, from Camp Bowie, Lieut. DARIUS C. ABSHER, Mt. Airy.

*To Rockefeller Institute,* New York, for instruction, from Fort Oglethorpe, Lieut. JAMES C. BRASWELL, Jr., Wilson.

### Ohio

*To Austin, Texas,* State University, for duty, from Fort Myer, Capt. WILLIAM J. MANNING, Cleveland.

*To Camp Sevier,* Greenville, S. C., Aviation Mobilization Camp, for duty, Lieut. THOMAS A. GRAVEN, Wooster.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Army Medical School, Lieut. JOHN D. NOURSE, Kenton.

*To Camp Upton,* L. I., N. Y., for duty, from Army Medical School, Lieut. SIDNEY C. VENABLE, Cleveland.

*To Fort Oglethorpe,* for instruction, Lieut. CHARLES K. ERWIN, Cincinnati; from Camp Custer, Lieuts. IVAN J. RANSBOTTOM, Coldwater; CHARLES R. DEEDS, Dalton.

*To Fort Riley,* for instruction, Lieut. VEST D. REICHELDERFER, Akron. For temporary duty, Lieut. CHARLES A. HENRY, Jr., Fostoria.

*To Lakewood, N. J.,* for duty, from Pittsburgh, Capt. PAUL J. COLLANDER, Ashtabula.

*To Rockefeller Institute,* New York, for instruction, from Fort Oglethorpe, Lieut. JAMES H. WARREN, Columbus.

*To St. Louis, Mo.,* Washington University Medical School, for instruction, from Camp Taylor, Capt. IVAN I. YODER, Cleveland.

*Honorably discharged,* Lieut. ROBERT M. FULWIDER, Zanesville.

### Oklahoma

*To Camp Gordon,* Atlanta, Ga., for temporary duty, from St. Louis, Lieut. HARRY J. SIMS, Stigler.

*To Camp Grant,* Rockford, Ill., for duty, from Army Medical School, Lieut. WILLIAM O. FISCHER, Muskogee.

*To Fort Riley,* for instruction, Lieuts. ALONZO P. GEARHART, Blackwell; HUBERT W. CALLAHAN, LOREN C. PRESSON, Collinsville; HOWSEN C. BAILEY, Sulphur.

*To Fort Sill, Okla.,* Aviation Section, Signal Corps, Post Field, for duty, Lieuts. ISAAC L. DOWDSY, New Wilson; JAMES A. CHEEK, Sallisaw; JOHN F. DUCKWORTH, Tahlequah; DAVID A. BEARD, Westville.

*To Oklahoma City, Okla.,* for instruction in orthopedic surgery, from Camp Doniphan, Lieut. NOVEL W. CAMPBELL, Poteau; from Camp Hospital, Douglas, Lieut. RALPH V. SMITH, Tulsa.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. SIMS D. BEVILL, Poteau.

### Oregon

*Tlo Camp Dix,* Wrightstown, N. J., for duty, from Army Medical School, Lieut. ROBERT A. SHERWOOD, Portland.

### Pennsylvania

*To Army Medical School,* Washington, D. C., for duty, from Army Medical School, Lieut. ZERA E. BOLIN, Philadelphia. For instruction, from Camp Jackson, Lieut. LEE T. MULLAHEY, Shenandoah.

*To Baltimore, Md.,* for duty, Lieut. HOWARD S. BUSLER, Lansdowne.

*To Camp Beauregard,* Alexandria, La., base hospital, Major JOSEPH McFARLAND, Germantown, Philadelphia.

*To Camp Dix,* Wrightstown, N. J., for duty, from Army Medical School, Lieut. ROBERT SHOEMAKER, III, Ogontz; from Camp Dix, Lieut. ROBERT E. DAVISON, Pittsburgh; from Camp Meade, LOUIS H. MAYER, Jr., Johnstown.

*To Camp Dodge,* Des Moines, Iowa, for temporary duty, from St. Louis, Lieut. ROBERT E. STRASSER, Reading.

*To Camp Doniphan,* Fort Sill, Okla., base hospital, from Camp Pike, Lieut. HARRY O. MATEER, Pittsburgh.

*To Camp Grant,* Rockford, Ill., base hospital, from Fort McPherson, Major WALTER A. DEARTH, Pittsburgh.

*To Camp Jackson,* Columbia, S. C., for temporary duty, from Camp Lee, Lieut. CARL G. YOUNT, Philadelphia.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Army Medical School, Lieuts. CEDRIC E. FILKINS, SAMUEL R. SKILLERN, Philadelphia.

*To Camp Stuart,* Newport News, Va., to examine the command for nervous and mental diseases, Lieut. RALPH L. HILL, Woodville.

*To Fort McHenry, Md.,* for temporary duty, from Fort Oglethorpe, Lieut. HARRY F. GARMAN, Barnesboro.

*To Fort Monroe, Va.,* for the special examination of the command for tuberculosis, from Newport News, Va., Lieut. WILLIAM H. HERR, Lancaster.

*To Fort Oglethorpe,* for instruction, Capts. CHARLES L. OLDS, Bryn Athyn; HERBERT OLD, Philadelphia; Lieuts. OLIVER B. SIMON, Retreat; HOMER G. COLLINS, Meyersdale; BENJAMIN F. HAINES, New Castle; from Camp Jackson, Lieut. URBAN H. REIDT, Jeanette.

*To Fort Riley,* for duty, from Camp Meade, Lieut. HAROLD E. HERSH, Palmerton.

*To Fort Story, Va.,* for duty, from Fort Monroe, Lieut. CHARLES C. CROUSHORE, Greensburg.

*To Hoboken, N. J.,* for duty, from Pittsburgh, Lieut. JESSE R. COOPER, New Castle.

*To Lakewood, N. J.,* for duty, from Pittsburgh, Lieut. MILTON H. BACHMAN, McKeesport.

*To Mineola, L. I., N. Y.,* Hazelhurst Field, for duty, Lieuts. JEREMIAH A. KLOTZ, Allentown; ROBERT P. REGESTER, Philadelphia.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Devens,* base hospital, Lieut. JOHN H. SEIPEL, Pittsburgh. *Cornell Medical College,* for instruction in military roentgenology, from Camp Custer, Lieut. THOMAS L. McCULLOUGH, Homewood. *Neurological Institute,* for instruction in his specialty, Lieut. MATTHEW C. BAINES, Frankford, Philadelphia.

*To Rockefeller Institute, N. Y.,* for instruction, from Fort Oglethorpe, Lieuts. EDWARD A. STEINHILBER, Philadelphia; GEORGE R. LACY, Pittsburgh.

*To St. Louis, Mo.,* Washington University, for instruction, from Camp Gordon, Lieut. SAMUEL STALBERG, Philadelphia.

*To Washington, D. C.,* for instruction, from Camp Meade, Capt. WARREN WALKER, Philadelphia. For temporary duty, from Rockefeller Institute, Lieut. CLIFFORD C. HARTMAN, Pittsburgh.

*Honorably discharged,* Capt. GEORGE T. WOODLAND, Philadelphia;. Lieut. HENRY L. LEWIS, Erie; Lieut. CHARLES C. CROUSHORE, Greensburg; on account of being physically disqualified for active service, Lieuts. ANDREW J. COLBORN, Connellsville; WILLIAM F. DAVISON, Dorranceton; WILLARD B. CAMPBELL, Harrisville; ALEXANDER C. BUTCHER, SCOTT O. LARRABEE, Philadelphia; NORWIN L. KERR, Scottdale; PHILIP J. DAVIES, Scranton.

### Porto Rico

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. AUGUSTINE R. LANGIER, San Juan; JUAN H. FONT, Toa Alta.

*To Porto Rico,* Porto Rican Troops, for duty, Major WILLIAM F. LIPPITT, San Juan.

### Rhode Island

*To Camp Devens,* Ayer, Mass., for duty, from Army Medical School, Lieut. CLYDE B. COVEY, Howard.

*To Fort Oglethorpe,* for instruction, Lieuts. KENNETH CHURCHILL, WILLIAM W. CUMMINGS, Providence.

### South Carolina

*To Fort Oglethorpe,* for instruction, Lieuts. HALBERT H. ACKER, Anderson; OSCAR L. BRUERTON, Georgetown; JOHN B. SETZLER, Newberry.

*To St. Louis,* University of Washington, for instruction, Lieut. ELIJA M. HICKS, Coward.

### South Dakota

*To Camp Dodge,* Des Moines, Iowa, for duty, Lieut. LORENS A. HAUG, Canton.

### Tennessee

*To Camp Kearny,* Linda Vista, Calif., for duty, from Presidio, Lieut. JAMES A. SMITH, Chattanooga.

*To Camp MacArthur,* Waco, Texas, for the special examination of the command for tuberculosis, from Camp Pike, Lieut. JAMES M. OLIVER, Portland.

*To Camp McClellan,* Anniston, Ala., for temporary duty, from St. Louis, Capt. JAMES BREW, Jr., Nashville.

*To Fort Oglethorpe,* for instruction, Lieuts. GLENN BARTLETT, Kingsville; CONSTANTINE P. WALLER, Nashville; CECIL E. WARDE, Memphis; WILLIS S. ALEXANDER, Ridgley; from Camp Jackson, Lieuts. LEOPOLD SHUMACKER, Chattanooga; OWEN S. DEATHRIDGE, Nashville.

*To St. Louis, Mo.,* Washington University Medical School, for instruction, from Camp McClellan, Capt. BERNARD C. McMAHON, Memphis.

*To his home* and to the inactive list, Lieut. GID M. HALL, Lenoir City.

### Texas

*To Army Medical School,* Washington, D. C., for instruction, from Army Medical School, Lieut. LEVY S. JOHNSON, Richmond.

*To Camp Bowie,* Fort Worth, Texas, for duty as junior member of physical examining unit, medical member of examining board and recruiting officer, Lieut JAMES W. REID, Maysfield.

*To Camp Gordon,* Atlanta, Ga., for duty, from Army Medical School, Lieut. LUCIUS L. HANDLY, Houston.

*To Camp Greene,* Charlotte, N. C., base hospital, from Camp Greene, Lieut. JOHN J. TRIBLE, Dallas.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Army Medical School, Lieut. WILLIAM E. NESBIT, San Antonio.

*To Dallas, Texas,* Aviation Repair Depot, for duty, from Austin, Capt. ROBERT A. TRUMBULL, Dallas.

*To Fort Oglethorpe,* for instruction, Lieut. HENRY H. PANTON, Gainesville; from Morrison, Va., Lieut. HENRY F. WILKINS, Fort Worth; from St. Louis, Lieut. DEWITT SMITH, Dallas.

*To Fort Riley,* for instruction, from St. Louis, Capt. CHARLES M. AVES, Houston; Lieut. JOHN C. THOMAS, Taylor; for instruction, Lieut. HARRY L. LOCKER, Winchell.

*To Fort Worth, Texas,* Taliaferro Field, Hicks Station, for duty, Capt. CARMETTE A. COBB, Beaumont; HERBERT CALDWELL, Corpus Christi; Lieuts. LEM FAULK, Alba; WILLIAM E. CRAVENS, Southland. Benbrook Station, for duty, Lieuts. THOMAS M. DARWIN, Cooper; HERBERT N. BARNETT, Dublin; ROY L. AKEHURST, Heckley. Everman Station, for duty, Lieuts. JAMES D. CURRIE, Hico; REESE F. CURRIE, Mancha.

*To Oklahoma City, Okla.,* for instruction in orthopedic surgery, Lieut. CHARLES E. SCULL, San Antonio; CALLAS SOUTHARD, Stamford; CLAUDE E. PIERSALL, Wolfe City; from Camp Hospital, Columbus, N. M., Lieut. ROBERT A. GORDON, Lorena.

*To Rockefeller Institute, N. Y.,* for instruction, from Fort Oglethorpe, Capt. ROYAL K. STACEY, Lewisville; Lieut. CRANZ NICHOLS, Maxwell.

*To San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Lieuts. RUFUS G. WILSON, Dallas; ISADORE L. PAWELEK, Falls City.

*To his home* and honorably discharged on account of inaptitude for the service, Lieut. THOMAS N. ROACH, Medicine Mount.

### Utah

*To Camp Grant,* Rockford, Ill., for temporary duty, from St. Louis, Lieut. CLARENCE A. NYVALL, Salt Lake City.

*To Oklahoma City, Okla.,* for instruction in orthopedic surgery, Lieut. EZEKIEL R. DUMKE, Ogden.

### Vermont

*To Fort Oglethorpe,* for instruction, Lieuts. ANELANE E. HOULE, Bennington; WALDO R. HARKNESS, Montpelier; HENRY E. SOMERS, West Derby.

*To Fort Porter, N. Y.,* for duty, from Washington, D. C., Lieut. STEWART L. GOODRICH, Warebury.

### Virginia

*To Camp Gordon,* Atlanta, Ga., for duty, from Army Medical School, Lieut. HARVEY R. LINESAY, Waynesboro.

*To Camp Lee,* Petersburg, Va., for duty, from Army Medical School, Lieut. BERNARD L. JARMAN, Charlottesville.

*To Camp MacArthur,* Waco, Texas, for the special examination of the command for tuberculosis, from Camp Pike, Lieut. HORACE T. HAWKINS, Richmond.

*To Camp Sherman,* Chillicothe, Ohio, for duty, Lieut. ROY C. SMISSON, Fort Valley.

*To Fort H. G. Wright, N. Y.,* with Coast Defenses of Long Island Sound, from Fort Story, Lieut. NATHANIEL F. RODMAN, Norfolk.

*To Fort McHenry, Md.,* for temporary duty, from Takoma Park, Major WILSON E. DRIVER, Norfolk.

*To Fort Oglethorpe,* for instruction, Capts. EDWARD H. MILLER, Jr., Danville; RALPH W. BROWN, Roanoke; Lieuts. BASIL E. STRODE, Amherst; ALLEN C. BILLER, Forestville; WHITFIELD P. DAVIS, Galax; JOSEPH S. ROME, Norfolk; EUGENE P. COX, Rye Cove; from Fort H. G. Wright, Lieut. MINOR C. LIE, University.

*To Richmond, Va.,* for duty, Lieut. WILLIAM E. HOPKINS, Richmond.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. JAMES M. TAULBES, Cleveland.

### Washington

*To Camp Custer,* Battle Creek, Mich., for duty, from Army Medical School, Lieut. JOSEPH R. TURNER, Jr., Tacoma.

*To Camp Lewis,* American Lake, Wash., for duty, Lieut. THOMAS G. CLARKE, Everett.

*To Fort Monroe, Va.,* for the special examination of the command for tuberculosis, from Newport News, Capt. WILLIAM H. ANDERSON, Seattle.

*To Fort Riley,* for instruction, Lieut. EARLE V. SHEAFE, Winlock.

*To Western Department,* for assignment to duty, Lieut. ALBERT P. DURYEA, Everett.

### West Virgina

*To Camp Taylor,* Louisville, Ky., for duty, from Army Medical School, Lieut. LAWRENCE A. PETTY, Charleston.

*To Fort Oglethorpe,* for instruction, Capts. GEORGE FORDHAM, Affinity; FRED W. BERGER, Hiawatha; WALTER F. LEECH, Richwood; Lieuts. THOMAS G. TICLE, Bluefield; WILLIAM P. SAMMONS, Cameron; WILLIAM E. WHITESIDE, Harrisville; CHARLES T. WHITESIDE, Leon; MARVIN H. PORTERFIELD, Martinsburg; ARCHIE B. RINEHART, McMechen; NOAH E. STEELE, Omar; RAY KESSEL, Ripley; WILLIAM B. HITE, Stark West.

*To his home* and his resignation accepted, Lieut. LOUIS A. HILTON, Wilcoe.

### Wisconsin

*To Central Department,* for assignment to duty, Lieut. FRANK H. McLAUGHLIN, Milwaukee.

*To Douglas, Ariz.,* for duty, from Fort Leavenworth, Lieut. FRANKLIN M. HAWLEY, Bayfield.

*To Fort Oglethorpe,* for instruction, from Camp Custer, Capt. IRVING A. MYERS, Cottage Grove.

*To Fort Riley,* for instruction, Capt. HENRY C. CALDWELL, St. Croix Falls; Lieuts. CHARLES M. GRISWOLD, Alma Center; JAMES W. DOUGHTY, Elrey; G. FRANK ANDREW, LaCrosse; CLARK B. DEVINE, Marshall; JAMES D. NELSON, Milwaukee; ASCHEL W. JAMES, Musceda; THOMAS J. McCRORY, Racine; HOWARD J. BARRY, Sun Prairie.

*To Sheboygan, Wis.,* to examine applicants for appointment in the Officers Reserve Corps, Major EDWARD J. BARRETT, Sheboygan.

*To his home* and honorably discharged on account of being physically disqualified for active service, Lieut. MAXIMILIAN W. MOELLER, Milwaukee.

### Wyoming

*To Fort Riley,* for instruction, Capt. WALTER M. LACEY, Cheyenne; Lieut. DURWARD B. PARK, Laramie.

## CORRECTION

Under "Orders to Officers of the Medical Corps": issue of Jan. 19, 1918: *To Camp Jackson,* Columbia, S. C., base hospital, from Camp Jackson, Lieut. GEORGE B. BOOTH, Toledo, Ohio, instead of GEORGE E. BOOTH of Lake Village, Ark.

## Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

### ARKANSAS

**Shop Men Vaccinated.**—The vaccinating of the 1,250 employees of the Missouri Pacific shops, in Little Rock, with typhoid and smallpox virus has been completed by Dr. Jacob C. Geiger, U. S. P. H. S.

**New Hospital.**—The Stuttgart City Hospital was opened to receive patients, January 14. The institution is in charge of Mrs. Rex B. Wilcox, formerly of the Baroness Erlanger Hospital, Chattanooga, Tenn.

**Personal.**—Dr. Charles M. Lutterloh, Jonesboro, has been appointed a member of the state board of health, to succeed Dr. Burrell A. Fletcher, McClelland.——Dr. James H. Lenow, Little Rock, has been appointed surgeon of the Pulaski County Guards, with the rank of major.

### COLORADO

**New Officers.**—At the annual meeting of the El Paso County Medical Society, held at Colorado Springs, Dec. 30, 1917, Dr. George B. Gilmore was elected president; Dr. James H. Madden, vice president; Dr. James R. Stewart, secretary (reelected), and Dr. Clarence R. Arnold, treasurer.

**Penitentiary Sentence.**—Dr. Albert N. White, Denver, proprietor of the White Cross Sanitarium, charged with the violation of the Harrison Narcotic Law, is said to have been found guilty, January 9, and sentenced to serve two years in the Federal Penitentiary, Leavenworth, Kan., and to pay a fine of $500. The report is that Dr. White pleaded guilty, throwing himself on the mercy of the court, rather than face twelve counts on an indictment returned by the federal grand jury, which sat at Pueblo last fall.

**Personal.**—Dr. Robert Levy has succeeded Dr. Francis H. McNaught as president of the staff of St. Joseph's Hospital, Denver.——Dr. Harry S. Finney has resigned from the Denver Health Department.——Dr. T. Mitchell Burns has been elected president and Dr. Elmer A. Scherrer, vice president, of the staff of the Mercy Hospital, Denver.——Dr. Claude C. Keeler, Denver, has sailed for England, where he will enter a military hospital in London.——Dr. Cyrus L. Pershing, Denver, has been accepted for hospital service in France.

### ILLINOIS

**Smallpox at Macomb.**—It is reported that there are about fifty cases of smallpox in Macomb, and a representative of the state board of health has been sent to the city to take charge of the situation.

**Internists Meet.**—The third annual meeting of the Chicago Society of Internal Medicine was held, January 28, under the presidency of Dr. Robert B. Preble. Dr. George B. Eusterman, Rochester, Minn., presented a contribution on "Gastric Syphilis" with a report of forty proved cases.

**Conference on Tuberculosis.**—A clinical conference on tuberculosis was held in Springfield, January 23, 24 and 25, at which the war tuberculosis problem was thoroughly discussed. Dr. Frank Billings, Ethan A. Gray, Orville W. McMichael, and others attended the conference and acted as instructors at the clinic.

#### Chicago

**Cook County Hospital Service Offered to Surgeon-General's Office.**—The president of the board of Cook County Commissioners has addressed the Surgeon-General of the Army stating that the Cook County Hospital is the clearing-house for the industrial surgeons of approximately 3,000,000 people, that it has 2,400 beds and a competent staff selected by civil service examination, and that on behalf of the board of commissioners he tenders the use of the hospital and its resources for instructing officers of the United States Army. At the same time the attending staff of the hospital addressed the Surgeon-General, approving the action of the county commissioners, and offering its services in the same capacity.

### IOWA

**Biologic Station Burns.**—The United States government sustained a loss of $60,000 by fire, when the main laboratory of the United States Biologic Station, Fairport, was burned to the ground.

**Quarantine Lifted.**—The quarantine which has confined members of the Remount Troup and Company B of the Three Hundred and Thirty-Sixth Infantry to their barracks at Fort Des Moines, on account of the presence of meningitis, was lifted, December 24.

**Faculty Changes.**—Dr. Theodore A. Willis has succeeded Dr. Edwin E. Hobby on the faculty of the state university. Dr. John E. Hamilton, Albany, has been appointed to fill the place of Mark F. Boyd, state epidemiologist, and Dr. Ralph E. Russell has succeeded Dr. A. T. Bailey in the department of oral surgery.

**Internment for Social Disease Victims Proposed.**—Under the state board of health law, now being framed by Dr. Guilford H. Sumner, individuals afflicted with venereal disease will be placed in hospitals and treated until cured. It will be the duty of physicians to report all such cases as they are compelled to report other communicable diseases.

**New Officers.**—Woodbury County Medical Society, at Sioux City, January 17: president, Dr. Ralph M. Waters; vice president, Dr. Leroy R. Tripp; secretary-treasurer, Dr. W. D. Bangor.——Scott County Medical Society, at Davenport, January 8: president, Dr. Frank Neufeld; vice president, Dr. Roscoe P. Carney; secretary, Dr. Robert E. Jameson, and treasurer, Dr. Sidney G. Hands.

**Need for Inebriate Hospital Lessened.**—The State Hospital for Inebriates at Knoxville now has only seventy-one patients, on account of Iowa's having taken its position among the dry states of the Union. There has been a steady diminution during the last two years in the cost of maintenance of the institution, from $12,243 for the quarter ending Dec. 31, 1916, to $3.445 for the quarter ending Dec. 31, 1917.

**Personal.**—Dr. Frank O. Burk, Davenport, has resigned as physician of Scott County, and has been succeeded by Dr. Edward S. Bowman, Davenport.——Dr. George E. Decker has been reelected president and director of the Register Life Insurance Company, Davenport.——Dr. Raymond E. Peck, Davenport, has been elected a member of the board of directors of the Scott County Savings Bank.——Dr. Herman P. Benjamin, Council Bluffs, has returned invalided after one year of service in a military hospital near London.——Dr. Edward Embree, Winterset, is reported to be seriously ill with disease of the kidneys.——The residence of Dr. Thomas E. Powers, Clarinda, suffered serious damage by fire, December 21.——The residence of Dr. Abraham J. Hobson, Hampton, was destroyed by fire, December 12, with a loss of $15,000, partially secured by insurance.

## MINNESOTA

**Sanatorium Items.**—The tuberculosis sanatorium, erected south of Thief River Falls by Pennington, Marshall and Roseau counties, was formally opened to public inspection, January 4.——The opening of the Wadena-Todd County Sanitarium has been indefinitely delayed on account of the delay in the receipt of a portion of the equipment.

**Hospital News.**—Mrs. Summers has purchased the property at Fourth and Emory Streets, Tracy, and is having the building remodeled so that it may be used as a hospital.——The new St. Joseph's Hospital, Rice Lake, is to cost $75,000 and the building will be five stories and basement in height, and equipped in modern style.——The St. John's Hospital Association, Red Wing, is about to build a thirty-room fireproof addition, which is to cost about $50,000.

**Health Board Election.**—At the annual meeting of the state board of health at St. Paul, January 8, Dr. Egil Boeckmann, St. Paul, was elected president, succeeding Dr. William A. Jones, Minneapolis, term expired; Dr. Harry G. Irvine, Minneapolis, was appointed director of the newly created division for the control of venereal diseases; Dr. Christopher Graham, Rochester, was reelected vice president of the board.

**Elections.**—At the semiannual meeting of the Red River Valley Medical Association held in Crookston, Dr. Herman W. Froehlich, Thief River Falls, was elected president; Dr. Franklin M. Dryden, vice president, Dr. Ralph L. Kirsch, Crookston, secretary.——The annual meeting of the Park Region District Medical Society was held at Fergus Falls, January 9, and the following officers were elected: president, Dr. Arthur G. Kessler, Battle Lake; vice presidents, Drs. Peter Boysen, Pelican Rapids, and Otto M. Haugan, Fergus Falls; secretary-treasurer, Dr. Carl O. Estrem, Fergus Falls.

**Personal.**—Dr. De Wayne Townsend has been appointed local surgeon for the Minneapolis, St. Paul and Sault Ste. Marie Railway at Belgrade.——Dr. Charles W. More, Eveleth, has been appointed a member of the advisory commission of the State Sanatorium for Consumptives, succeeding Dr. H. Longstreet Taylor. At the annual meeting of the commission, January 12, Dr. Edward T. Sanderson, Minnesota, was elected vice president; Dr. Patrick A. Smith, Faribault, secretary, and Dr. Robinson Bosworth, St. Paul, was elected executive secretary.——Dr. Ignatius J. Murphy, St. Paul, executive secretary of the Minnesota Public Health Association, has resigned to enter the military service.——Dr. C. R. Crandall has been appointed a member of the Park Board of Thief River Falls.

## NEW YORK

**Fronczak Reappointed.**—Dr. Francis E. Fronczak has been retained as health commissioner of Buffalo by Mayor Buch, under whose jurisdiction the health department is placed as a part of the department of public safety. Dr. Fronczak had served as health commissioner for eight years.

**Overcrowding in State Hospitals.**—The annual report of the State Charities Aid Association to the State Hospital Commission shows that the total capacity of the thirteen state hospitals for the insane is rated at 27,890, and that at the end of the fiscal year they contained 34,798 inmates, or an excess of 25 per cent. The report directs special attention to the overcrowding in the metropolitan district, which leaves the Manhattan, Central Islip, Brooklyn and Kings Park state hospitals with one half of the total overcrowding in the state.

**Control of Venereal Diseases and Marriage.**—At the last session of the legislature an amendment to the marriage relation law was passed which, it is hoped, will become an important factor in educating the people of the state as to the importance of clean marriages. This amendment was urged by Health Commissioner Herman M. Biggs, and to aid in its enforcement the commissioner has addressed a circular letter to town and county clerks who issue marriage licenses requesting their cooperation and asking them to post a card accompanying the letter containing in poster form the following information: "Men and women! Do you know you cannot marry unless you receive a license? No license will be issued until you both swear to the following statement: 'I have not to my knowledge been infected with any venereal disease, or if I have been so infected within five years I have had a laboratory test within that period which shows that I am now free from infection from any such disease.'"

### New York City

**For Rockefeller Hospital.**—The Billings estate on Washington Heights, comprising 57 acres, which was purchased by John D. Rockefeller, Jr., last year, is to be converted into a war hospital. Plans have been filed providing for the expenditure of about $500,000 in remodeling the house and erecting other buildings necessary to the completion of a hospital system.

**Associated Out-Patient Clinics of New York City.**—The annual meeting of this organization was held on January 25 at the Presbyterian Hospital. Dr. Charles Hendee Smith read a paper on "Voluntary Workers in Dispensaries," in which he suggested the use of nonmedical volunteers in clinics to attend to the clerical work. At Bellevue Hospital an average of twenty volunteer workers is constantly employed, with a great saving of the doctors' time. The public is at this time more than ready to respond to a call for help of this kind.

**Children's Division of Bellevue.**—The Children's Medical Division of Bellevue Hospital has been reorganized during the last eighteen months. It is ready to offer to graduates in medicine an opportunity to do work in the wards and outpatient department. It is believed that any physician who is able to spend two months or more working in this service will find it profitable. No formal teaching is offered, but the opportunity is given to make rounds and study patients in the wards with members of the house and attending staffs, and to work in the outpatient department under the direction of the attending staff.

**Scientific Body Presents Medals.**—On the occasion of the annual banquet of the National Institute of Social Sessions, gold medals were awarded to Dr. William J. Mayo, Herbert Hoover, food administrator, and Henry P. Davison, chairman of the war council of the American Red Cross, in recognition of their humanitarian work. Presentation medals for services in their special fields were awarded to Dr. Thomas W. Salmon, Prof. Charles A. E. Winslow, Prof. Irving Fisher, and John A. Kingsbury, ex-commissioner of charities of New York.

**Personal.**—Major Grayson M. P. Murphy, who has had charge of the field work of the Red Cross in Europe, has returned to New York to report on his work. Major Murphy will return to France shortly.——Dr. Edward L. Kellogg of Gouverneur Hospital, who was sued for $50,000 damages by William Berlman for the loss of two toes, alleged to be due to the manner in which Dr. Kellogg conducted an operation, was recently acquitted and vindicated by the supreme court.——Dr. Frank J. Monahan was appointed secretary to the Brooklyn Board of Health, January 16, succeeded Dr. Alfred E. Shipley, resigned.

**Prevention of Infant Mortality.**—Representatives of the American and British associations for the study and prevention of infant mortality met, January 25, under the presidency of Mrs. William Lowell Putnam. Among the speakers were Miss Julia C. Lathrop, chief of the Children's Bureau at Washington; Dr. S. Josephine Baker, director of the Bureau of Child Hygiene of the New York City Department of Health, and Dr. J. Morris Slemons, professor of obstetrics at Yale, who spoke on the subject of prenatal care. The Countess of Aberdeen outlined the work that was being done in the British Isles in the way of child welfare.

**Red Cross School for Cripples.**—The American Red Cross has received a gift of $50,000 from Jeremiah Milbank to be used in establishing in this city a school for disabled and crippled men and for the reeducation of maimed soldiers and sailors. The school will be located at 311 Madison Avenue, New York. All the plans have been perfected, and the members of the staff have spent the past six months in the study of methods employed in Europe in the rehabilitation of disabled soldiers. The enterprise is under the supervision of a committee consisting of Douglas C. McMurtrie, director; Lieut.-Col. C. H. Connor, Washington, Capt. Sidney R. Burnap, M. R. C., and Dr. Richard M. Pearce, Philadelphia.

## NORTH DAKOTA

**Personal.**—Dr. D. Edward Ryan has been appointed local surgeon for the Chicago, Milwaukee and St. Paul, the Minneapolis, St. Paul and Sault Ste. Marie railways at Hankinson.

**New Officers.**—At the annual meeting of the Northwestern Medical Association, held in Minot, January 16, the following officers were elected: president, Dr. Edward M. Ransom, Minot; vice president, Dr. Frederick K. Kolb, Granville, and secretary-treasurer, Dr. Peter A. Nestos, Minot.——At the annual meeting of the Grand Forks District Medical Society, held in Grand Forks, January 7, Dr. Thomas Mulligan was reelected president and Dr. William H. Witherstine was reelected vice president; Dr. Henry J. Friesen was elected secretary, and Dr. Henry W. F. Law, treasurer.

## PENNSYLVANIA

**Hospital to Care for Contagious Diseases.**—The Charity Hospital Association, Norristown, to save the state aid to the hospital, will care for contagious diseases and will erect a new building for this purpose. Norristown has no contagious disease hospital, which makes it necessary for such cases to be handled at homes, necessitating long quarantines, and the board of health of that city has been urging this step for years.

**Personal.**—Dr. Rollen L. Shinaberry, Scranton, has so far recovered that he has left the State Hospital.——Dr. John T. Harbold, Dallastown, sustained serious internal injuries, January 17, when his automobile ran into a telephone pole. ——Major Jonathan M. Wainwright, Scranton, chief of staff of the base hospital, Camp Greene, Charlotte, N. C., is ill with pneumonia.——Dr. John Szlupas, formerly practitioner of Scranton, was president of the convention of Lithuanian delegates at Stockholm, January 4, which resulted in a formal declaration of freedom on the part of the Lithuanians.——Dr. John G. Wilson has been appointed resident physician at the Hillside Sanitarium for Mental Defectives and Indigents, near Scranton.——Dr. Charles F. Palmer has been appointed chief surgeon of the Chambersburg Hospital.

### Philadelphia

**Northern Medical Drill Corps.**—At the suggestion of the Logan Medical Association and in cooperation with the Pennsylvania Committee of the Council of National Defense, there has been organized a drill corps for physicians. Its purpose is to familiarize physicians, who may obtain commissions, with military tactics necessary for medical officers, and to better fit physicians for the added work at home by keeping them physically fit. The purposes are accomplished by regular drills under competent drillmasters. Any physician in the city of Philadelphia is eligible for membership.

**Officers Elected.**—At the recent meeting of the County Medical Society, the following officers were elected for the ensuing year: president, Dr. Frank C. Hammond; vice presidents, Drs. John W. West, Maxmillian D. Bromfield, Edwin C. Cooke, J. Edward Wallis, John Welsh Croskey, Albert Buckley, Robert N. Downs and Charles Mazer; secretary, William S. Wray; assistant secretary, Elmer H. Funk, and treasurer, Edward A. Shumway.——At the meeting of the Medical Club of Philadelphia, held January 18, the following officers were elected: president, Dr. Albert P. Brubaker; vice presidents, Drs. G. Oram Ring and Alexander MacAlister; secretary, William S. Wray, and treasurer, Lewis H. Adler, Jr.

**Personal.**—Dr. Louis Weinstock, Germantown, has been appointed assistant physician to the Lucian Moss Home, and associate assistant to the Clinic for Diseases of the Lungs, in the Mathilde Loub Dispensary, both of which institutions are connected with the Jewish Hospital of Philadelphia.——Dr. David R. Faringer, chief of the surgical clinic of Garrettson Hospital and assistant surgeon of the institution, who was charged with attempting to bribe Dr. John M. Edgar, a police surgeon and examining physician for local draft board No. 3, was acquitted by jury in the federal court, January 7. It was charged that Dr. Faringer had tried to influence the physician of the draft to pass unfavorably on the physical condition of William E. A. Reed, who had been called for physical examination under the draft law.

## WASHINGTON

**New Officers.**—Pierce County Society at Tacoma, December 26: president, Dr. Saxe W. Mowers; vice president, Dr. Mary H. F. Perkins (reelected), and secretary-treasurer, Dr. Royal A. Gove (reelected).

**Personal.**—Dr. Walter J. Howells has succeeded Dr. Edgar L. Ingersoll as city physician of Spokane.——Dr. Hilbrand J. Hards has been appointed city health officer of Tacoma, succeeding Dr. Jonathan E. Henry, resigned to accept the position of state epidemiologist.

## WISCONSIN

**Personal.**—The Fond du Lac County Medical Society tendered a farewell banquet to Capt. Patrick R. Minahan, January 15. Captain Minahan has left for his post of duty, Fort Riley, Kan.

**New Officers.**—Brown-Kewanee County Medical Society, at Green Bay, January 10: president, Dr. Austin O. Olmsted; vice president, Dr. Charles O. Latham, and secretary-treasurer, Dr. Emile G. Nadeau (reelected).

## CANADA

**Dominion Convalescents.**—Under the command of Colonel Hanson, Montreal, five hotels in Derbyshire, England, have passed into possession of the Canadian overseas forces for use as convalescent homes for wounded Canadian officers and men. The Buxton Hydropathic, Palace Hotel, Devonshire Hotel, Grosvenor Private Hotel, and Pavilion Boarding House have been acquired by the war office for this purpose, and the Empire Hotel at Buxton is to be continued as a depot for discharged Canadian soldiers. The Peak Hydropathic Hotel is still used as a special Red Cross hospital for Canadians.

**Personal.**—Major Louis P. Gauthier, member of parliament for Gaspe, who is now in France in active service, has been renominated for parliament.——Major Robert A. Thomas, Toronto, who was with the Ontario Military Hospital at Orpington, England, and subsequently in France, has returned to Toronto on furlough.——Major W. Harley Smith, Toronto, who has been home for a short holiday, has returned to England.——Major Howard B. Jeffs, C. A. M. C., Toronto, who went overseas in 1915 and was awarded the military cross in September, 1916, was formally presented with that honor by the lieutenant-governor of Ontario on January 13 in Toronto. Major Jeffs attracted much attention in the fall of 1917 by his action in rescuing the Red Cross flag from the abandoned vessel when the hospital ship on which he returned to Canada ran aground on the rocks near Halifax.——Col. Robert D. Rudolf, Toronto, formerly professor of therapeutics in the medical department of the University of Toronto, has had conferred on him the new order of Commander of the British Empire. Colonel Rudolf has rendered valuable service as consulting physician to the Canadian forces in England and France.——Lieut.-Col. George S. Rennie, C. A. M. C., Hamilton, Ont., has been made a C. M. G. He has served for some time as A. D. M. S. of the Dover district and the Shorncliffe area.

**Hospital News.**—The Mount Sinai Sanatorium, Montreal, an institution for the treatment of destitute consumptives, treated 106 patients during varying periods of 1917. This sanatorium is a factor in the prevention of tuberculosis in the province of Quebec. The expenditure for the year amounted to $35,466.43.——An arrangement whereby Canadian soldiers returning from the front suffering from mental disorders will be treated in the provincial hospitals for the insane has been effected between the Military Hospitals Commission and the provincial governments of Canada. Under the arrangement the provinces which have the medical, nursing and administrative organizations will provide accommodation for the patients and the Dominion government will pay a certain sum per day for each soldier treated. Some of the provinces will have to add to their present accommodation. So far about 326 Canadian soldiers have returned to Canada insane, and it is stated that a like number similarly afflicted are still in England.——The year 1917 has been one of the hardest years for the Western Hospital, Montreal. The city of Montreal and the province of Quebec are being urged to undertake a part of the work of that institution in order that it may carry on. There was in 1917 a deficit of $40,324.79, as compared with $17,436.48 for 1916. Dr. Richard Kerry, the secretary, in his report, stated that the cost of a bed per day had risen from $2.47 in 1916 to $3.01 in 1917. Dr. F. J. Hackett, medical superintendent, reported a total of 1,388 patients having been admitted during 1917. The outdoor patient department had had 19,649 consultations, an increase of 1,424 over 1916.

## GENERAL

**Correction.**—The death of Lieut. Henry S. Pascal, noted in The Journal of January 26, is reported to be incorrect. The information was derived from the *Army and Navy Journal* of Dec. 1, 1917, which stated that Lieutenant Pascal had been reported dead since November 17.

**Venereal Disease Legislation.**—As a topic of foremost interest at present *Public Health Reports,* Jan. 18, 1918, contains a compilation of laws and regulations showing the trend of modern legislation for the control of venereal diseases. Representative laws and ordinances are given as enacted in the following states and cities: California, Indiana, Kansas, Massachusetts, Minnesota, Nebraska, South Carolina, Virginia, Vermont, Wisconsin and Washington; Louisville, Ky.; New York City, Charlotte, N. C.; Philadelphia, Spokane, Wash.; also the act of Congress of May 18, 1917, and an order of the President (1917) relating to prostitution near military camps.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Episcopal, St. Mary's and St. Christopher's hospitals, Philadelphia, each $1,000 by the will of James J. Grogan.

Home of the Merciful Saviour for Crippled Children, Philadelphia, $30,000 in trust, the income to be paid to persons connected with the home, and on their death, the principal to go to the institution; $500 to the House of St. Michael and All Angels for Colored Crippled Children, and $5,000 to the Home of the Merciful Saviour for the support of an inmate of the institution, by the will of Marian A. Blakiston.

State Charities Aid Association, and New York Association for the Blind, each $10,000, by the will of Hon. Joseph W. Choate.

Winnebago County, Wis., Tuberculosis Sanatorium, $24,000 by the will of Col. John Hicks, Oshkosh, Wis.

**Cancer Control.**—The American Society for the Control of Cancer has in its January bulletin reviewed the work of the year 1917, and through its executive committee has decided that in view of the fearful devastation of life on account of the war, it is more than ever important that it continue vigorously its work, and a war program has been outlined and approved. The program includes action by state medical societies in appointing special cancer committees, in securing laboratory diagnosis of suspected specimens, in having special meetings of county societies devoted to cancer, cancer editions of state and local medical publications, the enlistment of state and city boards of health, nurses, women's clubs, the holding of public meetings, etc.

**Campaign for New Members.**—The National Association for the Study and Prevention of Tuberculosis now has a membership of 2,500. It has been concluded that at this time if the association is to be of the greatest use to the nation the membership must be increased, and a campaign to secure 5,000 new members has been inaugurated. Under the plan adopted the states of the union have been apportioned and the number of new members to be secured assigned to each. Some states will be required to secure as low as ten, others as high as 450. In carrying on the appeal for new members the association is enlisting the cooperation of local and state tuberculosis organizations, and through this campaign it is expected that both national and state organizations will be benefited in their general work by the interest aroused among the people.

## FOREIGN

**Physicians in Danger in China.**—In a telegram from Peking, dated January 15, it is stated that three physicians, including Drs. Eckfeld and Lewis, Americans, sent to Feng Chen in Chang-Shi, a province west of Peking, to investigate epidemic diseases, were threatened by a mob which became angered by the efforts of the physicians to check the spread of disease. They requested military protection.

**Swedish Association Prize to Giertz.**—The Jubilee prize was awarded this year to K. H. Giertz for his research on surgery of the lung and the best methods for maintaining the respiration therewith. He demonstrated the inadequacy and dangers of differential pressure procedures, while he confirmed the efficiency and harmlessness of the Meltzer-Auer insufflation technic. A point brought out in his experimental operations on the lungs was the importance of capping the stump of the bronchus with a flap from the fascia lata to ward off infection and empyema.

**British Ophthalmologists to Meet.**—The annual congress of the Ophthalmological Society of the United Kingdom will be held in London, May 2, 3 and 4, under the presidency of E. Treacher Collins, F. R. C. S. The session of the first day will be held at the rooms of the Royal Society of Medicine; on the second morning a visit will be made to the Metropolitan Asylums Board Ophthalmia School, Swanley. In the afternoon a visit will be made to the museum of the Royal College of Surgeons, and the evening session will be held at the Royal Society of Medicine. The session of May 4 will be clinical, and will be held at the National Hospital for Paralysis, Queen's Square.

**The National Medical Institute of Mexico.**—This institution was founded in 1890 for research on and exploitation of the flora, fauna, climatology and geography of Mexico, and for many years carried on this work. Especial efforts were made to classify and study the action of the native medicinal plants, and detailed reports were published from time to time for several years. A number of plants were found which have decided medicinal value, and native species which might be advantageously substituted for imported drugs. Among these were the axocopaque or native wintergreen, the yoloxochitl with an action like that of digitalis, and others with diuretic and purgative action, or valuable as dyes. One plant, the candelilla, said to be a cure for syphilis, was found useless in this respect, but has proved an important source for wax. A recent official decree has transformed the institute into the Institute of General and Medical Biology, and it thus enters on a new career.

**Swedish Medical Association Elects Kraepelin Honorary Member.**—At the meeting of this association in September a letter of thanks from Prof. E. Kraepelin, the psychiatrist of Munich, was read expressing his appreciation for his recent election as honorary member of the society. He said, "We Germans in the world war which we are waging for our right to exist (*Daseinsberichtigung*) have experienced so little kindness from other countries that we are particularly grateful for every friendly voice from foreign lands. I regard your action as a sign that even the most terrible war cannot completely tear away the bands which link our science." At the same sitting the gold Anders-Retzius anatomy medal for 1917 was conferred on the Berlin biologist, Prof. O. Hertwig. The foreign associate members elected during the year were H. Spitzy and G. Holzknecht of Vienna, K. Biesalski of Berlin, Albers-Schönberg of Hamburg, A. Kohler of Wiesbaden, A. J. Carlson of Chicago, O. Folin of Harvard and R. Jones of Liverpool.

## LONDON LETTER

London, Jan. 8, 1918.

### Explosive Phenomena in Gunshot Injuries

At the Royal Society of Medicine, Mr. S. G. Shattock read an important paper in which he pointed out that these injuries are contused wounds like those produced by other foreign bodies, but with a special factor introduced—the high velocity of the penetrating body—which gives them their characteristics. Under the term "explosive effect" more than one thing is included: (1) the increase of damage due to the shattering of the bullet; (2) the additional injury resulting from the comminution of a bone and the dispersal of its fragments; and (3) the damage resulting from the high velocity of the missile. The last alone has any special pathologic interest. A German surgeon, Prof. K. Stargardt, has asserted that the British bullet is an expanding one, in consequence of the core being composed of aluminum at the point, and elsewhere of lead; that on striking (bone at least) the momentum of the lead carries this forward over the harder aluminum, and so splits the mantle. This statement has the usual amount of veracity—or rather want of veracity—which distinguishes German assertions in connection with the war.

#### RESULTS OF EXPERIMENTS

In order to test the point, Mr. Shattock had made the following experiment: A bullet was fired at a distance of 20 feet through a sternum, into cotton waste, from which it was recovered without having struck any second object. The sternum was selected in order to obtain a direct hit. The bullet was found to have undergone no distortion whatever. Two sternums were then spliced together and shot through in the same way; the bullet, on recovery, was found quite undamaged. In solid organs the results of high velocity are best seen in the liver when perforated by rifle bullets at close range. The typical injury is a perforation accompanied with radial fissuring of wide extent. Even here the elimination of extraneous factors, such as obliquity of impact, or turning of the missile in transit, damage due to the introduction of clothing, can be effected only by experiment. On firing through suspended sheep livers at 20 feet with a service rifle and pointed bullet, the typical injury was produced; the mechanical action of gas produced by explosion was eliminated by the distance. On analysis of the physics of this result, the wave of compressed air produced by the bullet (demonstrated by Prof. Vernon Boys in instantaneous photographs) was wholly negligible. Mr. Shattock found that if tense screens of tissue paper were shot through at 20 feet with a service rifle, the hole was but little larger than the bullet. If the air wave were of any moment, the paper would have been widely rent. Sir Victor Horsley, in commenting on the cavitation produced in his experiments of firing into clay, attributed more importance to the spin of the bullet (centrifugal action) than to its forward movement. Mr. Shattock carefully inspected all the plaster casts made from the clay in these experiments, and was unable to find the evidence of such rotation; the coarser ridges (representing shallow fissures in the clay) as well as the finer markings were longitudinal. The present British bullet makes a revolution only in 10 inches, yet explosive effects occurred in the sheep livers before referred to, in which the thickness was only 1½ inches, which would reduce the rotation to less than a fifth of a revolution. In only one specimen—in the war collection at the Royal College of Surgeons—are the divergent fissures curved; here the bullet traversed the body of the third lumbar vertebra first, and must have had some altogether exceptional twist imparted to it. The question is thus reduced to one of forward velocity. This is well shown in the liver by the fact that in perforations caused by shell fragments at low velocity a patulous tunnel alone results. The same difference is beautifully demonstrated in Horsley's casts, in which the distal half is only of the caliber of the bullet, the explosive or dilating effect being limited to the proximal. In the case of the clay, the ready entrance of air from behind allows of its cavitation; in the liver, where this is out of the question, the cavitation is represented by radial fissuring produced by the passage of the wave through an incompressible semisolid medium.

#### EFFECTS ON HOLLOW ORGANS

In hollow organs, the production of explosive effects depends on their contents, other things being equal. Such effects from rifle bullets are not observed in the stomach or intestine, by reason of the compressible air and gas which they contain, nor in the lung, for the same reason. The contusion, unattended with breach of surface, found, not rarely, in such organs, is possible from their extreme mobility and compressibility. The longitudinal wounds produced at times in the intestine by intact bullets are explained by the wall having been struck axially. In the case of the bladder, the contents of which are incompressible, explosive results are now and then encountered. In the collection there is a bladder perforated by a rifle bullet which entered through the buttock without fracturing bone, and eventually escaped above the pubes; in the posterior wall of the bladder is an entry admitting the finger; the anterior wall (exit) was rent from top to bottom. Mr. Shattock obtained similar explosive results by firing through the bladders of oxen distended with water, a service rifle being used at 20 feet. The result is a simple hydrodynamic one, and due to the wave imparted to a mobile and incompressible fluid in a confined space. If the bladder is empty, or only lightly filled, the rending on the far side does not take place. In arteries and veins, no hydrodynamic effect is observable, whether in unilateral or bilateral perforation. Its absence is possibly due to the indefinite continuity of fluid above and below the stricken spot and to the remarkable strength of both vessels. Mr. Shattock failed to produce either macroscopic or microscopic damage of the inner or middle coats of the human common iliac artery under the highest pressure possible with a dissecting-room syringe.

#### DAMAGE TO BONES

In regard to the skeleton, rigidity is a complicating factor. If the upper part of the shaft of the tibia is compressed over a small area in a vise, however slowly, extensive comminution and fissuring ensue far beyond the spot compressed. Nevertheless the same rule holds: the greater the velocity of the missile, the greater the damage. The classical example of explosive effect is the well known widespread comminution of the skull when bilaterally perforated by a rifle bullet at close range. The effects due to the gas of explosion must, of course, be excluded. The results of suicidal shooting are thus liable to lead to false conclusions; a rifle fired into the mouth with blank cartridge produces extensive comminution. This factor, however, is easily eliminated. Mr. Shattock has found, too, that sheep skulls with the brain in situ are extensively comminuted when shot through at 20 feet with a service rifle, the foramen magnum being freely open. The result is not, properly speaking, hydraulic but hydrodynamic—that is, it is not due to a generalized and equable internal pressure, but to the sudden impact of the incompressible cerebral substance against the interior of the cranium. A simple experiment emphasizes this. A large flat-sided cocoa tin was shot through in the empty state at 20 feet with a service rifle; a circular entry and exit of about the diameter of the bullet resulted. A second tin was filled with water and shot through, the lid being removed; the entry was small and circular, the exit widely split, with large triangular flaps of the metal completely everted. Mr. Shattock obtained pronounced explosive effects also in sheep skulls inverted and filled with water, the foramen magnum being freely open; if the skull was shot through in the empty condition, a circular entry and exit alone resulted.

### Elizabeth Garrett Anderson

Mrs. Elizabeth Garrett Anderson, M.D., has died at the age of 81 years. She was one of the pioneers of the emancipation of women—the opening to them of work that had previously been confined to men—and was the first woman to secure a medical diploma in this country. She encountered many obstacles and even violent hostility, but continued her course with dauntless courage in the cause of what she regarded as justice. Elizabeth Garrett was born in Suffolk in 1836, and after her marriage was known as Mrs. Garrett Anderson. Her attention was attracted to medicine by Miss Elizabeth Blackwell, an Englishwoman who had emigrated to the United States, and, after many fruitless attempts to enter various medical schools there, was permitted to graduate with the degree of M.D. at the Medical Institution of Geneva, N. Y., in 1849. Ten years afterward, on the strength of this foreign qualification, and of her having prescribed for friends during a visit to England, she was put on the British Medical Register. Miss Garrett was the first woman to secure an English diploma, though Miss Blackwell had precedence of her as regards registration in this country. She began her medical studies in 1860, but encountered two great difficulties. No medical school would receive her, and no examining body would examine her. At the Middlesex Hospital the male students presented a memorial against the admission of women. She made repeated attempts elsewhere, only to be repulsed. After a time the Society of Apothecaries was advised by its lawyer, Mr. Hanen, who afterward became a distinguished judge, that as the purpose of its charter was to enable it to sell drugs, and as there was no legal ground for refusing to allow a woman to sell drugs, the society could not refuse to admit a woman to the examination to its license. This license was one of the qualifications in those days that enabled a person to practice as a physician. The society, therefore, authorized Miss Garrett to get her education privately from teachers of medical schools, and in 1865 licensed her to practice. In 1866 she opened a dispensary in London for the benefit of poor women and children. In the meantime the Society of Apothecaries adopted a new rule that refused recognition of certificates granted for private study, and the late Miss Jex Blake and other women who followed in the footsteps of Miss Garrett had to go to Paris in order to obtain the M.D. degree. Miss Garrett was thus able to obtain assistance in her work at the dispensary, which she had been carrying on alone. From this dispensary developed the well known New Hospital for Women, which is staffed entirely by women physicians. In 1870, Miss Garrett became a candidate at the London school board election, and was returned at the head of the poll. In 1871, she married Mr. J. G. S. Anderson of the Orient Line of steamships, but she lost none of her zeal for the profession and continued to devote herself to the diseases of women and children. In 1874, Miss Jex Blake returned from Edinburgh, having failed to secure admission to the medical schools. Her attempt aroused so much feeling that she and her friends were mobbed by the male students. Mrs. Garrett Anderson thereupon joined with Miss Jex Blake and others in establishing the London School of Medicine for Women, which afterward became attached to the Royal Free Hospital. In 1876, a more enlightened public opinion and the excellent work done by Mrs. Garrett Anderson and other women physicians led to the passing of a bill in Parliament enabling the examining bodies to extend their examinations to women as well as men. The King and Queen's College of Physicians in Ireland was the first to take advantage of this enactment, but the feeling in the profession against women physicians remained strong, and Mrs. Anderson was the only woman member of the British Medical Association until 1892, when the rule that prevented the admission of women was repealed. For twenty-three years Mrs. Anderson was lecturer on medicine at the London School of Medicine for Women, and for ten years its dean. In 1896-1897 she was elected president of the East Anglian Branch of the British Medical Association, and in 1908 she was elected mayor of Aldeburg, where she had her home, being the first woman mayor in England. In her family are several distinguished members. Her sister, Dr. Garrett Fawcett, married Mr. Fawcett, the celebrated blind postmaster general, to whom she acted as medical adviser. Her son, Sir Alan Garrett Anderson, is controller of the navy. Her daughter, Dr. Garrett Anderson, organized the first hospital run by women at the front, and is now the head of a military hospital in London, staffed entirely by women.

## PARIS LETTER

Paris, Dec. 27, 1917.

### Treatment of War Wounds of the Lung

At a recent meeting of the Paris Société de Chirurgie, Dr. P. Duval, assistant professor in the Faculty of Medicine of Paris, and surgeon to the hospitals, reported on the surgical treatment by three operators in twenty-one cases of lung wounds: Hertz (thirteen cases), Vielle (seven cases) and Tanton (one case). These cases may be classified in three distinct groups: (1) urgent surgery for "open thorax," hemorrhage or asphyxia; (2) immediate removal of projectiles lodged in the lung, and direct treatment of the lung wound; (3) early intervention for pleuropulmonary complications. The mortality in this series was 38 per cent. (eight cases). In the group of twelve cases of hemorrhage or asphyxia, there were six deaths. The systematic treatment of lung wounds, excepting all urgency treatment, was carried out in four cases with 100 per cent. of success. The treatment of "open thorax" by simple parietal occlusion (two cases) resulted in 100 per cent. mortality. Finally, in four cases of pleuropulmonary sepsis treated by pleurotomy, progressive sterilization of the pleural cavity and secondary closure, the patients all recovered.

#### ANALYSIS OF RESULTS

These twenty-one cases enable one to make a survey of the results obtained with these various methods of treatment of wounds of the lung in the army. Immediate intervention for hemorrhage was indicated most often because the open thorax was accompanied by menacing external bleeding. The first group of twelve cases of pulmonary hemorrhage demonstrates again that this condition does not result fatally on the field, at the first aid station or during transport, but permits the wounded to go to the surgical ambulance. These cases also demonstrate the possibility and the necessity of an urgent thoracotomy to check the hemorrhage from the lung.

At the same meeting, Duval and Vaucher communicated the statistics on all lung wounds observed during two recent attacks in one surgical sector of the armies. These statistics include the results of the medical formations in the rear of the regimental first aid stations: evacuating stations, surgical groups and advanced surgical groups, and surgical automobiles. The total number of cases was 161, with a mortality of twenty-seven, or 16.7 per cent., including those dead on arrival at the sanitary formation, those who had been cared for, operated on or not, and those having many wounds, even when death was due to some other lesion than the lung wound. Of the 161 patients, thirteen were dead on arrival; twenty-nine had been operated on at once for hemorrhage, open thorax, or severe visceral trauma: the general mortality in these emergency operation cases was thirteen, or 44.8 per cent.

Duval and Vaucher insisted especially that a certain number of operations are necessary—not urgent—but for the purpose of extracting an intrapulmonary projectile, and the lung wound is then treated subsequently. Of the remaining 119 cases of lung wounds, in seventeen (14.2 per cent.) this treatment had been applied and expectant treatment was adopted in 102 (85.8 per cent.). The seventeen patients treated according to the general therapeutic principles usually employed in all cases of shell wounds recovered. In the 102 cases in which expectant treatment had been given, only one case terminated fatally, the result of a severe pleural infection proceeding from an unrecognized fracture of the scapula. Six cases of purulent pleurisy ended in recovery.

It is evident that the treatment of war wounds of the lung by early surgical intervention has yielded good results. These cases can and should be likened to any other war wound, and should, therefore, be treated in accordance with the same general and local principles. It seems incontestable that the application of this idea of treatment of these wounds of the lung has very notably improved the prognosis in these cases.

### Primary and Secondary Suture of War Wounds

Dr. G. Potherat, surgeon in chief of the general surgical clinic, discussed this subject before the Paris Société de Chirurgie recently. Of 1,005 wounds of all kinds, 221 were sutured primarily and 459 secondarily. Among the former there were only two complete failures and eleven incomplete or partial failures. The former were due to an insufficient excision; the partial failures were due to insufficient hemostasis. Potherat states that he never sutures primarily when it is a question of a seton extending deeply, or with a sinuous track, or of grave bone fractures, or when the wound is more than twelve hours old. When he does not suture primarily, he endeavors to make a secondary suture according to the following technic: After systematic and thorough clearing out of the wound, he subjects it to continuous or intermittent irrigation, or applies a simple wet dressing with a 12.5 per cent. solution of magnesium chlorid to which 0.125 gm. of ammonium chlorid has been added. With this cytophylactic solution of magnesium chlorid, which he prefers to Dakin's solution (which sometimes causes burns and even sloughs), he obtains in from eight to ten days, at the latest, usually in two or three days, a complete arrest of suppuration and a falling of the temperature. Then, after having laved the wound well, even applying friction, with 1 or 2 liters of a lukewarm solution of magnesium chlorid, the wound is united either by suture, or, if the wound edges contact well, by means of adhesive or collodionized bands. Results are obtained more quickly if heliotherapy is used in conjunction with the magnesium chlorid.

### Unsecured or Honor Loans to Prisoners of War

A large number of prisoners, whose pride forbade them from accepting gratuitous assistance from the Committee of Help (Comité de secours), have long been asking for the creation of a fund from which they could secure a loan to be repaid after the war. Such a fund has been created and placed under the auspices of the Central Office of Benevolent Works and of the agency for prisoners of war of the French Red Cross. The latter has set aside 10,000 francs ($2,000) for this purpose.

# Deaths

**Major Frederick Hadra, M. R. C., U. S. Army,** San Antonio, Texas; aged 50; died at his station, Fort Shafter, Hawaii, December 28, from acute dilatation of the heart. Major Hadra was a native of Berlin, Germany, took his medical course at the College of Physicians and Surgeons in the City of New York, and later was graduated from the Texas Medical College and Hospital, Galveston, Texas, in 1890. From 1893 to 1898 he was surgeon of the First Texas Volunteer Infantry, and at the outbreak of the war with Spain was commissioned Major, First Texas Cavalry, U. S. V. On the muster out of this organization, he accepted a position as acting assistant surgeon, U. S. Army, and was ordered to Santiago, Cuba, where he served through the yellow fever epidemic, contracting the disease himself. In 1899 he was ordered to the Philippine Islands with the Thirty-Third Infantry, U. S. V., and participated in the battles of San Jacinto and Fagedin Pass, and was the surgeon accompanying the Gilmore Rescue Party. He served in the Philippine Islands for the second time in 1901 to 1903, and made his third trip to the islands in 1908. From 1909 to 1916, he practiced medicine in San Antonio. He then accepted a commission in the Medical Reserve Corps, was ordered to duty at Fort Bliss, Texas, and was transferred in January, 1917, to Schofield Barracks, Hawaii, and from there in September of the same year on duty to Fort Shafter, Hawaii, as post surgeon. Major Hadra was a Fellow of the American Medical Association, and had served as president of the Scientific Societies, and Pan-Hellenic Association of San Antonio. He was a man of charming personality much esteemed by all who knew him, and his death is a distinct loss to the military service.

Died in the Service

Lieut. Stephen Ballard Rybolt, M.D., M. R. C., U. S. Army, 1874-1918

(*See The Journal, last week, p. 255*)

**John Bassett Chapin, M.D.,** Canandaigua, N. Y.; Jefferson Medical College, 1853; aged 88; formerly a member of the Medical Society of the State of New York; once president of the American Psychological Association; medical superintendent of Brigham Hall, Canandaigua, N. Y., from 1860 to 1869; medical superintendent of the Willard (N. Y.) State Hospital from 1869 to 1884; physician in chief for the Pennsylvania Hospital for the Insane, Philadelphia, 1884 to 1911; who first recommended changes in asylum construction to provide for the segregation of the insane in detached blocks or buildings according to classes and conditions; the author of a number of monographs on the care and treatment of the insane; died at his home, January 17.

**William Henry Lathrop, M.D.,** Lowell, Mass.; University of Pennsylvania, Philadelphia, 1865; aged 77; a member of the Massachusetts Medical Society; editor of the *Detroit Review of Medicine and Pharmacy* from 1865 to 1873; physician to the Detroit Retreat for the Insane for four years, and physician to the Wayne County Insane Asylum for two years; from 1875 to 1883 physician to the State Alms House; a veteran of the Civil War, in which he served as assistant surgeon to the Fifty-Fifth Massachusetts Volunteer Infantry, and also as acting assistant surgeon, U. S. Army; a member of the local school board from 1892 to 1900; died at his home, December 22.

**William Hanna Thompson, M.D.,** New York City; Albany (N. Y.) Medical College, 1859; aged 84; a member of the Medical Society of the State of New York, and a fellow and once president of the New York Academy of Medicine; assistant physician to the Quarantine Hospital, New York City, 1859 to 1861, and medical inspector during the Civil War; for many years professor of medicine in the New York University Medical College; attending physician to Bellevue, Roosevelt, and the Manhattan State Hospital, Ward's Island, N. Y.; died at his home, January 18.

**Albert H. Varney, M.D.,** Newfields, N. H.; Baltimore Medical College, 1892; aged 81; a practitioner since 1857; formerly a Fellow of the American Medical Association; a member of the New Hampshire Medical Society; in 1871 a member of the legislature from Newfields, and from 1867 to 1870 assistant surgeon of the Second Infantry, New Hampshire National Guard; for twenty-three years town clerk of Newfields, and for several terms a member of the board of selectmen; a member of the local board of health; died at his home, January 16.

**William Ellery Jennings, M.D.,** Brooklyn; Bellevue Hospital Medical College, 1895; aged 43; formerly a member of the Medical Society of the State of New York; for sixteen years a member of the staff of the board of health of New York and Brooklyn, first as an inspector, then as a diagnostician, and at the time of his death on duty with the Wassermann clinic; also a graduate in pharmacy; died in the Lutheran Hospital, East New York, January 17, from pneumonia, following a surgical operation.

**Thomas Prioleau Whaley, M.D.,** Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1892; aged 47; a Fellow of the American Medical Association, and a member of the Southern Surgical and Gynecological Association; professor of urology in his alma mater; died in the Baker Sanatorium, Charleston, January 14, from burns accidentally received, December 28, when his bathrobe caught fire from an open gas heater.

**Thomas Joseph O'Donnell, M.D.,** Baltimore; University of Maryland, Baltimore, 1903; aged 38; formerly a member of the Medical and Chirurgical Faculty of Maryland; associate professor of surgery in Maryland Medical College, Baltimore, and chief of clinic to the chair of operative surgery, and chief of the outdoor surgical department of St. Joseph's Hospital, Baltimore; died at his home, January 9, from heart disease.

**Henry Fleischner, M.D.,** New Haven, Conn.; Yale University, New Haven, 1878; aged 72; a Fellow of the American Medical Association; senior attending physician at St. Raphael's Hospital, New Haven; formerly attending physician at the New Haven Dispensary and New Haven Hospital, and president of the New Haven Board of Health; died at his home, January 20, from lobar pneumonia.

**Henry Bidlack Reed, M.D.,** Milford, Pa.; University of Pennsylvania, Philadelphia, 1873; aged 67; formerly major-surgeon of the Third Infantry, N. G. Pa.; district physician of the Philadelphia Dispensary; assistant demonstrator of anatomy and practical surgery in his alma mater; and chief of the ear clinic of the University Hospital, Philadelphia; died at his home, January 1.

**George F. Nealley, M.D.,** Pleasanton, Kan.; Chicago Medical College, 1870; aged 75; a veteran of the Civil War; formerly a member of the Kansas legislature, and from 1883 to 1893 physician of the State Penitentiary, Lansing; and from that time up to four years ago examining surgeon at the Soldiers' Home, Leavenworth; died at his home, December 25, from cerebral hemorrhage.

**Howard Malcolm Essick, M.D.,** Essick Heights, Pa.; New York University, New York City, 1881; aged 79; a member of the Medical Society of the State of Pennsylvania; for many years a practitioner of Picture Rocks, Pa., and proprietor of a large hotel at Essick Heights; died in the Mary M. Packer Hospital, Sunbury, Pa., January 12, from cerebral hemorrhage.

**Capt. Richard Alfred Ireland, C. A. M. C.,** Guelph, Ont.; University of Toronto, 1911; aged 27; who went overseas in

July, 1915, and had been on duty in the front line for more than two years, including the battles of the Somme and Vimy Ridge; was killed while on active service with the Canadian Expeditionary Forces in France, in November, 1917.

**William Cranston Post, M.D.,** Maquoketa, Iowa; College of Physicians and Surgeons in the City of New York, 1881; aged 68; formerly a member of the Iowa State Medical Society; a member of the consulting staff, and medical director of the Iowa Sanatorium, Maquoketa; died at his home, January 12, from cerebral hemorrhage.

**Liser Augustus Bilisoly, M.D.,** Norfolk, Va.; Hahnemann Medical College, Philadelphia, 1855; aged 84; for more than twenty years surgeon of the Seaboard and Roanoke Railroad, and for many years surgeon of the Fourth Infantry, Virginia Volunteers; died at the home of his son-in-law in Norfolk, January 8, from bronchopneumonia.

**Dodson Christian, M.D.,** Springdale, Ark.; Washington University, St. Louis, 1880; Bellevue Hospital Medical College, 1888; aged 66; a Fellow of the American Medical Association; vice president of the First National Bank of Springdale, and a member of the local board of education; died at his home, January 12, from angina pectoris.

**Frank Webster Thomas, M.D.,** Claremont, Calif.; Starling Medical College, Columbus, Ohio, 1880; aged 64; a Fellow of the American Medical Association; formerly of Marion, Ohio, but since 1899 a resident of California; president of the Pomona Telephone Company; died at his home, December 12, after a surgical operation.

**John Quincy Allen, M.D.,** Montrose, Colo.; Medical College of Indiana, Indianapolis, 1883; aged 63; a Fellow of the American Medical Association; proprietor of Telluride Hospital; while on his way to make a professional call at Cimarron, January 7, during a blinding snow storm, died in his automobile, from heart disease.

**Peter Duncan Whyte, M.D.,** Pipestone, Minn.; College of Physicians and Surgeons, Chicago, 1902; aged 43; formerly a Fellow of the American Medical Association; also a graduate in pharmacy; for several years a practitioner of Hardwick, Minn.; died at his home, January 17, from intestinal obstruction.

**Capt. Edward M. Sheehan, M. C., N. G., U. S.,** Independence, Iowa; Northwestern University Medical School, Chicago, 1905; aged 38; a Fellow of the American Medical Association; while serving with the First Infantry at Camp Cody, Deming, N. M., died from pneumonia, January 12.

**Capt. Frank Keator, M. R. C., U. S. Army,** Kingston, N. Y.; Albany (N. Y.) Medical College, 1903; aged 38; a member of the attending staff of the Kingston City Hospital; on duty at Camp Devens, Mass.; a Fellow of the American Medical Association; died at his home in Kingston, December 29.

**Lieut. Robert Ellis Foster, M. R. C., U. S. Army,** Carrollton, Ga.; University of Tennessee, Nashville, 1901; aged 44; a member of the Medical Association of Georgia; who had been on duty since June 30, 1917, at Camp Gordon, Ga.; died in the post hospital, January 12, from pneumonia.

**Lieut. Alvah Roy Thompson, M. R. C., U. S. Army,** Buckhead, Ga.; Eclectic Medical Institute, Cincinnati, 1911; aged 27; formerly a Fellow of the American Medical Association; local surgeon for the Georgia Railroad; died in Atlanta, Ga., December 22, from Hodgkin's disease.

**John William Keough, M.D.,** Elizabeth, N. J.; College of Physicians and Surgeons in the City of New York, 1889; aged 57; for many years a member of the staff of the Elizabeth Emergency Hospital; died at his home, January 2, from bronchial pneumonia.

**Herbert William Catlin, M.D.,** Grand Rapids, Mich.; Detroit Medical College, 1883; aged 56; formerly a member of the Michigan State Medical Society; died in St. Mary's Hospital, Grand Rapids, January 15, after an operation for gastric ulcer.

**Marion G. Chancey, M.D.,** Tampa, Fla.; University of the South, Sewanee, Tenn., 1903; aged 41; a Fellow of the American Medical Association; died at the home of his parents in Pierce County, Ga., January 8, from tuberculosis.

**John G. McKinney, M.D.,** Barry, Ill.; Rush Medical College, 1868; aged 81; a member of the Illinois State Medical Society; formerly president of the Pike County Medical Society; died at his home, December 3, from senile debility.

**Max Toeplitz, M.D.,** New York City; University of Freiburg, Germany, 1883; a member of the New York Otological Society; a specialist on diseases of the ear, nose and throat; died at his home, January 13, from pneumonia.

**Charles Taylor Jewett, M.D.,** New York City; College of Physicians and Surgeons in the City of New York, 1868; aged 70; a member of the Medical Society of the State of New York; died at his home, January 18.

**Maxwell Goldman, M.D.,** Boston; Boston University School of Medicine, 1913; aged 25; widely known for his charitable work among the poor of the West End, Boston; died at his home, January 14, after a long illness.

**Everett Russell Smith, M.D.,** South Pasadena, Calif.; Rush Medical College, 1873; aged 71; formerly a Fellow of the American Medical Association; died in Los Angeles, November 17, from myocarditis.

**Edward Fifield Root, M.D.,** East Burke, Vt.; Dartmouth Medical School, Hanover, N. H., 1893; aged 55; formerly a member of the Vermont State Medical Society; died at his home, January 6.

**Theodore F. Livengood, M.D.,** Elizabeth, N. J.; University of Pennsylvania, Philadelphia, 1875; aged 68; a Fellow of the American Medical Association; died at his home, January 12, from pneumonia.

**Hubert Anton Sumpmann, M.D.,** Dubuque, Iowa; Chicago Homeopathic Medical College, 1890; College of Physicians and Surgeons, Chicago, 1896; aged 53; died at his home, January 8.

**George Adolphus Newton, M.D.,** Point Place, Toledo, Ohio; University of Michigan, Ann Arbor, 1877; aged 62; died in Robinwood Hospital, Toledo, January 7, from pernicious anemia.

**Benjamin Gordon Boyce, M.D.,** Springboro, Pa.; Cleveland Homeopathic Medical College, 1903; aged 44; a veteran of the war with Spain; died at his home, January 6, from nephritis.

**Glover D. Martin,** Beaumont, Texas (license, Texas, act of 1907); aged 45; a practitioner for twenty-four years; died at his home, January 5, from chronic interstitial nephritis.

**William M. Arnold, M.D.,** Larned, Kan.; College of Physicians and Surgeons, Keokuk, Ia., 1867; aged 79; died at his home, December 5, from mitral insufficiency.

**George L. MacKinnon, M.D.,** Alton, Ont.; University of Toronto, Ont., 1905; aged 34; died at his home, September 16, from carcinoma of the rectum.

**Charles Israel Kelly, M.D.,** Hamilton, Ont.; McGill University, Montreal, 1891; aged 49; died in a hospital in Tucson, Ariz., December 29.

**J. Oscar Brown, M.D.,** Big Cabin, Okla.; University of Louisville, Ky., 1909; aged 31; died at his home, December 31, from pneumonia.

**A. E. Horn, M.D.,** Hot Springs, Ark.; University of Tomsk, Siberia, 1868; aged 77; died in the State Hospital, Little Rock, January 4.

**Harry Smith Chaffee, M.D.,** Rochester, Vt.; University of Vermont, Burlington, 1896; died at his home, January 1, from tuberculosis.

**John W. Bradfield, M.D.,** Charlotte, N. C.; Kentucky School of Medicine, 1882; died at his home, January 4.

## *Marriages*

CAPT. WHALEN AUGUSTUS MORRISON, M. R. C., U. S. Army, Los Angeles, on duty at base hospital, Camp Dix, Wrightstown, N. J., to Miss Lucile Gertrude Phillips of Los Angeles, in New York City, December 27.

ASST. SURG. DREW WILLIAM LUTEN, U. S. N. R. F., St. Louis, on duty at Great Lakes, Ill., to Miss Sarah Augusta Pack of Roanoke, Va., December 22.

LIEUT. HOWARD BARTON SWAN, M. R. C., U. S. Army, to Miss Mildred May, both of Chestertown, N. Y., January 12.

ALEXANDER L. BLACKWOOD, M.D., Chicago, to Miss Sylvia Bell of South Chicago, Ill., in Toronto, January 16.

CLARK E. CONGDON, M.D., Fort Plain, N. Y., to Miss Hester Helena Burgor of Schenectady, N. Y., January 9.

DONALD PUTNAM ABBOTT, M.D., to Miss Marion Dummer, both of Chicago, January 14.

WILLIAM CURTIS GIBSON, M.D., to Miss Helen Borum, both of Suffolk, Va., January 9.

DEFOREST WEEKS, M.D., to Miss Addie B. Wagner, both of Portland, Me., January 8.

# *The Propaganda for Reform*

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## NOSTRUMS IN RETROSPECT

### A Review of Worthless or Unscientific Proprietary Mixtures Previously Critized

[Foreword.—The article that follows is the fifth[1] of a series written primarily for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations which will be taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and sold indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[Article V]

## AMMONOL AND PHENALGIN

### By S. Q. Lapius, M.D.

At the time when synthetic chemical drugs were coming into fame and when every manufacturer who launched a new headache mixture claimed to have achieved another triumph in synthetic chemistry, Ammonol and Phenalgin were born. Of course these twins of analgesic pseudotherapy were claimed to be synthetics and were duly christened with "formulas." They were among the first of the nostrums examined for the Council on Pharmacy and Chemistry, and the false claims made for them were exposed.

The analyses made for the Council showed that Ammonol and Phenalgin were simple mixtures having the following composition:

| | ACETANILID | SODIUM BICARBONATE | AMMONIUM CARBONATE |
|---|---|---|---|
| Ammonol | 50 | 25 | 20 |
| Phenalgin | 57 | 20 | 10 |

The reports of the Council on, and numerous references to, these two nostrums may be found in The Journal of various dates.[2] The reports will prove interesting to those who are not familiar with, or have forgotten, the methods of nostrum exploiters at the time the Council was formed. Following the Council's exposure of the false claims made by the manufacturers of Phenalgin, the *Medical Record* published an advertisement of that nostrum in which an attempt was made to discredit the Council's report. The editor of the *Medical Record* was requested by the Council to publish the facts in the case but he refused to do so.

Long after the death of Dr. Cyrus Edson the claim was made that Phenalgin was made under his direction and that it was his "discovery." As a matter of fact, Dr. Edson had favored the use of Ammonol at one time, and when the Council exposed the false claims then being made for Phenalgin, The Journal charged that a fraud was being perpetrated on the medical profession. Despite the exposure of the methods used in exploiting Ammonol and Phenalgin, one finds just as glaringly false statements made in the advertisements of Phenalgin today as were made in its unsavory past. This would seem to indicate either that physicians have short memories or that they are strangely indifferent to the welfare of their patients, to their own reputations and to the good name of medicine.

The *New York Medical Journal* of Dec. 22, 1917, contained an advertisement of Phenalgin—it has been running for months—from which the following is quoted:

> "For the relief of pain the 'logical supplanter of opium and other habit-forming drugs' is Phenalgin. No matter how severe or where located pain is promptly and satisfactorily controlled by this effective anodyne—and without disturbing the digestion, suppressing the secretions, causing constipation or inducing a drug habit.
>
> "This is why Phenalgin has superseded opium and its derivatives for relieving Headaches, Rheumatism, Gout, La Grippe, Lumbago, Neuralgia, Disorders of the Female, Dysmenorrhea, and Painful Conditions generally. To thousands of physicians Phenalgin 'is the one dependable analgesic—the logical supplanter of opium.'"

If we are to suppose that the composition of Phenalgin is today essentially the same as when it was examined, the claims just quoted are obviously false for, of course, such a mixture must have the properties of acetanilid with all of its drawbacks and limitations. We may contrast the statements made in the advertisement just quoted with those made in *Bulletin 126* of the Bureau of Chemistry of the U. S. Department of Agriculture. This bulletin on "The Harmful Effects of Acetanilid, Antipyrin and Phenacetin" summarizes the replies received from four hundred physicians to whom a questionnaire had been sent. The information thus gained was tabulated and the figures that follow are from these tables. There were reported no fewer than 614 cases of poisoning by acetanilid with 16 deaths and 112 cases of its habitual use. The larger number of the cases of poisoning followed the administration of the drug by physicians in doses larger than those now regarded as fairly safe. This large number reported by only four hundred physicians indicated an excessively large number in the whole country. Since the questionnaire was sent to nearly a thousand physicians, of whom about five hundred failed to reply, it may be assumed that had it been sent to the entire one hundred and thirty thousand physicians in the country, at least seventy-five thousand cases of poisoning would have been reported.

Prior to the passage of the federal Food and Drugs Act (the "Pure Food Law") many nostrum makers had declared that their preparations contained no acetanilid. When that law went into effect some of these manufacturers triumphantly pointed to the fact that they were still able to make the same claim without conflicting with the requirements of the law. This was accomplished in fact by changing the formula and substituting acetphenetidin (phenacetin) for the acetanilid. While acetphenetidin is somewhat less toxic than acetanilid bulk for bulk, the toxicity and therapeutic activity of the two drugs are nearly proportional.

The claim made by many proprietary medicine manufacturers that they are "strictly ethical" because they advertise only to physicians is mere verbal camouflage. There may be no more certain way of insuring the continued use of a nostrum by the public than to have it prescribed by physicians and none know this better than the makers of nostrums. A proprietary individuality is obtained by giving some special form to the tablets and package or a special coloring of the capsules ("Specify 'Phenalgin Pink Top Capsules'") so as to indicate the identity of the products in such a way that the patient may in the future procure them without the advice or warning of the physician. When a proprietary preparation with the name or initials stamped on it or attached to it is prescribed the patient immediately is aware of the fact, and his respect for the physician's intelligence and wisdom is naturally lessened.

The physician should never place such dangerous drugs as acetanilid and acetphenetidin or ready-made mixtures of them in the hands of the patient in such a way that they can be employed without his supervision or control. He should never prescribe more than is needed at the time and should not form the habit of using fixed doses or combinations of drugs without a special reference to the particular needs of the individual.

Certain forms of headache yield more readily to a mixture of caffein and acetanilid or caffein and acetphenetidin than to either acetanilid or acetphenetidin alone. When the physician wishes to prescribe such a mixture he may combine one grain of caffein or two grains of citrated caffein with three grains of acetanilid or four grains of acetphenetidin in a powder or capsule. Under supervision such a dose may be repeated at intervals of from two to four hours if necessary to control pain. It is necessary to remember, however, that when small doses fail to give relief, increase in the dose is useless. This fact is especially important, and disregard or ignorance of it has been responsible for many cases of poisoning. Further, it should be remembered that while it was taught for many years that the admixture of caffein with acetanilid lessened the effect of the latter drug on the heart, Hale has shown that this is not the case and such mixtures must be used with special caution.

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[1] The previous articles of the series are "Bell-ans," The Journal, Nov. 24, 1917; "Anasarcin and Anedemin," Dec. 8, 1917; "Pepto-Mangan," Dec. 29, 1917; "Cactina Pillets," Jan. 19, 1918.

[2] The Journal, June 3, 1905, p. 1791; June 24, 1905, p. 1997; Sept. 23, 1905, p. 935; Jan. 13 and 27, 1906, pp. 134-290; Jan. 27, 1912, pp. 280-293.

# *Correspondence*

### CONTRIBUTIONS FOR BELGIAN AND FRENCH PHYSICIANS

*To the Editor:*—It is with great pleasure that I acknowledge additional contributions by medical and nonmedical donors of money and instruments for the rehabilitation of the civilian doctors of Belgium and France so they can gradually go back to their desolate and looted homes when the Germans (thank heaven) have been driven out.

I feel that it is especially proper to note the gifts of several nonmedical friends whose sympathies have been so generously expressed.

Dr. Solomon Hyman of San Francisco took the trouble to reprint the appeal which I had published in The Journal, and appended an appeal of his own and sent the document to the profession in San Francisco. Dr. Hyman also collected a large number of instruments from the profession in San Francisco. These were generously packed by Percy J. Myer & Co., the instrument makers in San Francisco. The large case was forwarded to me across the continent free of expense.

Adding the cash acknowledged in this list, the sum total so far forwarded is $1,858.34.

Charles Lentz & Sons of Philadelphia have put all the instruments that needed it in order, and have generously packed these cases without charge. The cases thus far sent represent a value, according to their estimate, of $4,000.

I shall be very glad to receive further contributions both in cash and instruments and forward them to Belgium and France.

I beg the donors of instruments kindly to have them put in order before sending them, as this cannot be readily done in Belgium or in France.

W. W. Keen, M.D.

1729 Chestnut Street, Philadelphia.

#### SUBSCRIPTIONS IN CASH

| | |
|---|---|
| Dr. F. W. Spaulding, Clifton Springs, N. Y. | $ 5.00 |
| Dr. Joseph Walsh (second contribution), Philadelphia | 5.00 |
| Dr. Horace W. Soper, St. Louis | 50.00 |
| Mr. Henry G. Keasbey, Philadelphia | 50.00 |
| Dr. John T. Bottomley, Boston | 10.00 |
| Mrs. Arthur H. Lea, Philadelphia | 100.00 |
| Dr. Mary Brown, Swarthmore, Pa. | 25.00 |
| "A Member of the Belgian Relief Committee," through Mrs. Bayard Henry, Philadelphia | 100.00 |
| Dr. B. R. Swan, San Francisco | 20.00 |
| "A Friend," Philadelphia | 10.00 |
| Mrs. Sydney Biddle, Philadelphia | 200.00 |
| Dr. W. C. Cahall, Philadelphia | 3.00 |
| Dr. Clarence T. Faries, Narberth, Pa. | 10.00 |
| Mr. Frederick C. Leas, Philadelphia | 5.00 |
| Dr. Arthur G. Hodgins, Honolulu | 50.00 |
| Dr. Joseph Prendergast, Chicago | 5.00 |
| Dr. Frank Lee Barrows, Moscow, Ida. | 10.00 |
| Dr. George H. Weaver, Chicago | 5.00 |
| Dr. John McFadzean, Del Norte, Colo. | 5.00 |
| Dr. John F. Gibbon, San Francisco | 5.00 |
| Dr. Xavier Dodel, San Francisco | 1.00 |
| Dr. W. C. Cahall (second contribution) Philadelphia | 6.00 |
| Dr. Henry Barton Jacobs, Baltimore | 50.00 |
| The interest account is $3.34. | $730.00 |

#### INSTRUMENTS

Dr. Solomon Hyman, Dr. Charles G. Levison, Dr. Morris Hertzstein, Dr. William F. Blake, Dr. Henry Harris, San Francisco; Dr. J. K. Miller, Greeley, Ohio; Dr. Walter J. Freeman, Dr. W. W. Keen, Philadelphia; Dr. H. H. Hammond, Van Buren, Maine; Dr. William B. Van Note, Lima, Ohio; Dr. F. P. McCarthy, Erie, Pa.; Dr. W. L. Hartman, Pittston, Pa.; Dr. Sara T. Chase, Traverse City, Mich.; Dr. Lloyd Mills, Los Angeles; Dr. H. J. Morgan, Toledo, Ohio.

Dr. Hartland Law of San Francisco bought several dozen hemostatic forceps and dressing scissors and sent them directly to Paris.

### "THE VENEREAL DISEASES"

*To the Editor:*—May I tell you how much inspiration has come to us through the series of articles published in The Journal recently on the treatment of venereal diseases?

Among our students there has grown a strong conviction that the Chinese public needs education to prepare it for the crop of modern trained physicians now being educated. The students have translated several of the articles referred to, and I write on their behalf to tell you that we propose to use the translated material in the local press, making due acknowledgment to The Journal.

E. H. Hume, M.D., Changsha, China.

# *Queries and Minor Notes*

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### FONTANA'S STAIN FOR SPIROCHAETA PALLIDA

*To the Editor:*—Will you kindly give the technic of Fontana's stain for *Spirochaeta pallida?*

V. A. L., M.D., Chicago.

Answer.—Fontana's method involves the use of the following preparations:

1. Fixing fluid: acetic acid, 1 c.c.; Solution of Formaldehyde, U. S. P., 20 c.c.; distilled water, 100 c.c.
2. Mordant: tannic acid, 5 gm.; phenol solution (1 per cent.), 100 c.c.
3. Silver solution: A 0.25 per cent. solution of silver nitrate is prepared. This may be done with sufficient accuracy by dissolving a small crystal in half a test tube of distilled water and adding just enough ammonia solution to cause a slight permanent turbidity.
4. Distilled water.

*Process:* 1. Prepare the slide to be stained by spreading the material from the syphilitic lesion very thinly on a clean slide, allowing it to dry spontaneously. 2. Fix by pouring on the fixing fluid, pouring it off after a few seconds. Renew it immediately and perform this process several times. The total duration of this stage should be not less than a minute. 3. Wash well in distilled water. 4. Flood with the mordant, apply gentle heat till steam arises, and continue this process for half a minute. 5. Wash thoroughly in distilled water (from fifteen to thirty seconds). 6. Flood with the silver solution; then warm gently for half a minute, wash, blot and dry. Mount in balsam for permanent specimens. Cedar oil causes the spirochetes to pale. The spirochetes are stained jet black, and appear larger than when stained by ordinary methods.

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**Fitting the Crippled Soldier for an Occupation.**—In deciding which of the available courses an individual disabled soldier should pursue, the first effort should be to fit him for an occupation related as closely as possible to his former job. His past experience—far from being discarded—should be built upon. A competent journeyman bricklayer who has lost an arm may be prepared by a suitable course in architectural drafting and the interpretation of plans to take a position as construction foreman of a bricklaying gang. It were idle to give such a man a course in telegraphy. But a train hand who has been all his life familiar with railroad work may most wisely be trained as a telegraphic operator, with a little commercial instruction on the side. This man will then be fitted to obtain employment as station agent at some minor point on the road. There is an additional advantage in instances such as the two mentioned in that the former employer will be willing to engage again a man with whose record and character he is familiar—once there is assured the competence of the ex-soldier in his new capacity.—Douglas C. McMurtrie: The War Cripple, Columbia War Papers.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

Alaska: Juneau, March 5. Sec., Dr. L. P. Dawes.

California: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

Connecticut: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

Connecticut (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

Illinois: Springfield, Feb. 6-7. Supt. F. C. Dodds, Springfield.

Iowa: Des Moines, Feb. 5-7. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Kansas: Topeka, Feb. 12. Sec., Dr. H. A. Dykes, Lebanon.

Maine: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Missouri: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

Vermont: Burlington, Feb. 12. Sec., Dr. W. Scott Nay, Underhill.

Wyoming: Laramie, Feb. 6-8. Sec., Dr. H. E. McCallum, Laramie.

## Kentucky Reciprocity Report

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports four additional candidates licensed through reciprocity to and including Oct. 5, 1917. The following colleges were represented:

| College | Year Grad. | Reciprocity with |
|---|---|---|
| LICENSED THROUGH RECIPROCITY | | |
| Atlanta Medical College | (1916) | Georgia |
| Eclectic Medical College | (1914) | Ohio |
| Miami Medical College | (1904) | Ohio |
| Jefferson Medical College of Philadelphia | (1910) | N. Carolina |

## Maine November Examination

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Portland, Nov. 13-14, 1917. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| George Washington University | (1915) | 85 |
| Baltimore Medical College | (1906) | 84 |
| Boston University | (1884) | 79 |
| Tufts Medical College | (1898) 76; (1917) | 91 |
| FAILED | | |
| Chicago College of Medicine and Surgery | (1916) | 78* |

*Fell below 60 in one subject.

# Book Notices

The Principles of Mental Hygiene. By William A. White, M.D. With an introduction by Smith Ely Jelliffe, M.D., Ph.D, Cloth. Price, $2. Pp. 323. New York: The Macmillan Company, 1917.

In no sense is this a textbook or manual. It might be said to consist of essays on human conduct or, perhaps better, essays on the vagaries of human conduct. It concerns the insane, criminal, feebleminded, inebriate, pauper, faddist, and others unable normally to adjust themselves to their environment. As an effort to take the broad problems of mental hygiene out of the domain of philanthropy and place them in the realm of science, the work is most praiseworthy and useful. As a guide in the management of the insane or the conduct of present societies of mental hygiene, it will be of only limited value. Such a handy guide it does not pretend to be, aspiring rather to expound the "principles involved in the concepts of the great defective, delinquent and dependent groups . . . and the principles of society's relations to them." On page 99 the author says, "The new psychology is beginning dimly to recognize that the psychosis is originally a failure in the individual-society relation, and as such demands a study not only of the individual as such but of the relation." The same applies to criminality, prostitution and other antisocial or unsocial manifestations. Dr. White's presentation of this study is intelligent, interesting and instructive. And not the least helpful part of the book are the illuminating side lights he throws on the mental processes and activities of such of us as a lenient society considers to be normal. To have thrust on our attention the marvelously similar reactions of the judge and the offender he sentences, of the asylum physician and the maniac he puts in restraint, is occasionally decidedly wholesome. The psychiatrist, the criminologist, the psychologist and the practical philanthropist who are trying to use their brains in their work will read this book with great pleasure and considerable profit.

Medical Research and Human Welfare. A Record of Personal Experiences and Observations During a Professional Life of Fifty-Seven Years. By W. W. Keen, M.D., LL.D., Emeritus Professor of Surgery, Jefferson Medical College, Philadelphia. The Colver Lectures, Brown University, 1917. Cloth. Price, $1.25 net. Pp. 160. Boston: Houghton, Mifflin Company, 1917.

This booklet represents the Colver lectures at Brown University during 1917. The subtitle of the book is "A Record of Personal Experiences and Observations During a Professional Life of Fifty-Seven Years." As most physicians know, the past fifty-seven years have witnessed more progress in scientific medicine than perhaps the previous fifty-seven centuries. Dr. Keen traces the growth of the science in a pleasantly retrospective mood, showing the great part that medical research has taken in conferring on the world the benefits of modern medicine. He gives brief attention to all of the phases of infection, of modern sanitation, of modern surgery, of the control of great plagues, and of research in plant and animal pathology and bacteriology. In his conclusion he points out that every disease named has witnessed during his own professional lifetime a notable mitigation of its ravages, or even its actual or prospective total annihilation. "When the Great Peace shall follow the Great War," he says "one conflict will *not* stop. The war of our guild against Disease—as old and as eternal as the war between Ormuzd and Ahriman, between Good and Evil—will never cease until the last disease has been conquered and Humanity has been set free." He looks forward to the day when case histories will read, "had the usual health of childhood" instead of the "usual diseases." His final sentence gives the keynote of the book.

"Research, *Research*, RESEARCH—that is the method by which we shall enter into the Paradise of Health, and not for childhood only, but a lifelong Paradise, till Death shall come, not as our last enemy, but as our best friend, to open to us the gates of Immortality."

Re-Education; an Analysis of the Institutional System of the United States. By George Edward Barton, A. I. A., Director of Consolation House. Cloth. Price, $1 net. Pp. 119. Boston: Houghton Mifflin Company, 1917.

After setting forth figures and quoting various authorities as to the enormous expenditures for hospitals and other public and semipublic institutions for the care of the sick, the afflicted and the criminal, the author makes a plea for utilizing in useful production and occupation the time of the inmates of all these institutions to a greater extent than at present. He declares that patients in general hospitals even for comparatively short periods could be employed for at least a part of their stay, and that every one in institutions of the sort named would be better off for such occupation. Cripples of all sorts and persons of substandard degrees of health and strength should be reeducated to tasks and occupations suitable for their several capacities, which is in line with the activities of the nations at present charged with the responsibility of the welfare of those wounded in the world war. A thorough reorganization of the institutions referred to, with this end in view, should be undertaken.

A Practical Dietary Computer. By Amy Elizabeth Pope. Cloth Price, $1.25. Pp. 170. New York: G. P. Putnam's Sons, 1917.

Practically the whole of this book is devoted to the publication of tables on foods and food values, most of them taken from standard reference works, government publications, and special bulletins. The book is divided into three parts, the first giving general information as to methods of calculation of food values and lists of foods relatively rich in special constituents; the second, tables showing the chemical composition and caloric value of common foods and beverages; the cost, chemical composition and caloric value of some special dietary foods, and the average relative carbohydrate content of various foods; the third, weights, measures and recipes in common use. The book should prove a valuable reference work for dietitions and others interested in scientific cooking.

Obstetrics for Nurses. By Joseph B. DeLee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. Fifth Edition. Cloth. Price, $2.75 net. Pp. 550, with 235 illustrations. Philadelphia: W. B. Saunders Company, 1917.

Dr. DeLee's book has gone through the usual revision, expansion and modification to bring it up to the hour. New illustrations have been added, and especially more matter has been included relating to operating room technic. A new feature is an outline of a teaching scheme for obstetric nursing classes by Miss Nancy E. Cadmus of the Manhattan Maternity, New York.

## *Medicolegal*

### Certificates Must Be Filed for Record as Prescribed

*(Lynch vs. Kathmann et al. (Ia.), 163 N. W. R. 408)*

The Supreme Court of Iowa, in this action brought by a practicing physician and surgeon to recover on an account for medical services of the alleged reasonable value of $361, affirms a judgment in favor of the defendants for costs, because the plaintiff had not filed his certificate for record in the office of the county recorder as required by Section 2577 of the Iowa Code, although he had caused it to be recorded in the office of the clerk of the district court of the county, in a book in the office entitled "Register of Physicians and Midwives," and had been informed by the clerk that such registration was in full compliance with the laws of the state with reference to the recording of the certificate. The court holds that, having failed to comply with the law requiring him to file his certificate for record in the office of the county recorder, he could not maintain this action for the value of the services rendered. The statute makes it an indictable misdemeanor to engage in the practice of medicine "without having first obtained and filed a certificate." The certificate must be obtained from the state board of medical examiners and filed in the office of the county recorder. The purpose and object of requiring the recording of the certificate can be met only by having it recorded in the office designated by law.

The requirements of the statute that, before one engages in the practice of medicine, a certificate must first be obtained and filed by every person attempting to practice medicine in the state of Iowa, are mandatory, and no right exists in favor of any one so to engage in the practice of medicine until he has complied with all the requirements of the statute. Not only are these statutes mandatory in character, but they are founded on principles of sound public policy. They are not intended to interfere with the right of any person to adopt and follow any lawful vocation which he may choose, but only to require that before engaging to deal with the public in matters of such grave importance as the practice of medicine he shall first satisfy the proper authorities of his qualifications and comply with the conditions required by law to be performed by him before engaging in the practice of this profession.

Statutes prescribing the qualifications for the practice of medicine and regulating the practice thereof are not alone for the protection of the public, but as well for the protection of the members of the medical profession. It affords them protection against the fraudulent schemes and practices of incompetent, dishonest and designing quacks who seek to impose on the credulity of the people and thereby tend to destroy the high character and aim of the profession and bring it into disrepute.

The purpose of causing the certificate to be recorded is evidently to give full publicity to the fact that the holder has passed the required examination and possesses the requisite qualifications and is deemed worthy by the board of medical examiners to practice medicine in the state of Iowa, and to provide a convenient method of apprising the public thereof. This method would seem to be a reasonable regulation. The record of such certificate is, by special provision of statute, open to public inspection. No restrictions shall be placed on the right of the public by the custodian of such record to examine and inspect it. The question is not one of good faith on the part of the holder of the certificate, but of conformity to conditions imposed by the legislature on the holder thereof which must be complied with by him before he is authorized by law to practice medicine.

### Allowed Use of Dictated Hospital History—Evidence in Abortion Case

*(State vs. Fletcher (N. J.), 101 Atl. R. 181)*

The Court of Errors and Appeals of New Jersey, in affirming a conviction of the defendant of having performed a criminal abortion, holds that it was proper to allow a physician to use his hospital history to refresh his recollection, although it was dictated by him to another, and not transcribed in his presence, it being identified by him as a transcription of the notes he dictated at the time. No more proof was necessary to justify its use.

It was permissible to use the speculum offered in evidence to illustrate the kind of an instrument which the girl said the defendant had used.

The cross-examination of the defendant as to her acquaintance with a certain doctor was permissible, she having testified on direct examination that her patient told her she had come from a doctor in New York, and on cross-examination having said the girl gave her the name of said doctor. Her knowledge of the doctor might throw light on the probability that she would perform an abortion on a girl who claimed to have been sent by him.

Nor was the defendant injured by the charge to the jury that "the fact that this young woman had a previous miscarriage or visited some one else is not finally to affect your minds in determining this defendant's guilt. If she had had ninety-nine other operations and somebody else gone free, that is not the question." The court infers that the judge was trying to warn the jury not to convict the defendant because they thought some one else ought to be punished. It seemed to be intended as a warning in favor of the defendant.

The court also thinks it was permissible to ask the defendant if she couldn't give the girl something to alleviate the pain, the defendant having testified that the girl had come to her suffering pains of pregnancy and wanting her to perform an abortion; that she had refused to do so, and offered to do nothing to alleviate the pain. The question bore on the probability of the defendant's testimony, since the prosecutor might well argue that the natural instinct of humanity would lead the defendant to alleviate the pains if she was unwilling to perform the abortion.

### For What a Physician May and May Not Keep Intoxicating Liquors

*(State vs. Chamberlin (Ia.), 163 N. W. R. 428)*

The Supreme Court of Iowa, in affirming a judgment assessing a fine of $700 against the defendant on a conviction of maintaining a liquor nuisance, says that while the defendant was a physician and entitled to keep intoxicating liquors for use in his practice, yet this did not give him the right to keep liquors for sale and to engage in that kind of traffic. The jury was instructed that, if the evidence showed beyond a reasonable doubt that the defendant had made a sale of intoxicating liquors, a presumption would arise that the sale was illegal, but that, if the jury had a reasonable doubt as to the illegality of the sale, then the presumption would be overcome, and it would not be warranted in finding that the sale was illegal. This instruction was evidently based on section 2427 of the statute.

# Society Proceedings

## SOUTHERN SURGICAL ASSOCIATION

*Thirtieth Annual Meeting, held at St. Augustine, Fla., Dec. 18-20, 1917*

*(Continued from page 266)*

### Traumatic Rupture of the Spleen

Dr. A. Murat Willis, Richmond, Va.: The four cases that I report presented the following points in common: They were all in males; there had been a blow on the left side of the body in the splenic region; secondary anemia and leukocytosis were present; there was no external evidence of injury about the body; there were rigidity and tenderness of the abdomen; all had shock following splenectomy; all the spleens were practically normal in size with short pedicles and without any history of previous disease of the organ. Three of the four patients had agonizing pain in the left shoulder, which was promptly relieved by splenectomy. In two of the cases a marked increased leukocytosis persisted after the operation over a period of from two to four weeks. Three patients had satisfactory convalescence. One died eight days after operation. The fatal case showed a continuous fall in hemoglobin and a decreasing leukocyte count. In the first two cases, operation was followed by direct transfusion with apparently good results.

DISCUSSION

Dr. Edward H. Ochsner, Chicago: Is the difference in the reaction to operation by patients and dogs explained by the presence of supernumerary spleens in the cases with favorable outcome? Many patients have an immunity, so that they, too, survive a splenectomy. I believe that a little spleen tissue is absolutely essential to life.

Dr. F. G. Du Bose, Selma, Ala.: I should like to ask Dr. Willis if there was any enlargement of the lymph glands in his cases. I saw a man with a ruptured spleen who, after the removal of his spleen, developed a general lymphadenitis; otherwise his blood and general condition were apparently improved by the operation. Within a year the lymphadenitis subsided.

Dr. A. Murat Willis, Richmond, Va.: There was no lymphoid enlargement in our cases. Not all of these cases reacted alike, and what Dr. Ochsner said is along the right line.

### Management of Subparietal Injuries of the Kidney

Dr. J. M. Mason, Birmingham, Ala.: I have treated three cases of subparietal injuries to the kidney. 1. After rupture of the right kidney from a fall from a train, death occurred in twenty hours from hemorrhage and shock while preparations were under way for exploration. 2. A contusion or slight laceration of the right kidney, due to a fall from an electric light pole, was complicated by fractured ribs, fracture of the neck of the left femur, and fracture of the right iliac crest. These complications prevented exploration of the kidney injury. The hematuria disappeared at the end of four days, with clearing up of the kidney symptoms, and recovery without operation. 3. A patient, who had sustained a rupture of the left kidney from being knocked down by an automobile, had hematuria, fever, pain, tenderness and a tumor over the left kidney. The kidney was found deeply ruptured in two directions. Nephrectomy was followed by recovery. In all these cases the sources of the hemorrhage and the presence of a second functionating kidney were determined by cystoscopy.

### Injuries of the Spine

Dr. Joseph Ransohoff, Cincinnati: Of sixteen cases of injury to the cervical spine, six patients died within from twelve hours to two weeks. In none of these cases was a laminectomy performed. Three of these fatal cases were attended with considerable shock. They were complicated with fractures of the skull, a complication that is far more frequent than is ordinarily supposed. In all of the cases, with one exception, the paraplegia was synchronous with the receipt of the injury. In only one case, a stab wound, causing fracture of the spinous process and body of the vertebra, did the paraplegia come on several hours after the injury, as a result of hemorrhage. There had been no displacement of the segment. In the remaining cases there were for the most part no symptoms whatever referable to the cord or nerve roots, the result of pressure on the nerves and their branches through the intervertebral foramina. Limitation of motion and some pain, with a fixed deformity, were the only evidences of fracture shown by the roentgen ray. I cannot emphasize too strongly the value of taking the picture through the mouth. There was only one case of what seems to be a pure dislocation, but even in this the roentgen ray showed a slight fracture of the body. The discrepancy between the fatal outcome and the roentgenogram was shown in many instances, because in these the roentgenogram showed a nearly normal spine, evidently proving the contention that the spontaneous reduction, the result of the handling of the patient, often occurs. An interesting case was a shot wound, which, without producing any fracture of the spine, caused contraction of the cord, particularly of the pyramidal tract, and of the gray matter in the region of the seventh cervical and first dorsal vertebrae. The ciliospinal center was contused, and followed by the typical contraction of the pupil, exophthalmos, and slight ptosis on the side of the injury. At the operation the sympathetic nerve cord was found uninjured, thereby accounting for the absence in this case of the unilateral sweating and flushing of the face that usually attends wounds of the cervical sympathetic nerve cord itself.

*(To be continued)*

## WESTERN SURGICAL ASSOCIATION

*Twenty-Seventh Annual Meeting, held at Omaha, Dec. 14 and 15, 1917*

*(Continued from page 265)*

### Artificial Vagina

Dr. A. W. Abbott, Minneapolis: All reported cases to date in which the bowel is used to line the new vagina have followed the Baldwin method of utilizing a loop of the ileum, except one case reported by Wallace in 1911, in which he made use of a single limb of the sigmoid. As the diameter of the ileum is abundant and as one side of a loop is as long as the loop itself, I have made use of this method in one case. The technic followed that of Baldwin in most respects, the difference being that I used a vertical incision through the vulva and a single leg of the ileum instead of the loop. The advantages of using one limb of the intestinal loop instead of both are: 1. It takes less of the bowel. 2. It requires the closure of only one end of the utilized limb instead of both ends of the loop. 3. A second operation to divide the septum between the legs of the loop is unnecessary. The operation is complete in one sitting.

### The Conduct of Hospitals

Dr. R. W. Corwin, Pueblo, Colo.: I sent the following letter to a hundred prominent physicians, surgeons and superintendents associated with hospitals: "What would you suggest as the most important improvement that could be made in the hospital of today?" About fifty replies were received, and among the recommendations are:

The character of the staff should be improved. The number of paid men on the staff should be increased. Incompetent men should be excluded from operating. The doctors should be reeducated. Doctors should practice what they preach regarding cleanliness. There should be a professor of efficiency to teach doctors and nurses so they will not waste 50 per cent. of their time. There should be better cooperation between the members of the staff. All members should exercise initiative. The hospital will give to the sick what the doctor demands. A hospital will be just as good as the staff, and no better.

Laboratories should be in charge of more skilful and better paid men. The equipment should be better. There should be development of services in clinical pathology and oral instruction for interns. There should be chemical laboratories for making and testing chemical substances used for patients. A hospital without a scientific department is not a hospital, but merely a sanatorium. A laboratory that conducts only urine and blood examinations might just as well be abolished. A roentgen-ray department that takes only bone pictures loses nine tenths of its opportunities. All real laboratories are open the whole twenty-four hours. Hospitals should do more teaching. The interns should receive more instruction from the staff and in laboratories. The use of hospitals should be limited to operators of known ability and standing. Economy should be observed in the operating room and elsewhere. Waste space should be eliminated, decreasing labor and expense. Economy should be practiced so that more of the middle class may take advantage of the hospital.

In general, there should be centralization of medical government. The board of managers should be reeducated. There should be a medical executive as superintendent, a trained pathologist and anesthetist, and social service work to prevent disease, disability and disorder. Full diagnosis should be posted in the operating room in advance of operations. Very much more importance should be given to sterilization. There is no method by which we are sure that a dressing has been sterilized. There should be more consideration of the patient; overworked doctors and nurses are unsympathetic; there is too much rush at clinics. Only the highest standard should be considered in dealing with life and death, health and disease, usefulness and uselessness.

First consideration should be given the patient. Let it be understood from the beginning that a hospital, whether private, semiprivate, general, special, emergency or war, is for the benefit of the patient and not for the convenience of the doctor, intern, medical student or nurse. Second consideration should be given to the site. No hospital, except an emergency hospital, should be located in a city, where it is dusty, dirty and noisy; a hospital should be located where there is plenty of room for grass, flowers and shade trees, and opportunity for outdoor life. If a hospital is of benefit to a medical school, let the school go to the hospital instead of the reverse, but consider patients first. Attention should be given to plans of hospital buildings. If a hospital be located to the best advantage, it has been found that buildings of one or two stories have advantages over those of many stories. Construction is less expensive and for service given, more economical to maintain. Lastly, there should be better team work, better laboratory work, better case work, and more scientific medical and surgical work; more authority should be given to the superintendent; there should be one head, and eternal vigilance should be observed.

### Epithelioma Involving the Axilla

Dr. T. F. Riggs, Pierre, S. D.: A man, aged 55, in 1906 had a growth removed from the right side of his lower lip, and in 1914 had a growth removed from the helix of his left ear. In the latter part of 1915 he was operated on for a hematoma of the left axilla following an injury to a lipoma in the postaxillary region of that side. The lipoma had been present about four years. Sometime after the operation an enlargement of the lower cervical lymphatics on the left side was noticed. Later removal of one of these involved glands showed the presence of typical squamous cell carcinoma. Carcinomatous involvement of the tissues of the left axilla developed gradually, and finally an interscapulothoracic amputation of the left shoulder was done. During this operation an unsuspected involvement of the lymphatics in the occipital portion of the posterior cervical triangle was found. During the dissection of the glands in this region, the patient began to show evidences of shock. He rallied quickly and seemed to be in fair condition, but died suddenly about two and one-half hours after the completion of the operation. Postmortem examination was negative throughout except for a chain of involved glands in the anterior mediastinum, healed foci of tuberculosis in both lungs, and a shower of fresh emboli in the right lung. The origin of the epithelioma of the left axilla was either a transverse metastasis from the growth in the right lower lip, a direct metastasis from the growth in the upper portion of the left ear, or an undiscovered focus in the hand, arm or axilla itself. The peculiar coincidence of frostbite as a cause of the growth in the lip and in the ear of this patient is of interest as a possible cause of the epithelioma.

*(To be continued)*

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

January, 1918, **77**, No. 1

1 Can the Frequency of Some Obstetric Operations Be Diminished? J. D. Voorhees, New York.—p. 1.
2 Ureterovesical Anastomosis. H. D. Furniss, New York.—p. 14.
3 *Influence of Pregnancy on Development, Progress and Recurrence of Cancer. W. S. Bainbridge, New York.—p. 21.
4 *Causes of Death in Childbirth; Maternal Mortalities in 100,000 Confinements at New York Lying-In Hospital. J. A. Harrar, New York.—p. 38.
5 Maternal and Infant Mortality in Midwifery Practice in Newark, N. J. J. Levy, Newark, N. J.—p. 41.
6 *Preeclamptic Cesarean Section. J. W. Poucher, Poughkeepsie, N. Y.—p. 54.
7 *Conservative Treatment of Eclampsia. R. McPherson, New York. —p. 58.
8 *Toxemias of Pregnancy and Their Treatment. A. B. Davis, New York.—p. 62.
9 *Indications for Interference in Preeclamptic Toxemia. W. G. Dice, Toledo.—p. 76.
10 Alcohol Drain in Septic Cases Requiring Cesarean Section.. C. L. Ill, Newark, N. J.—p. 83.
11 *Treatment of Ectopic Gestation Based on Study of One Hundred Cases; Report of Twelve Cases of Repeated Ectopic Pregnancies. A. J. Rongy, New York.—p. 86.
12 End-Results of Treatment of Inoperable Uterine Cancer by Heat. J. F. Percy, Galesburg, Ill.—p. 93.
13 Retroperitoneal Hernia in Duodenojejunal Fossa; Report of Cases. H. Grad, New York.—p. 102.
14 Report on Two Successfully Operated Cases of Meningocele. W. A. Norton, Savannah, Ga.—p. 169.

3. Abstracted in The Journal, Oct. 27, 1917, p. 1466.

4. **Causes of Death in Childbirth.**—From 1890 until July, 1917, the Lying-In Hospital, N. Y., has cared for 115,439 women. In all 101,197 actual confinements at or near term have been conducted. In the outdoor service, in 69,081 actual confinements, 218 women died, 0.31 per cent. mortality. On the indoor service, of 23,130 regular applicants confined, 109 women died, 0.47 per cent. The predominating cause of death was puerperal infection. There were 23 deaths from puerperal infection among the 23,130 regular applicants confined indoor, and 59 deaths from puerperal infection among the 69,081 outdoor confinements; mortality of 0.95 per thousand, an 0.85 per thousand, respectively. Eclampsia accounted for 10 deaths among the indoor regular applicants, or 0.43 per thousand confinements and for 26 deaths on the outdoor service, or 0.37 per thousand confinements. The third most frequent cause of death was peritonitis after the performance of cesarean section. Thirteen deaths occurred among the indoor regular applicants and three among the outdoor cases referred into the hospital. Five died of placenta praevia among the indoor regular applicants, 0.26 per thousand, and 25 among the outdoor applicants, or 0.36 per thousand. Of ruptured uterus, there were 5 deaths indoor and 20 deaths outdoor, or 0.26 per thousand and 0.28 per thousand. Deaths from nephritis, broken cardiac compensation pneumonia, shock and exhaustion from prolonged labor, and postpartum hemorrhage rank next. Then come deaths from shock and hemorrhage after cesarean section, tuberculosis, acute toxemia of pregnancy without convulsions, and accidental hemorrhage, in the order named. The lesser causes, explaining from 1 to 3 deaths each, are abdominal pregnancy, rupture of the vaginal vault, pulmonary embolism and thrombosis, cerebral hemorrhage, appendicitis complicating late pregnancy, suicide in acute mania, carcinomatosis, brain tumor, sarcoma of the liver, and ether and chloroform narcosis. And, finally, about one tenth of 1 per cent. of the total number of deaths, occurred from unknown causes; the majority of these being put down on the reports as due to pulmonary embolism, but without necropsy for verification.

6. Abstracted in The Journal, Oct. 13, 1917, p. 1294.

7, 8 and 9. Abstracted in The Journal, Oct. 27, 1917, pp. 1466 and 1467.

11. **Treatment of Ectopic Gestation.**—The most striking feature of this series of cases is that twelve patients were operated on for repeated ectopic pregnancy; nearly 90 per cent. of the 100 cases were not diagnosticated until rupture had taken place and the patients began to show evidence of shock. In forty patients the diagnosis of incomplete abortion was made by the family physician, and these patients were subjected to curettage.

### American Journal of Physiology, Baltimore

January, 1918, **45**, No. 2

15 *Effect of Organ Extracts on Contraction of Voluntary Muscle. J. Rogers, H. C. Coombs and J. M. Rahe, New York.—p. 97.
16 Epinephrin Vasodilator Mechanisms in Cat at Different Ages. F. A. Hartman and L. G. Kilborn, Toronto, Canada.—p. 111.
17 *Physiology of Stomach. Hunger, Appetite and Gastric Juice Secretion in Man During Prolonged Fasting (Fifteen Days). A. J. Carlson.—p. 120.
18 Aequiradio-Activity. H. Zwaardemaker, Utrecht, Netherlands. —p. 147.

15. **Effect of Organ Extracts on Voluntary Muscle.**—Intravenous injection of the noncoagulable portions of the alkaline saline extracts of the thyroid, parathyroid and suprarenal glands increase the vigor of contraction of fatigued voluntary muscle. The commercial 1:1,000 solution of epinephrin shows a similar stimulant effect. No other materials tested, derived from the thyroid, parathyroid and suprarenal glands show any stimulant effect on fatigued voluntary muscle. Materials from the other endocrine glands show no effect on voluntary muscle contraction. Desiccation of the thyroid appears to lessen or distroy its activity. Excision of the thyroid appears to have no immediate effect on the fatigability of voluntary muscle. "Residues" made from adenomatous or cyst adenomatous thyroid material, as well as those made from the supposedly overactive gland of hyperthyroidism, are inert.

17. **Physiology of Human Stomach in Prolonged Fasting.**—During the fifteen days' complete fast and the subsequent eight days of abstinence from food with daily ingestion of cotton fiber, the gastric hunger contractions of Carlson's subject continued with practically normal rhythm and intensity, but the subjective sensations induced by the gastric contractions appeared to be somewhat weakened and tinged with an element of general epigastric distress or sick stomach. The view that the hunger mechanism fails early in prolonged fasting is therefore not tenable as a general law. The appetite sense or desire for food was modified or obscured by a tendency to a persistent bad taste in the mouth that developed during the fast. But the patient said that the dominant element in consciousness during the fast was nevertheless thought of food and eating. The contents of the empty stomach and the continuous gastric juice secretion during the fasts show a tendency to a slight increase in acidity and greater frequency of regurgitation of duodenal contents into the stomach, but there is no significant increase in secretion rate over that of the control periods. In other words, the normal process of continuous gastric secretion of the empty stomach is not noticeably augmented in prolonged starvation.

### Archives of Internal Medicine, Chicago

January, 1918, **21**, No. 1

19 *Value of Atropin Test in Diagnosis of Typhoid. E. H. Mason, Montreal, Que.—p. 1.
20 Factors in Resistance to Tuberculosis. W. F. Petersen, Chicago. —p. 14.
21 Lipodystrophia Progressiva; Report of Case. I. J. Spear, Baltimore.—p. 39.
22 Effect of Various Neutral Solutions on Gastric Discharge, Gastric Secretion and Duodenal Regurgitation. W. E. Morse, Chicago. —p. 48.
23 *Simple Technic for Demonstration of Phagocytic Mononuclear Cell in Peripheral Blood. F. A. McJunkin, Milwaukee.—p. 59.
24 *Calcification in Pineal Gland: Report of Case. E. P. Boas and T. Scholz, New York.—p. 66.
25 *Anatomic Observations Concerning Mechanism of Bile Resorption in Jaundice. H. Oertel, Montreal, Que.—p. 73.
26 *Studies on Metabolism in Gout. J. A. Wentworth and C. W. McClure, Boston.—p. 84.
27 *Effect of Diet on Blood Sugar in Diabetes Mellitus. H. O. Mosenthal, S. W. Clausen and A. Hiller, Baltimore.—p. 93.
28 *Stimulation of Respiration by Sodium Cyanid and Its Clinical Application. A. S. Loevenhart, W. F. Lorenz, H. G. Martin and J. Y. Malone, Madison, Wis.—p. 109.
29 *Influence of Large Doses of Thyroid Extract on Total Metabolism and Heart in Case of Heart-Block. J. C. Aub and N. S. Stern, Boston.—p. 130.
30 Extensive Calcification of Lungs as Distinct Disease. F. Harbitz. Christiania, Norway.—p. 139.
31 *Auricular Flutter. J. M. Blackford, Seattle, and F. A. Willius, Rochester, Minn.—p. 147.
32 *Heart-Block. F. N. Wilson and G. C. Robinson, St. Louis—p. 166.
33 Rate of Absorption and Excretion of Iodids of Strontium, Sodium and Potassium. E. J. Krahulik, Omaha, and J. D. Pilcher, Cleveland.—p. 176.

19. **Atropin Test in Typhoid.**—Mason and his associates used atropin in the diagnosis of the enteric group of infections on 109 patients, 63 of them suffering from typhoid, or paratyphoid B infections, and 46 nontyphoid cases. The technic adopted is practically the same as that recommended by Marris, except that in most of the tests the author used one thirtieth in place of one thirty-third grain of atropin sulphate. Of the 63 cases of typhoid or paratyphoid B infections, 56 were cases of typhoid, the diagnosis being confirmed by blood culture, or by a Widal reaction in dilution above 1 in 40. Five of the remaining 7 cases were infections due to *B. paratyphosus* B, while the remaining 2 ran a typical typhoid course, but at no time was the author able to confirm his diagnosis by bacteriologic or by serologic methods. It seems that the reaction becomes positive at about the tenth and disappears at about the thirty-first days of disease. In the nontyphoid group 3 cases gave a positive reaction. In the diagnosis of fevers of the enteric group, Mason believes the test to be of great value, and in many cases undoubtedly precedes the Widal reaction. As a means of diagnosing the syndrome termed vagotonia the use of atropin in the above manner is suggested.

23. **Mononuclear Cells of Blood.**—In the method used by McJunkin the object is to bring the leukocytes into contact with fine particles of carbon at the body temperature and under exact and uniform conditions, and then to fix and stain them properly.

24. **Calcification of Pineal Gland.**—Boas and Scholz report a case occurring in a man, 74 years of age, in which the roentgenogram of the skull and later the necropsy revealed a definite calcification of the gland. The authors are of the opinion that in the vast majority of cases the calcification is only an exaggeration of the deposit of brain sand found normally in the pineal gland of adults. As would be expected, these shadows are found more frequently with advancing age. Since the calcification occurs in the course of the normal involution of the pineal gland, it has no significance except in very young individuals. In these it may be an evidence of an abnormally early involution of the pineal gland, which, if it occurs at the period when the gland is normally physiologically active, may cause symptoms due to insufficiency of the pineal secretion.

25. **Bile Resorption in Jaundice.**—From the study of a case Oertel says that bile resorption in hematogenous icterus may occur by intra-acinar lymph and blood resorption almost simultaneously.

26. **Metabolism in Gout.**—The results obtained by Wentworth and McClure in their study show that in chronic gout, in the absence of acute symptoms, and with patients on a purin-free or nuclein-rich diet, there is no profound change in the intermediary metabolism as compared with that of a nongouty person. These negative findings do not exclude the possibility that in gout there is (1) a disturbance in the metabolism of the nucleins, (2) or a disturbance in some other phase of the intermediary metabolism, (3) or a disturbance in some minor phase of intermediary metabolism produced by nuclein-rich foods. They only show that it is too slight, or of a nature not to produce any marked change in the basal metabolism. Therefore the basal metabolism and respiratory quotient of gouty persons fall within normal limits. Nuclein-rich foods produce no change in intermediary

metabolism of gouty persons detectable by the method of indirect calorimetry.

27. **Blood Sugar in Diabetes Mellitus.**—Mosenthal and his associates claim that the maximal percentage of blood sugar occurring in diabetic individuals on a carbohydrate-free diet, or one containing a moderate amount of starch, can be obtained by making the determinations one to two hours after breakfast. The glycemia may rise somewhat higher after lunch or supper, but never to any marked degree. On the other hand, the blood sugar may fall considerably in the afternoon and evening hours, leading to erroneous interpretations if taken at this time of day. In diabetic cases there is a tendency for the blood sugar to remain constant throughout the day while on a protein-fat diet, if the fasting blood sugar is high; on the other hand, if the fasting blood sugar is low, that is, if it has been reduced by previous dietetic treatment, there is an increase which may become very marked in the glycemia after carbohydrate-free food. This leads to the conclusion that cases of diabetes mellitus, in raising their fasting or basal blood sugar percentage, are trying to adjust their carbohydrate metabolism for the more advantageous utilization of glucose. It may be desirable, therefore, not to attempt to reduce the blood sugar to a normal value in cases of diabetes mellitus.

28. **Sodium Cyanid and Respiration.**—The authors treated ten patients with intravenous injections of fiftieth-normal sodium cyanid solution (0.1 per cent.). The treatment was repeated in some cases so that in all, fifteen treatments were given. In every case a marked stimulation of the respiration was obtained on the average within twenty seconds after starting the injection. The stimulation could be controlled accurately by the rate of injection. The duration of the stimulation following a single injection depends on the dose and rate of injection. In cases showing great depression of the respiration, when it is desired to produce a milder and more continuous form of stimulation of the respiration, it is desirable to give a slow, continuous injection of fiftieth-normal sodium cyanid intravenously at a rate varying from 1 c.c. in thirty seconds to 1 c.c. in fifteen seconds, depending on the degree of stimulation and the condition of the patient. The injection should either be slowed or temporarily stopped on the appearance of any of the following symptoms: (1) marked pallor; (2) signs of nausea; (3) marked increase in the pulse rate; (4) depression of the respiration following too rapid injection or too large a dose, and (5) any other evident ontoward symptom should be the signal for stopping the injection. The factor of safety in the intravenous administration of fiftieth-normal sodium cyanid is sufficiently large for clinical purposes. It is the authors' opinion that the intravenous injection of sodium cyanid may prove to be useful in the following conditions: (1) depression of the respiration resulting from increased intracranial pressure however produced, until the condition can be relieved by decompression; (2) resuscitation from drowning; (3) embarrassment of the respiration under any form of anesthesia, and (4) other forms of respiratory depression, when it may be given in addition to artificial respiration. Opportunity has not presented itself for us to study the effect of cyanid in all of these conditions.

29. **Thyroid Extract and Heart-Block.**—In this case thyroid extract was administered in increasing doses so that by the end of a period of from three to four months over 2,000 grains had been ingested. For the last four weeks of this period the dose amounted to 28 grains a day. The only effects observed from taking these large amounts of thyroid were an increase in the basal metabolism of 47 per cent. above normal and a rapid auricular rate of 120. After the withdrawal of the thyroid the basal metabolism fell to normal limits within twelve days and the auricular rate within nineteen days (perhaps less). During the first months after the thyroid was omitted the body weight increased over 8 pounds. The thyroid administration had no apparent effect on the respiratory quotient or the blood sugar. The auricular rate was influenced by thyroid extract, but not the ventricular, which suggests that thyroid does not increase the heart beat by direct action on the muscle, but through nervous channels.

31. **Auricular Flutter.**—Auricular flutter occurs as a mechanical disorder in certain diseased hearts, and in the experience of Blackford and Willius has been most frequently associated with exophthalmic goiter. The paroxysmal attacks noted in fourteen of their sixteen cases are dangerous to health and even to life. Two patients died in such attacks and two others appeared so nearly dead as to deceive competent observers. The patient with flutter is always in danger of such attacks. He should always have the disorder arrested as soon as possible after its discovery. In the authors' experience efficient treatment may be relied on to cause the onset of fibrillation and greatly to relieve the patient. None of their patients is known to have had a recurrence of flutter after his dismissal. Three patients were operated on under ether anesthesia for exophthalmic goiter after fibrillation was established, and one of these and one other have had tonsillectomies (local anesthesia) performed without incident. Cholecystectomy has been performed in one case. All of the ten treated patients are alive and much improved or cured with treatment. Five report that they cannot detect any cardiac symptoms.

32. **Heart-Block.**—Two cases of complete heart-block showing unusual features are reported by Wilson and Robinson. The following phenomena were observed: Auricular arrhythmia dependent on ventricular activity. Ectopic auricular beats dependent on stimuli received from the contracting ventricles. Increase in the idioventricular rate after the administration of atropin. Multiple ventricular extrasystoles after exertion. Spontaneous changes in the form of the auricular and of the ventricular complexes. The explanation of these phenomena is discussed.

### Archives of Pediatrics, New York

December, 1917, **34**, No. 12

34 *Skin and Throat Manifestations of Acute Anterior Poliomyelitis. J. G. Regan, Brooklyn.—p. 884.
35 Case of Pluriglandular Disturbance; Organotherapy; Cure. W. Timme, New York.—p. 901.
36 Strophulus. D. W. Montgomery, San Francisco.—p. 910.
37 Care and Management of Cardiopathic Child. W. L. Rost, New York.—p. 915.
38 Case of Congenital Paramedian Sinuses of Lower Lip. N. Toomey. —p. 924.
39 Case of Infantile Syphilis of Liver. E. L. Bauer, Philadelphia. —p. 927.
40 Case of Chylothorax. G. R. Pisek, New York.—p. 929.
41 *Measles Problem. C. Herrman, New York.—p. 933.
42 Need of Standardizing Statistics of Child Caring Institutions, Foundling Asylums, etc. S. W. Wynne, New York.—p. 939.

34. **Skin and Throat Manifestations of Poliomyelitis.**—Regan claims that congestion of the throat is an almost constant symptom of poliomyelitis during the early acute stage of the malady. It is as a rule limited to the faucial mucosa, and the pharynx, while the soft palate assumes a deep red color, and often in addition a distinct violaceous tinge, but the surface blood vessels of its mucosa are not usually congested to any very noticeable extent. This violaceous tinge which the soft palate assumes varies in degree, and while not by any means typical, it is somewhat distinctive of poliomyelitis, when it is marked. The capillary congestion of the mucous membrane of the throat in scarlatina is more intense than it is in acute anterior poliomyelitis and involves a much more extensive area. In addition to this there is a punctiform rash on the soft palate and the throat is a bright red color. A mild degree of inflammation of the tonsils is very common; but follicular exudation is very rare, and true membrane formation was never encountered. The buccal mucosa varies only slightly in color during the acute stage, and the blood vessels are only occasionally markedly congested as in measles and scarlet fever. Rarely a macular rash is seen on its surface and in such cases Koplik's spots may be closely simulated. The tongue is usually heavily covered with a grayish or yellowish white coating, the edges and the tip being devoid of covering. Frequently the coating is geographical in its outline. The papillae are not found to be especially prominent or enlarged. Gingivitis occurred in a small proportion of the patients. The epithelial debris covering the gums was only rarely as marked as that often seen in

measles. Rashes occurred in approximately 10 per cent. of the cases. Eruptions were most frequent in the younger children. They may appear as early as the second day or as late as the fifth or sixth week. Their average duration is about four days. In distribution, the rashes showed a decided tendency to localize on the trunk, being more prominent on the neck and face. The type most commonly encountered was the pin-point to pin-head papular variety. Herpes labialis are very rare in poliomyelitis, an important point in differential diagnosis from cerebrospinal meningitis. Herpetic-like lesions are not uncommon. Desquamation is rather frequent in poliomyelitis. It is usually furfuraceous.

41. **Measles Problem.**—After years of observation of the spread of measles, Herrman has become convinced that a real control, and a distinct reduction in morbidity and mortality is impossible with the present prophylactic measures. A true control can only be obtained by the immunization of infants against the disease. He urges that the child with measles should not be sent to the hospital, but should be treated at home. In a series of 408 consecutive cases which Herrman treated in their homes, the majority in tenements, without a trained nurse, one half under 3 years of age, the mortality was only 1.5 per cent. The chief disadvantages of hospital treatment are the danger of cross infection and the lack of individual care.

### Bulletin of Johns Hopkins Hospital, Baltimore

January, 1918, **29**, No. 323

43 *Ureteral Stricture; Report of One Hundred Cases. G. L. Hunner, Baltimore.—p. 1.
44 Chief Function of Oblique Muscles of Eye. S. Theobald, Baltimore.—p. 15.
45 *Observations on Hemoglobin After Operation. G. R. Dunn and H. M. N. Wynne, Baltimore.—p. 17.

43. **Ureteral Stricture.**—Hunner says that the taking of pyeloureterograms is not necessary in making a diagnosis of ureter stone except in the few cases in which one cannot go by an obstruction in the ureter. Under such conditions if one can pass a catheter with a whistle tip to the point of obstruction, the contrast solution often can be forced beyond the obstruction and intensify a stone, if it be present, or outline the character of the obstruction and the condition of the tract above. Although the roentgen ray is not necessary in making a diagnosis in most cases of ureteral stricture Hunner uses it in most cases for the satisfaction of its confirmatory value. For work on the male subject with the unavoidable restriction in the use of instruments the pyelogram is one of the best aids in diagnosis of ureteral stricture. The ureterogram is of great value in deciding whether a small shadow on the roentgenogram is within the ureter or whether a phlebolith. Some of the diagnoses made on these patients although their symptoms were chiefly due to ureteral stricture were: Urinary tract: cystitis, pyelitis, pyelitis of pregnancy and the puerperium, pyonephrosis, floating kidney, hydronephrosis, stone in the ureter, chronic Bright's disease. Genital tract: pelvic inflammatory disease, ovarian disease. Gastro-intestinal tract: various functional disorders of the stomach and intestines, chronic peritonitis, intestinal adhesions, sigmoid adhesions, colitis, chronic pancreatitis, gallstones, appendicitis. Joint and nerve conditions: lumbosacral and iliosacral joint pains, neuralgia of the sacral plexus, sciatica. Mental disorders.

45. **Hemoglobin after Operation.**—In the series of cases here reported, Dunn and Wynne endeavored to show the effect on the hemoglobin of operations during which there has been slight, moderate or severe hemorrhage. The Sahli hemiglobinometer was used. A uniform technic was observed throughout, and in almost all cases one instrument was used for all the readings on a given case. The hemoglobin readings shortly after operation show very little change when compared with readings made before operation, even in cases of severe hemorrhage. The immediate postoperative reading often shows some increase over the preoperative reading. The lowest point of the hemoglobin curve is found usually from thirty to sixty hours after operation (a difference of less than 5 per cent. is not considered). The greatest drop in hemoglobin is usually during the first twenty-four to thirty-six hours, and is most rapid when salt solution infusions have been given. In the series showing only a slight loss of blood at operation, the hemoglobin readings are usually higher during the first twelve hours than those made before operation, and there is very little postoperative decrease at any time.

### California State Journal of Medicine, San Francisco

January, 1918, **16**, No. 1

46 Status of Health Insurance in California. R. Bine, San Francisco.—p. 4.
47 Venereal Situation among Forces at War. J. C. Spencer, San Francisco.—p. 5.
48 *Appendicitis in Childhood; Study of One Hundred Cases. L. Porter, San Francisco.—p. 10.
49 Rat Bite Fever; Report of Two Cases. F. F. Gundrum, Sacramento.—p. 16.
50 Conservative Physician's View of Proposed Social Health Insurance Schemes. S. E. Simmons, Sacramento.—p. 18.
51 Exfoliative Cystitis. G. MacGowan, Los Angeles.—p. 21.
52 Internal Hemorrhoid Operation and After Care Under Quinin Urea Hydrochlorid Anesthesia. E. J. Clemons, Los Angeles.—p. 23.
53 Laryngeal Affections. H. B. Graham, San Francisco.—p. 25.
54 Case of Otitic Meningitis. E. C. Sewall, San Francisco.—p. 28.
55 Acute Mastoiditis with Generalized Miliary Tuberculosis. C. F. Welty, San Francisco.—p. 31.
56 Colloidal Mastic Reaction of Cerebrospinal Fluid. E. A. Victors, San Francisco.—p. 32.
57 Care of Functioning Breast. F. C. Ainley, Los Angeles.—p. 36.
58 *Gastro-Enterostomy. C. W. Lippman, San Francisco.—p. 38.
59 Mineral Springs and Some of Their Internal Uses. R. H. Hunt, Bartlett Springs.—p. 39.
60 Case of Charcot Joint of Spine. W. H. Campbell, Santa Barbara.—p. 41.
61 Foreign Body Lodged in Lung and Removed After Eleven Years by Bronchoscopy. P. R. Walters, Dinuba.—p. 42.
62 Spinal Cord Changes in Combined Sclerosis. W. F. Schaller, San Francisco.—p. 44.

48. **Appendicitis in Childhood.**—A rapid progress to gangrene and perforation is much more common before the fifth year than later in life as evidence by the fact that 73 per cent. of Porter's patients of 5 years or under perforated in contrast to 28 per cent. in children between 10 and 15. The gravest danger to these little patients lies in the fact that parents are allowed to think stomachache a normal event in children's lives and to believe that purgation is a panacea. If they could be taught that every acute abdominal pain is a potential appendicitis and that purgation may be deadly, Porter says, many children would be saved who now are doomed to die.

58. **Gastro-Enterostomy.**—Among the bad results of gastroenterostomy in the 100 cases analyzed by Lippman were: Recurrent ulcers operated on—one gastrojejunal and two recurrent in the stomach proper; six patients reoperated on for adhesions, five more in which the recurrent symptoms of gas and acute discomfort after meals were ascribed to adhesions, and three patients in which the stoma remained too large or too relaxed. These latter patients suffered from gas and distention immediately after eating. One of these patients also had diarrhea with undigested food appearing in the stools. A finely divided diet relieved him. Twelve patients were not completely relieved of their symptoms, being unable to take full diet without hyperacidity, pyrosis and gas after eating. This makes 29 cases with poor after-results, 8 fatal cases, 12 cases which could not be followed in this series, leaving 51 cases with good results. Among the good results are 12 cases of pylorostenosis which, separated out, only gives 39 cases of simple peptic ulcer with good results against 37 cases with poor results. Of the fatal cases, one patient died of hemorrhage within twelve hours of operation, two of postoperative shock, one of peritonitis and four of pneumonia. Four of the patients were practically moribund at operation.

### Colorado Medicine, Denver

January, 1918, **15**, No. 1

63 Forecasting of Community Diseases. H. Sewall, Denver.—p. 6.
64 Imagination and Medicine. J. Inglis, Denver.—p. 9.
65 Autogenous Vaccine in Treatment of Pulmonary Tuberculosis. O. D. Wescott, Denver.—p. 13.

### Florida Medical Association Journal, Jacksonville

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66 War Work of American Medical Women. E. M. Mosher.—p. 159.
67 Progressive Ethics. J. H. Coffee, Fort Meade.—p. 161.
68 Prevention of Intestinal Diseases, Including Typhoid. M. L. Crum, Bowling Green.—p. 164.
69 Relation of Eye, Ear, Nose and Throat to Conservation of Health of Schoolchildren. S. F. Smith, Lakeland.—p. 167.
70 How Much Do We Owe Our Patients? L. L. Andrews, Fort Myers.—p. 169.
71 Eliminative Treatment of Eclampsia. L. E. Parmley, Winter Haven.—p. 172.
72 Value of Nurse Hired by City or District, Community Nurses. B. Honeywell, Lakeland.—p. 174.
73 Sanitary Inspector in Prevention of Diseases. H. O. Snow, Tampa.—p. 176.
74 New Obstetric Sheet. G. H. Edwards, Orlando.—p. 177.

### Kansas Medical Society Journal, Topeka

January, 1918, **18**, No. 1

75 Sporotrichosis; Report of Case. R. C. Henderson, Erie.—p. 1.
76 Educational Function of Hospital. M. Conklin, Topeka.—p. 4.
77 Acute Infectious Poliomyelitis. J. A. Rader, Caney.—p. 8.
78 Obstetric System. N. C. Speer, Osawatomie.—p. 9.
79 Some Uses of Eserin. C. L. Smith, Independence.—p. 11.

### Kentucky Medical Journal, Bowling Green

January, 1918, **16**, No. 1

80 Provision for Feebleminded of Kentucky. A. Dixon, Henderson. —p. 33.

### Medical Record, New York

Jan. 5, 1918, **93**, No. 1

81 Tuberculosis in French Army During War. C. U. Dercle.—p. 1.
82 Tuberculosis and War. G. E. Bushnell, Washington, D. C.—p. 4.
83 Psychopathology. E. S. Cowles, New York.—p. 6.
84 Restoration of Motor Function in Resected Nerve Treated by End-to-End Anastomosis. J. Byrne, A. S. Taylor and S. W. Boorstein, New York.—p. 11.
85 Dermatoses of Scalp. M. Scholtz, Cincinnati.—p. 15.
86 Status Lymphaticus; Death Following Tonsillectomy; Necropsy. W. W. Carter, New York.—p. 19.

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87 Acute Abdomen. J. B. Deaver, Philadelphia.—p. 47.
88 Studies of Borderline Cases Among Criminals. L. E. Duval, Washington, D. C.—p. 52.
89 Surgical Treatment of Cancer. H. J. Boldt, New York.—p. 62.
90 Diagnostic Significance of Bleeding from Rectum. A. A. Landsman, New York.—p. 63.
91 Gonorrhea as Constitutional Disease. B. P. Thom, New York. —p. 66.

### Michigan State Medical Society Journal, Grand Rapids

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92 Treatment of Erysipelas. F. B. Tibbals, Detroit.—p. 1.
93 Causes of Abortion. J. E. Davis, Detroit.—p. 2.
94 Carrell-Dakin Treatment of Infected Wounds. A. Campbell, Grand Rapids.—p. 5.
95 Case of Condyloma Lata and Condyloma Acuminata in Patient with Syphilis and Gonorrhea. J. A. Elliott, Ann Arbor.—p. 9.
96 Clinical Application of Electrocardiography. G. E. Fahr, Ann Arbor.—p. 10.
97 Leukemia Cutis with Demonstration of Case. J. A. Elliott, Ann Arbor.—p. 19.
98 Case of Hydrophobia. H. deB. Barss, Ann Arbor.—p. 21.
99 Case of Typhoid Receiving Intravenous Injection of Foreign Protein. J. B. Grant, Ann Arbor.—p. 25.
100 Review of Month's Roentgenograms. J. G. Van Zwaluwenburg, Ann Arbor.—p. 28.

### Missouri State Medical Association Journal, St. Louis

January, 1918, **15**, No. 1

101 Control and Treatment of Criminal Abortion. R. M. Spivy, St. Louis.—p. 1.
102 Carcinoma of Larynx; Report of Cases. R. H. Meade, Kansas City.—p. 5.
103 Protein Indigestion in Infants. J. Zahorsky, St. Louis.—p. 8.
104 Health Conditions in Missouri Penitentiary. W. A. Clark, Jefferson City.—p. 10.
105 *Stricture of Esophagus. Successfully Dilated from Below Upward Through Gastrotomy Opening. E. F. Robinson, Kansas City. —p. 14.
106 Mental Hygiene as Factor in Public Health. F. M. Barnes, Jr., St. Louis.—p. 15.
107 Chewing Gum and Catheter as Foreign Bodies in Bladder. C. Martin, St. Louis.—p. 17.

105. **Stricture of Esophagus.**—For twenty years no solid food entered the stomach of Robinson's patient and liquids only in the smallest quantities. Since birth this girl had never been able to swallow solid food. Ever since she could remember when she would eat the meal would be vomited about four to six hours later. For the past few months even milk would be ejected from the esophageal pouch, usually in a hard curd. A roentgenogram and the fluoroscope, after a glass of bismuth and buttermilk, showed a large esophageal pouch about 2 inches above the diaphragm. A faint, fine shadow about the size of a small knitting needle could be traced indistinctly through a stricture into the stomach. An effort was made to pass the stricture by having her swallow fine silk threads. In order to get these down they were attached to small pieces of easily dissolved chocolate cream candy, but no success resulted from these efforts. Under ether anesthesia the abdomen was opened by a vertical incision about 1 inch to the left of the median line. The stomach, which was very small, was brought into the wound and an incision just large enough to admit the index finger was made low down on the anterior surface. After locating the esophageal orifice a small bougie was passed with difficulty through it up into the pouch and out through the mouth. To the bougie was attached a heavy linen thread which was drawn out of the gastrotomy opening. A heavier silk thread was tied to this and then a double piece of obstetric tape. There was thus established two heavy ligatures through the gastrotomy opening, through the stricture, and out the mouth. The end of one of these were tied together to serve as a safety ligature. To the other was attached a rubber drainage tube which was pulled through the stricture and the end allowed to protrude from the stomach opening. Several holes were cut in the tube to permit feeding through it. The stomach was attached to the abdominal wound and the tube was invaginated to prevent leakage from the stomach. The patient was fed through the tube for the first three days, and when the tube was removed, liquids and soft food were given by the mouth. The gastrotomy closed in ten days. The emergency or safety ligature was not removed until the tenth day when bougies were passed by the mouth. These were continued each week for sometime. Three months after operation the girl had gained 30 pounds in weight.

### New Jersey Medical Society Journal, Orange

January, 1918, **15**, No. 1

108 Uterine Myomas; Abdominal Hysterectomy Complete and Incomplete. J. S. Stage, Newark.—p. 1.
109 *Acute Endocarditis. H. I. Goldstein, Camden.—p. 3.
110 Removal of Tuberculous Persons. C. V. Craster, Newark.—p. 7.
111 Tenement House Supervision in Tuberculosis Campaign. M. W. Beemer.—p. 8.

109. **Acute Endocarditis.**—Two of the cases of endocarditis cited by Goldstein occurred in two young girls, sisters, and the only two children in the family. Both girls had attacks of tonsillitis, chorea, rheumatism and resulting cardiac trouble as a sequel—both patients had two attacks of acute endocardial inflammation, followed by cardiac decompensation, with kidney breakdown. Both girls had not begun to menstruate, although 14 ½ years of age. The attacks in both cases came on when they reached the same age. The older girl died several years ago, and the younger one has just gone through a severe second attack of acute endocarditis and is now suffering from a marked enlargement of the heart, cardiac decompensation and parenchymatous nephritis with general anasarca.

### New Orleans Medical and Surgical Journal

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112 Fracture of Inferior Maxilla. A. G. Friedrichs, New Orleans. —p. 562.
113 Manufacture of Serums. M. F. Wilson, New Orleans.—p. 563.
114 Alimentary Glycosuria. A. Eustis, New Orleans.—p. 566.
115 Selection of Donors by Grouping for Blood Transfusion. E. Bass, New Orleans.—p. 573.
116 Operative Interference in Pott's Disease. P. A. McIlhenny, New Orleans.—p. 579.
117 Several Cases of Hypophyseal Disease. H. N. Blum, New Orleans. —p. 583.
118 Device for Localization of Foreign Bodies by Means of Roentgen Rays. A. Granger, New Orleans.—p. 585.
119 Case of Bullet in Ilium. E. L. Leckert, New Orleans.—p. 590.
120 Exemption Boards and Medical Men in Making and Keeping up an Army. L. Sexton, New Orleans.—p. 592.

### New York Medical Journal

Jan. 12, 1918, **107**, No. 2

121 *Instruction and Supervision of Expectant Mothers in New York City. J. Sobel, New York.—p. 49. To be concluded.
122 Wassermann Complement Fixation Test for Syphilis. J. W. Smith, Jr., New York.—p. 55.
123 Operative Methods for Cure of Hemorrhoids. A. A. Landsman, New York.—p. 59.
124 Mastoiditis. G. E. Steel, New York.—p. 63.
125 Rôle of Minor Surgical Procedures in Development of Thrombo-Angeitis Obliterans. I. Gottlieb, New York.—p. 65.
126 Chloroform Poisoning. C. E. Hyde, Bridgeport, Conn.—p. 67.
127 Disposal of Sewage. H. Greenstein, New York.—p. 67.
128 Trench Diseases. J. E. Lind, Washington, D. C.—p. 73. To be continued.

121. **Supervision of Expectant Mothers.**—The instruction and supervision of expectant mothers New York City centers around the baby health stations of the department of health, of which there are fifty-nine in the Greater city. Each of the eight "prenatal" nurses has her office at one of these stations, and draws her clientele from the district boundaries of this station. Nurses with special aptitude for this work are selected whenever possible. The nurse holds office hours at the station every morning from 9 to 10 o'clock in order to interview and advise mothers, and to be on call for any special emergencies which may arise. With the consent and understanding of the physician or institution in charge, nurses instruct mothers antepartum as regards general home conditions, diet, clothing, exercise, rest, ventilation, bathing, care of the teeth and breasts, general physical and mental condition, arrangements for confinement, placing special emphasis on the advisability and desirability of maternal nursing, and postpartum, as to the importance of maternal nursing, care of the eyes, sleep, regular feeding, milk modification, etc., urging the mother to follow carefully the physician's directions.

With the consent of the physician or of the institution in charge of the patient, or at their request, examinations of the urine, to detect the presence of albumin, are made at least once a month up to the sixth month of pregnancy, and thereafter every ten days or more frequently. If, before the birth of the child, there are any significant signs or symptoms which indicate danger, such as severe and persistent vomiting, pronounced and constant headache, swelling of the legs, scanty urine, muscular twitching, convulsions, bleeding, etc., the nurse communicates immediately with the physician or institution in charge of the case or with the nearest maternity hospital, general hospital, dispensary, or ambulance service, and arranges for proper disposition of the case. If the nurse suspects the existence of syphilis, tuberculosis, or gonorrhea, she refers the patient to the private physician in charge or to the nearest hospital or dispensary.

Whenever indicated, these nurses accompany expectant mothers to hospitals, dispensaries, maternity, clinics, etc., for examination, treatment, or advice. Special emphasis is placed on securing the goodwill and cooperation of physicians, institutions and midwives in attendance and in communicating with them in all matters bearing on the cases. Mothers are always urged, as before noted, to place themselves under medical care, but if they express preference for a midwife, they are referred to midwives who are known to be graduates of the recognized school in this city, the Bellevue Hospital School for Midwives. The orders of the physician or midwife attending the patient are not interfered with in any way. As a check on unlicensed midwives, the nurse is expected to secure the name, address and floor of the midwife in each case of confinement coming to her attention, and report the same to the central office of the department. The Division of Midwives and Foundlings of the Bureau of Child Hygiene receives from each midwife a quarterly list of the mothers delivered by her. In an effort to secure an increased enrolment of expectant mothers, the midwives of the city have been requested by the special corps of nurses assigned to their supervision and by circular letters signed by the commissioner of health, to submit the names and addresses of the prospective mothers under their care in order that the latter may be given the necessary prenatal instruction and advice.

### Ohio State Medical Journal, Columbus

January, 1918, **14**, No. 1

129 Physician in War; His Utilization and Conservation. D. S. Gardner, Massillon.—p. 6.
130 Urinary Calculi. E. O. Smith, Cincinnati.—p. 10.
131 Terminal Disinfection. R. G. Perkins, Cleveland.—p. 15.
132 Application of Carrel-Dakin Method to Treatment of Wounds in Civil Practice. P. J. Reel, Columbus.—p. 17.

### Oklahoma State Medical Association Journal, Muskogee

January, 1918, **11**, No. 1

133 Gonorrhea in Female. L. M. Sackett, Oklahoma City.—p. 1.
134 Chronic Vesiculitis. W. J. Wallace, Oklahoma City.—p. 5.
135 Relation of Focal Infection to Skin Diseases. E. S. Lain, Oklahoma City.—p. 10.
136 Diagnosis of Gastro-Intestinal Lesions by Roentgen Ray. J. T. Martin, Oklahoma City.—p. 16.
137 Some Causes of Difficult Labor and Their Treatment. W. W. Wells, Oklahoma City.—p. 19.
138 Use of Obstetric Forceps. O. C. Newman, Shattuck.—p. 21.
139 Roentgenologic Diagnosis of Tuberculosis. W. E. Wright, Tulsa.—p. 23.
140 Carrel-Dakin Treatment at New York Polyclinic Hospital. A. R. Wiley, Tulsa.—p. 25.

### Philippine Journal of Science, Manila

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141 Mohammedan Medical Practice in Cotabato Province. L. Gomez.—p. 261.
142 Disease in Cattle in Philippine Islands Similar to That Caused by Anaplasma Marginale Theiler. W. H. Boynton, Manila.—p. 281.

### Rhode Island Medical Journal, Providence

January, 1918, **2**, No. 1

143 Some Factors in Diagnosis of Cardiac Conditions. W. H. Smith, Boston.—p. 1.
144 Measles. D. L. Richardson, Providence.—p. 4.
145 Lead Poisoning, Cause of Obscure Disease. W. L. Chapman, Providence.—p. 8.
146 Crisis of Pneumonia with Long Drop in Temperature. C. E. Hawkes, Providence.—p. 11.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### Bulletin of Naval Medical Association, Tokyo

August, 1917, No. 16

1 The Sand Tick, "Karasosu," on Island Parao in Caroline Archipelago. Y. Kato.—p. 1.
2 Case of Suppurative Cerebrospinal Meningitis Due to Streptococcus Mucosus. M. Takeda and M. Maruta.—p. 2.
3 *Clinical Test of Action of Antitrypsin and Its Diagnostic Value as Applied to Cancer. S. Kurata.—p. 3.
4 Antigenic Action of Paratyphoid B. Bacillus. M. Maruta.—p. 4.
5 Case of Actinomycosis of Ileum. K. Kuroiwa.—p. 6.

November, No. 17

6 *Experimental Report on Hemolysis in Paroxysmal Hemoglobinuria. K. Kurata.—p. 1.

3. **Action of Antitrypsin: Its Diagnostic Value as Applied to Cancer.**—Kurata examined (by the Roger and Sovignac methods) the action of antitrypsin on thirty-two patients whose cases were either diagnosed clinically as cancer cases, or proved to be so at the necropsy. Sixty-three per cent. proved positive. The activity of antitrypsin was greatly influenced by the position of the cancer, and by the degree of cachexia. When the cancer developed in an alimentary organ such as the stomach, or the liver, the increased activity of antitrypsin in the serum was remarkable; while in the case of cancer of the uterus or penis, the increased activity was comparatively small. In the case of noncancerous diseases, the activity of antitrypsin in the serum was either normal, or only a little increased, except in cases of pregnancy, puerperal women, chronic suppuration, and pulmonary tuberculosis, in which increased activity of antitrypsin in the serum is a recognized fact. In beriberi the activity increased only in atrophic cases. Therefore, the fact of increased activity of antitrypsin in the blood is of use only in cases of cancer, after other diseases which accompany the increased activity have been eliminated. A remarkable increase of its activity, when there is no other cause for it, may be taken as a clear indication of the existence of cancer in the alimentary system.

6. **Hemolysis in Paroxymal Hemoglobinuria.**—Kurata examined the hemolytic phenomena in the test tubes containing the blood of two patients suffering from paroxysmal hemoglobinuria, and reached the following conclusions concerning the nature of hemolytic amboceptor. (*a*) Hemolytic amboceptor present in the patient's blood serum combine easily with corpuscles, under the influence of cold. When they are once combined they do not separate, even if heat is applied. (*b*) When hemolytic amboceptors present in the blood serum are cooled by ice, or heated to 60 C. for half an hour, they lose their hemolytic nature. But when hemolytic amboceptors are combined with corpuscles they do not lose their hemolytic nature, even when cooled with ice, and it seems as if their hemolytic nature is protected by the corpuscles. (*c*) In so far as hemolytic amboceptors coming between complement and corpuscles cause hemolysis, they closely resemble Ehrlich's amboceptor. But as they do not combine with corpuscles unless cooled, and also lose their nature by the influence of cold and heat, they appear to be a different substance from Ehrlich's amboceptor. (*d*) Beside the hemolytic substance mentioned, Kurata also finds hemoglutinin in the blood serum of the patient which is not influenced either by cold or heat.

### Medical Journal of Australia, Sydney

Dec. 8, 1917, **2**, No. 23

7 Ringworm and Allied Parasitic Skin Diseases in Australia. H. Priestley.—p. 471.

Dec. 15, No. 24

8 Menace of Birth-Rate. R. J. A. Berry.—p. 491.
9 *Ringworm Epidemic Presenting New Type of Fungus. C. N. Paul.—p. 496.

9. **Ringworm Epidemic Presenting Fungus.**—Recently there passed over certain districts of New South Wales a plague of mice, which advanced with the rapidity of an invading army, leaving in their train signs of great destruction and devastation. Their food supplies were drawn from huge stacks of wheat, accumulated owing to the lack of freight. As a result much of the wheat had to be rebagged and shifted, and many of those handling it became infected with a cutaneous eruption which was diagnosed as ringworm . There was ample evidence that the mice were the causative agent in this spread, for many were seen with patches almost denuded of hair. The eruptions occurred mostly on exposed parts, and on the hairy region of the face numerous and extensive areas of pustulation, the so-called multiple kerion, presented themselves. Pruritus was complained of, being more noticeable at night. A striking feature of the early patches was a rounded, and sharply circumscribed border, in which were scattered on an erythematous base, discrete vesicles, vesicopustules, and pustules, but in these desquamation was absent. The more advanced patches showed another phase in which there was a somewhat striking resemblance to chronic eczema. In these, the periphery was not sharply circumscribed as in the earlier lesions, the vesicles and pustules had disappeared, and outlying papules or papulovesicles were to be observed, as in chronic eczema. After soaking the scales in liquor potassae the fungus was revealed in abundance. Cultures were obtained from the hairs and scales with an unusual facility, and were remarkably constant in appearance. It was one of the microid ecto-endothrix trichophytons of the *Gypseum* group. Paul has called it the *Trichophyton rodens.*

### Sei-I-Kwai Medical Journal, Tokyo

December, 1917, **36**, No. 12

10 *Experimental Study of Ginseng. W. Sakai.—p. 113.
11 *Repeated Vomiting as Cause of Hemorrhagic Erosion of Stomach (Stigmata Ventriculi, Beneke). M. Murata and H. Hashimoto. —p. 115.
12 Determination of Glycogen. I. Yamakawa.—p. 116.

10. **Experimental Study of Ginseng.**—From Sakai's examination it is evident that ginseng has not only a sedative action on the cerebrum, but also a stimulating action on few functions necessary to life; however, its action is not so great as was believed formerly. It may be useful as a tonic or stimulant.

11. **Repeated Vomiting as Cause of Hemorrhagic Erosion of Stomach.**—Of twenty-seven cases of the hemorrhagic erosion of the stomach examined postmortem, eighteen patients had repeated vomiting. In the remaining nine patients the existence of repeated vomiting was uncertain but in at least half of them it was probably present, as they were cases of suppurative peritonitis, contracted kidney and gastric cancer. From these experimental and anatomicoclinical examinations it is safe to say that hemorrhagic erosion can be caused by repeated vomiting.

### Bulletin de l'Académie de Médecine, Paris

Nov. 27, 1917, **78**, No. 46

13 *Clinical Evaluation of Toxicity of the Urine. Billard and Perrin. —p. 620.
14 Action of Tin on Fever in Tuberculosis. A. Compton.—p. 622.
15 *Rubber in Hot Film Dressings. Mme. Bouet-Henry.—p. 627.
16 *Serum Treatment of Hemorrhage. H. Dufour and Le Hello. —p. 629.

Dec. 11, 1917, **78**, No. 48

17 *List of Prizes Awarded and Offered by the Académie.

13. **Superficial Tension as Index of Toxicity of the Urine.** —Billard and Perrin report that the superficial tension of urine is a simple and rapidly obtained index of its toxicity. In studying the toxic substances in the urine it was found that they always lowered the superficial tension of fluids in which they were in solution. The amount of toxic substance in urine that will kill a rabbit is as much smaller as the superficial tension is below normal.

15. See Paris Letter, page 112.

16. **Utilization of Passive Anaphylaxis in Serum Treatment of Hemorrhage.**—Dufour has been calling attention for some time to the importance of the changes induced by anaphylaxis as a means to influence hemorrhage from inadequate coagulation. He induced active anaphylaxis in a girl of 14 to arrest hemorrhagic purpura. Later he used serum from rabbits with passive anaphylaxis to arrest hemorrhages in two typhoid cases. He here reiterates that instead of using ordinary serum to arrest hemorrhages, serum from rabbits in which anaphylaxis had been induced by Besredka's method has a far more effectual action in hastening coagulation. A number of parallel tests are reported. The blood from twenty-three men and women showed hypercoagulability in nineteen specimens, three hours after injection of 5 c.c. of the anaphylactic rabbit serum (passive anaphylaxis).

17. See News Columns, page 183.

### Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 26, 1917, **41**, No. 29

18 *The Arterial Pressure in Children Paralyzed from Poliomyelitis. A. Souques.—p. 1055.
19 *Treatment of Tuberculous Meningitis by Intraspinal Injection of Air. F. Ramond and François.—p. 1058.
20 *High Blood Pressure in Soldiers with Heart Disease. P. Merklen. —p. 1661.
21 Traumatic Pulmonary Tuberculosis. L. Giroux and Fabre.— p. 1066.
22 *Treatment of Syphilis. L. Bory.—p. 1068.
23 The Orthoamidobenzoate of Mercury. L. Bory and A. Jacquot. —p. 1071.
24 The Fifth Cusp and Inherited Syphilis. C. Mantoux.—p. 1073.

18. **Blood Pressure in Paralyzed Children.**—Souques found the arterial pressure much reduced or imperceptible in limbs long paralyzed from poliomyelitis. The lowness of the pressure was proportional to the degree of impotence and atrophy of the limb, showing that the ischemia thus produced by the spinal focus contributes to augment the atrophy of the paralyzed member.

19. **Intraspinal Injection of Air in Tuberculous Meningitis.** —Ramond and François reiterate that tuberculosis is essentially curable, especially when it involves serous membranes, and their experience during the last two years with injection of air seems to suggest that this treatment has a future. It has been found useful in tuberculous peritonitis and pleurisy, by various workers, and Ramond has found it effectual also in arthritis, orchitis and meningitis. The procedure seems to be absolutely harmless by this technic: The lumbar puncture is done on the reclining patient and about 40 c.c. of fluid is withdrawn. The air is drawn into a Roux syringe through a

long, red hot platinum needle. This sterilizes and warms the air, and it is then slowly injected through the puncture needle which has been left in place. The amount of air injected should not be over one half or two thirds of the amount of fluid withdrawn. The injection of air can be repeated for five or six consecutive days but no longer, as the nitrogen in the air is not readily absorbed; if oxygen is used, instead of air, it can be kept up indefinitely. The results obtained with this treatment in tuberculous meningitis have been encouraging, but the patients all died finally, after a period of improvement. He reports here a recent case, the young man in coma, in which the improvement for two weeks was so striking that complete recovery seemed inevitable. The tenth day after suspension of the air injections the patient, a soldier of 25, became unconscious and died in three days. It is possible if the injections of air were made at once, as soon as the diagnosis is established, they would prevent the extension of the tuberculous process, especially if the air were injected into the lateral ventricles. Experience has confirmed the tolerance of the ventricles for injected air. In future Ramond will inject more air; the amounts hitherto used, from 2 to 15 c.c. were probably too small.

20. **High Blood Pressure with Nonvalvular Heart Disease.**—Merklen refers to cases of disordered heart action with tachycardia in soldiers free from valvular defect. He was inclined to class these cases as a nervous functional disturbance, but study of the arterial blood pressure showed that it was abnormally high in a large proportion of the men. In less than six weeks he had sixty such cases in the sector in his charge. No factors could be discovered common to all; some of the men had never been on the firing line. Local exploration and radiography failed to reveal any organic changes to explain the numerous cardiac and circulatory manifestations, and only in two of the men did the methylene blue test suggest slightly defective elimination by the kidneys. The lapse of years will throw light on these cases. At present, he adds, all that can be said of them is that they are unfitted for exertion and fatigue. They can be utilized for light duty, but to impose more will only unfit them soon for any kind of military service.

22. **Reverse Treatment of Syphilis.**—Bory has been attacking syphilis with massive doses of mercury to start with and then continuing with small doses of salvarsan preparations, thus reversing the usual procedure. He is physician in chief of the skin and venereal diseases center of region 20, and the effects of this method of treatment during the last six months have been excellent, as shown by the clinical course and repeated Wassermann tests. He uses mercury benzoate in a 3 or 6 per cent. solution, by intravenous or intramuscular injection, commencing with 4 cg. every day or two and increasing to 5, 6 or 7 cg. By the twelfth to fifteenth day the dose of 8, 9 or 10 cg. is borne without difficulty. He thus pushes the mercury for twenty-five or thirty days, the total dose from 1.10 to 1.20 gm. of the mercurial salt, in eighteen or twenty injections. The sodium chlorid proportion is only 30 or 40 centigrams to the gram of the mercurial salt. He has thus treated 1,200 men; the average stay in the hospital for the men was not over thirty days. The contagious manifestations generally disappeared by the tenth day or sooner, only rarely later than the fifteenth. He gives arsenic only later when the Wassermann reaction indicates that treatment had better be continued. One or two injections then of novarsenobenzol answer the purpose.

### Paris Médical

Dec. 8, 1917, **7**, No. 49

25 *Examination with Digestive Disease. P. Le Noir and M. Delort.—p. 469.
26 Balantidium Enteritis. M. Labbé.—p. 472.
27 Paralysis of the Ulnar Nerve. André-Thomas.—p. 473.
28 Physical Measures in Treatment of Pulmonary Tuberculosis. F. de Courmelles.—p. 476.

25. **Examination in Cases of Digestive Disease.**—Le Noir and Delort comment on the numerous elements that have to be taken into account in investigating alleged digestive affections in soldiers. They have a special chart recording the antecedents, the stomach signs, the intestinal signs, and the signs from other organs. Vomiting as a symptom is particularly instructive when food taken a day or two before is recognized. Blood shows ulceration. Pain is instructive if the point, the duration and the evolution can be specified, and the pain differentiated from burning, distention, oppression and other sensations. The dyspepsia cases can be classified as primary: the stomach mainly involved; secondary to a bad general condition or overexertion and tending to subside when the cause is removed; and reflex dyspepsia, secondary to some focus of disease elsewhere, irritating the nerves. Gastroneuroses must be excluded. It is very important to consult the man's individual chart booklet, note the weight in comparison with what it has been, and also to record the present findings as completely as possible. The final decision on the case is thus facilitated.

### Presse Médicale, Paris

Nov. 29, 1917, **25**, No. 66

29 The Histologic Lesions with Wounds of the Lungs. R. Grégoire and A. Courcoux.—p. 673.
30 *Treatment of Gonorrhea in the Male. A. Renault.—p. 674.
31 Mechanism and Prevention of Aerophagia. G. Lyon.—p. 676.

30. **Treatment of Gonorrhea.**—Renault mentions a number of minor points useful to bear in mind in treating acute gonorrhea. Among them is the necessity for a nourishing diet, to keep up the strength, but avoiding acids as they render the urine more irritating. He specifies oranges, lemons and salads, on account of the vinegar, as better avoided, and particularly asparagus during its season. Copaiba and santal reduce the secretion but at the expense of increasing the inflammation in the urethra. They are not indicated until the end of the second or third week. Then, if the stomach can stand them and they are kept up for four or five weeks, the secretion dries up completely in most cases without local measures. Acute gonorrhea is rebellious only in those with sluggish metabolism. These require three or four permanganate flushings. But they must be given by a physician or trained attendant. Once a day is enough, he thinks. He regards as chronic any case that persists over three months. The only effectual treatment when the microscope shows no further gonococci is with copious irrigation of the urethra and bladder with permanganate or silver nitrate after preliminary dilatation of the urethra, repeating every third day, supplemented with massage of the prostate. If this fails, he orders an iodotannic or tannin bougie every other night. Throughout the entire course of treatment he insists on the patient's drinking water as the only beverage, and for two or three months after complete subsidence of all urethral oozing. Both physician and patient must bear in mind that the hard thing is not to suppress the oozing, but to keep it suppressed. The least imprudence will bring it back again.

### Progrès Médical, Paris

Nov. 10, 1917, **32**, No. 45

32 *Sciatica with High Blood Pressure. J. Galtier.—p. 377.
33 *Asthenia from Overexertion at the Front. Cheyrou.—p. 378.
34 Metal Mirror in Breast Pocket Arrests Large Flying Piece of Shell. Menu and Bonnette.—p. 381.

32. **Sciatica and Abnormally High Blood Pressure.**—Galtier describes a number of cases which were diagnosed as sciatica but, he thinks, belong in another category. Evidences of high blood pressure, slight congestion of the face, nightmares, buzzing in the ears, trembling of the hands and tongue, and a general neurasthenic condition—all in men past 40—form the basis on which are superposed disturbances in the gait, in the reflexes, and pains in the leg, with various paresthesias. The pains are diffuse and multiple, but the cause is not in the sciatic nerve but in the underlying "presclerosis." Treatment with 1 or 2 gm. of potassium bromid daily, with from 0.5 to 1 gm. of the iodid; mixed and fractioned in two doses, plus a daily laxative, has proved effectual in his hands, possibly supplemented with a little massage of the seats of the pain. After a few weeks of this treatment fifty-two of the 166 soldiers in this class could be sent back to the front. Others required a supplementary course of spa treatment, while for some with high tension and great asthenia, discharge from the army was advised, as recurrences are the rule.

33. **Fatigue in Men at the Front.**—The regimental physician often encounters pathologic conditions for which fatigue is the main factor. Cheyrou has found that this was the clue to many clinical pictures, and that improvement promptly followed treatment addressed to the fatigue. Lumbago is the simplest and earliest form, and the horizontal position for twenty-four hours banishes it as a rule. Fatigue fever is not uncommon, after special and prolonged exertion, with constipation, pains back of the eyes and in the back and along the tibias, with acceleration of the pulse and rise of temperature. All of this may disappear under a few days of bed rest, repeated laxatives and restriction to water, with administration of quinin. In the severer cases the digestive apparatus, kidneys or heart may bear the brunt of the attack. Some of the men returning from the trenches at Verdun had reached such a stage of autointoxication from the prolonged constipation, that enteritis followed and several weeks elapsed before normal conditions were restored. The nervous system shows the effect of excessive fatigue in various ways that he describes. These asthenic states, scarcely known before the war, are prevalent, and reduce the resisting power to infections. Prophylaxis should include measures to keep the diet varied and oppose constipation. Suitable provisions for sleeping would aid much in proper recuperation. Overexertion might be avoided by better distribution of energy and labor. The watches should be relieved oftener, and supplementary rations and hot drinks supplied in the hardest sectors. As fatigue reduces the alkalinity of the blood, alkalies should be supplied artificially, and diuretics and laxatives given to keep the emunctories open. Cheyrou suggests in treatment progressively large injections of strychnin to reenforce the nervous system, giving drops of epinephrin to restore muscular tone. He advises further utilization of physiologic serum with epinephrin. Administration of extracts of the suprarenal capsules has aided materially in overcoming asthenia and hastening elimination of toxins. Extract of testicles might be given with it, concluding with a course of tonics and means to recalcify the organism.

### Chirurgia degli Organi di Movimento, Bologna

May, 1917, **1**, No. 2

35 *Lesions of Radial Nerve after War Wound of Upper Arm. G. Ruggi.—p. 167.
36 War Wounds of Vessels in the Limbs. M. Donati.—p. 191.
37 *Inability to Straighten the Spine as Effect of War Traumatism. P. Rédard.—p. 257.
38 *Congenital Genu Recurvatum and Its Treatment. M. Francini. —p. 268.
39 *Vitalization of Artificial Limbs. (Cinematizzazioni.) A. Pellegrini. —p. 292.
40 *Fracture of the Calcaneum. F. Delitala.—p. 303.

35. **Indirect War Wounds of the Radial Nerve.**—Ruggi refers to radial paralysis and contracture and pains secondary to firearm wounds of the vessels and nerves in or near the axilla and the inner part of the upper arm. The paralysis and other disturbances were benefited by operations in the axilla or upper arm. Ten cases are described with colored illustrations. Although the radial nerve itself had not been injured, yet the nerve was compressed or irritated by the cicatricial changes in the vessels or other nerves. In none were there any mishaps from the intervention.

37. **Bending of the Spine as War Traumatism.**—Rédard gives photographs of men who are unable to stand up straight, the attitude resembling that of one trying to touch the floor with his finger tips. One illustration shows twelve men with this form of contracture. The mild cases, with signs of hysteria, recover without much being done, but the medium cases require systematic treatment, and the grave cases with organic lesions in the spine and emaciation are usually rebellious to treatment. Psychotherapy and contrasuggestion are useful aids to the usual physical therapy. Men with the mild forms do best when sent home, and in any event should be kept apart from others with the same trouble. Attempts to straighten the spine should be made very gently. Forcible correction in psychoneuroses may induce deplorable aggravation. As the trouble is almost invariably curable sooner or later, the question of discharge from the army on account of disability should not be even suggested.

38. **Congenital Genu Recurvatum.**—Francini gives an illustrated description of a severe case neglected till the age of 3 in which he restored approximately normal conditions by severing the patellar ligament and, after correcting the abnormal arrangement of the parts, restoring the continuity of the patellar ligament by slitting and turning over part of it. The procedure required differed for each knee. A plaster cast was applied to each. The long disuse of the quadriceps renders the joint weak, but time will correct this.

39. **Cinematic Plastics.**—Pellegrini gives twenty-two illustrations showing various means by which the stump after amputation can serve for direct differentiated muscular control of the prosthesis. He is seeking to realize in practice Vanghetti's theory of vitalization of artificial limbs.

40. **Fracture of the Heel Bone.**—Delitala cites from the literature numerous cases of fracture of the calcaneum with the ultimate outcome. The data testify to the peculiar gravity of these fractures as interfering with the nourishment of the parts and the use of the foot. Pains, contracture, atrophy or deformity of the foot are common, and the wage-earning capacity is reduced on an average by 30 per cent. Two cases are reported in detail, one with disability of 60, the other of 35 per cent.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Nov. 25, 1917, **38**, No. 94

41 *Tests for Aldehyd in Foods. E. and E. Pittarelli.—p. 1243.

41. **Tests for Aldehyd in Foods.**—Pittarelli discusses the various tests for formic aldehyd and its differentiation from acetic aldehyd. The Rimini and Fischer tests cannot be applied to foods, as in the presence of sulphydric acid, creatinin or acetone the findings are misleading. He gives the technic for a simple hydrazin-mercury test which he says is reliable both quantitatively and qualitatively.

### Pediatria, Naples

December, 1917, **25**, No. 12

42 History of Antimony as Remedy in Internal Leishmaniosis. R. Jemma.—p. 705 .
43 *Inherited Syphilis as Basis for Tuberculosis of Bones. G. Caronia and R. K. Marinucci.—p. 713.
44 *Fuchsin in Treatment of Suppurating Skin Disease in Infants. A. Gismondi.—p. 718.

43. **Inherited Syphilis and Surgical Tuberculosis.**—Caronia has noticed in the tuberculosis dispensary at Naples that tuberculosis of the bones often develops in persons with inherited syphilis. He tabulates the findings in seventy children from 2 to 13 years old with Pott's disease or other tuberculous affection of bones or joints. They show that in 72.3 per cent. inherited syphilis was beyond question. This demonstrates the importance of treatment as for syphilis, in addition to the measures addressed to the tuberculosis. His experience with this combined treatment was quite encouraging.

44. **Fuchsin Treatment of Skin Disease in Infants.**—Gismondi refers to Triboulet's method of treating impetigo and suppurating skin disease in infants by the application of Ziehl's fuchsin stain such as is used in the laboratory (1 gm. fuchsin; 10 gm. alcohol; 5 gm. phenic acid, and 100 gm. distilled water). Triboulet washes off the scabs with 1 per cent. zinc sulphate and then applies the fuchsin stain, daily, pressing it into the lesion on cotton, but Gismondi has found it equally effectual applied without the preliminary rinsing. Even with only two applications a week, the impetigo was soon nearly entirely conquered. This fuchsin treatment proved especially effectual with scabbing of the scalp, succeeding in every case. He is planning to apply this method to other skin diseases in infants, saying that the drawback of the discoloration is abundantly compensated by the therapeutic results.

### Policlinico, Rome

Nov. 25, 1917, **24**, No. 48

45 *The Advanced Surgical Station. V. Montenovesi.—p. 1405.
46 Factitious Nodules from Injection of Insoluble Substances. A. Ascarelli.—p. 1407.
47 *Management of Fracture and Dislocation of the Pelvis. L. G. Gazzotti.—p. 1410.

45. **Advanced Surgical Station.**—Montenovesi describes some ready-made barracks that can be set up for an advanced surgical station at a twentieth of the expense of a surgical ambulance.

47. **Fracture and Dislocation of the Pelvis.**—Gazzotti gives illustrations of a hammock device in which the pelvis rests, raised slightly above the level of the bed, with arrangements for immobilization and extension.

### Riforma Medica, Naples

Nov. 24, 1917, **33**, No. 47

48 *Tardy Manifestation of Inherited Syphilis. P. Gagliardo.—p. 1093.
49 Vital Statistics in Italy for 1914. A. Botti.—p. 1104.

Dec. 1, 1917, **33**, No. 48

50 *Soldier's Heart. E. Tedeschi.—p. 1113.
51 *War Wounds of the Thorax. O. Finzi.—p. 1116.

48. **Defective Development from Tardy Inherited Syphilis.**—Gagliardo gives the history of a man of 20 whose body seemed to stop growing at 15. The trunk was that of a boy of 9; the limbs and hair corresponded to 14 or 15, the whole aspect of the eunuchoid type. The development of the genital system is defective also in two sisters and a brother. For three years the young man has been presenting symptoms of cirrhosis of the hypertrophied liver, with grave changes in the blood picture, resembling in some points those of hemolytic jaundice. But all the symptoms and signs presented, as also the defective physical development, might all be explained by the multiple localizations of the inherited taint and their tardy manifestation. The father gives an intense Wassermann reaction.

50. **Soldier's Heart.**—Tedeschi declares that in all that has been written about "soldier's heart" too little attention has been paid to the influence of digestive disturbances on the cardiovascular apparatus. Many of the men reaching his service at Genoa with the diagnosis of heart disease presented likewise symptoms on the part of the stomach, and these revealed digestive disturbances which threw light on the heart symptoms. One robust young man had attacks of pain in the heart and back of the sternum, palpitations, arrhythmia, the pulse becoming almost imperceptible, while the skin grew pale. He had been sent back from the front as suffering from heart disease, but Tedeschi noticed that these attacks occurred only during digestion, and as the digestion returned to normal under the proper measures, the heart symptoms disappeared likewise. In other cases the stomach was much distended with gas, pushing up the diaphragm and hampering the work of the heart, and the men complained of the exacerbation of their heart trouble at such times. They did not notice that when relieved of the gas, their "heart trouble" disappeared with it. The concomitant or superposed stomach disturbances were never mentioned by the patient or in the report that had accompanied him. The entire attention had been focused on the heart. The distention of the stomach was from fermentation in some cases and from motor derangement in others, but in some cases it was undoubtedly the result of swallowing of air; sometimes from this alone. In the cases of primary aerophagia he often found the nose more or less obstructed and the men breathing through the mouth, taking very deep breaths occasionally, the air then passing in part into the stomach. These men were all nervously excitable from their experiences at the front. By curing the hyperplastic rhinitis the aerophagia subsided and with it the supposed heart disease. The nervous excitability renders the heart more readily upset.

51. **War Wounds of the Chest.**—Finzi states that the mortality was 17.3 per cent. in his twenty-three cases of wounds of the chest, one man succumbing to pneumonia four days after the wound, and another to secondary hemorrhage eleven days after the wound. The general treatment was by rapid and thorough disinfection of the wound, keeping the man absolutely still thereafter, in a semiseated posture, with small doses of morphin, injections of stimulants, liquid diet, icebag to the thorax and gelatin injections and enemas if needed. A pad of gauze is applied over the wound to protect it while allowing free outflow of blood.

### Cronica Medica, Lima, Peru

November, 1917, **34**, No. 653

52 *Therapeutic Action of Lumbar Puncture in Headache with Meningeal Reaction. C. A. Bambaren.—p. 396.
53 *Tabetic Amaurosis. L. D. Espejo.—p. 403.
54 The System of Axis-Cylinders. J. S. Losno.—p. 411.
55 Cesarean Section plus Hysterectomy for Deformed and Contracted Pelvis plus Eclampsia. J. A. Maldonado.—p. 419.
56 *Postoperative Treatment of Echinococcus Cysts. A. A. Parodi.—p. 423.
57 The Tuberculous from the Medicolegal Standpoint. I. Castellanos.—p. 425.

52. **Lumbar Puncture in Treatment of Headache with Meningeal Reaction.**—Bambaren expatiates on the necessity for early lumbar puncture in every case of severe and persisting headache; left to itself, the pressure inside the skull which is responsible for the headache is liable to do irreparable harm. Withdrawal of some of the fluid breaks up the vicious circle. The number of drops to the minute gives a good idea of the degree of pressure, but a manometer is a more reliable guide. In a case reported he withdrew 40 drops each time, and this relieved the man at once from the intolerable headache which had tormented him at times. The positive Wassermann reaction in the serum, and certain nervous symptoms suggested incipient general paralysis, but after the lumbar puncture and its repetition on renewal of symptoms three months later, there has been no further headache to date and the other symptoms seem to have retrogressed also. Bambaren compares with this the literature on lumbar puncture for headache, and cites a number of instances in which a flow of the cerebrospinal fluid through the nose or ears cured persisting headaches. In Salmon's case, mere bending the head forward relieved the intracranial pressure and the headache stopped. Mingazzini has reported a definite cure in twenty-four of his forty-seven cases, and marked improvement in all but eight of the others. Bambaren cites further Spiller and de Schweinitz' recent report on the brilliant effects of lumbar puncture in cases of choked disk, removing small quantities of the fluid at a time. When the spinal cavity seems to be shut off from the intracranial cavities, puncture of the corpus callosum should be considered.

53. **Tabetic Blindness.**—The blindness came on gradually first in one eye and after some time in the other. There had been lancinating pains and some tendency to ataxia for a few months. The patient was a man of 49, and there was no history of headache or ocular paralysis. Espejo compares with this case a number from the records. All teach the necessity for curing the syphilis in the secondary stage at least as the only means to certainly ward off atrophy of the papilla from tabes later.

56. **Postoperative Treatment of Echinococcus Cysts.**—Parodi refers to echinococcus cysts in the liver treated by evacuation and suturing the lips of the incision to the wound—marsupialization. In the three cases reported, one girl and two young women had been treated in this way. After lateral laparotomy the large cavity was treated with ether, a wick of gauze moistened with ether being left in the opening, and healing was complete, without suppuration, in thirty days. In the third case a similar operation had been performed three years before, marsupializing the cyst cavity. It had suppurated and the suppuration kept up for a year. Two years later another cyst, also in the liver, was treated in the same way, 2,500 c.c. of fluid being evacuated. The third day the presence of food in the cavity revealed perforation of the stomach. This was tamponed and as soon as this was healed, the cyst cavity—which had been suppurating a little—was treated with ether, and soon healed. The ether treatment consists in rubbing with ether and draining with a wick dipped in ether.

### Gaceta de la Academia de Medicina, Mexico

January-June, 1917, **11**, No. 1-6. First third, pp. 1-37

58 *Gonorrheal Ophthalmia. E. F. Montaño.—p. 1.
59 *Surgical Treatment of Ascites. M. Toussaint.—p. 6.
60 *Calcium. F. Bulman.—p. 11.
61 *Removal of Sebaceous Cysts. R. E. Cicero.—p. 20.
62 Adenoid Vegetations. P. P. Peredo.—p. 23.
63 Mexican Typhus in Children. (Tabardillo.) G. Escalona.—p. 35.

58. **Gonorrheal Ophthalmia.**—Montaño reviews the diagnosis, prognosis and treatment by the nonspecialist. From a few hours up to six days after infection the conjunctiva begins to show a yellowish, blood-stained secretion which soon changes to a greenish yellow. The cornea may begin to ulcerate in twenty-four hours. The prognosis is graver in adults, probably from the mixed infection; 95 per cent. of the new-born recover under proper treatment while 45 per cent. of the adults affected lose vision in that eye, even with specialist care. The main point is prophylaxis. It is more difficult in men as their hands get contaminated at each micturition, but towels, handkerchiefs, bath water, etc., may convey the contagion, as also animals. Children with vaginitis should wear closed drawers. Washing the hands, after relieving any calls of nature, should be enforced for young and old. He emphasizes further the necessity for the physician, and those tending this class of patients, to wear spectacles of mica or plain glass to protect their own eyes against pus that may spurt as the lids are separated. He mentioned that this accident happened to one of the members of the Academia present in the audience. Families should be impressed with the necessity for avoiding promiscuous use of cloths, towels, etc., at all times and most urgently when there is gonorrhea in the environment. He gives minute directions for washing the conjunctiva clean every two or three hours, day and night, and cauterizing with silver nitrate once or twice a day, followed by some other silver salt. As every effort must be made to keep the conjunctiva clear of secretions, the eye should not be bandaged. If hot compresses are called for, they should be frequently renewed. Heat can be applied directly to the cornea with the actual cautery, not letting it touch the tissues.

59. **Diversion of Ascitic Fluid.**—Toussaint made a curved incision, the upper end 3 cm. above Poupart's ligament and the lower end 6 cm. below the junction of the internal saphenous vein with the femoral vein. The saphenous vein was then severed and carried up into the peritoneal cavity through a subcutaneous tunnel, hoping thus to drain the ascitic fluid into the blood. The man's condition was immeasurably improved although there was much edema in legs and lower trunk at first.

60. **Calcium.**—Bulman in the course of his study of the aims and uses of calcium in physiology and therapeutics, remarks that the Indians of Mexico keep their teeth to an advanced age but develop caries when they become civilized and change their dietetic habits. The early wearing out of teeth he explains by the fine bolting of the flour which deprives it of the phosphates, etc., in the outer part of the grain. They are needed to keep the teeth strong. Especially during pregnancy, this lack of the earthy phosphates required by the mother and fetus may result in the woman's losing some of her teeth. He advises addition of earthy phosphates to the food during both pregnancy and lactation. Calcium phosphate seems indicated here. One nursing mother taking it found the signs of rachitis in her infant disappear under it.

61. **Sebaceous Cysts.**—Cicero makes a small incision, in the skin alone, with the actual cautery, carrying it across about half the diameter of the cyst. Then he introduces a grooved sound between the skin and the cyst, and loosens up the skin all around. A spatula is then taken to loosen up the cyst all around and below, and gently work it out through the incision. This is usually easily done as the cyst is so elastic, and it slips out like a bag of oil without breaking. The cavity left is sterilized with tincture of iodin. He has been much gratified with the ease and harmlessness of this technic (Sabouraud) for getting rid of these often disfiguring cysts.

### Prensa Medica Argentina, Buenos Aires

Nov. 10, 1917, **4**, No. 16

64 *Technic for Herniotomy. E. Finochietto and C. M. Squirru. —p. 207.
65 *Pathologic Histology of Amebic Dysentery and Abscess. S. Dessy and R. A. Marotta.—p. 208. Conclusion.
66 *Syphilis in the Etiology of Gastric and Duodenal Ulcers. M. R. Castex. Conclusion.
67 Intravenous Tartar Emetic in Treatment of Condyloma Acuminatum. S. Mazza and C. Matta.—p. 213.
68 Normal Beef Serum in Treatment of Anthrax. J. Penna, J. B. Cuenca and R. Kraus.—p. 215. Continuation.

64. **Operative Treatment for Inguinal Hernia.**—The method described is a modification of the Postemsky technic for obliterating the external inguinal ring, similar to Andrew's modification of the Mugnai-Aguilar technic for the internal ring. The method is particularly applicable for extensive and recurring hernias, when the adjoining muscles cannot be relied on for solid support. The technic has been applied in a number of cases since 1914. In two cases of bilateral inguinal hernia this technic was applied on one side and the Bassini on the other. The hernia recurred in both cases on the Bassini side, but there has been no recurrence in any instance with the modified technic described with illustrations. There is no superposing of the cicatrix in the different tiers and the opening is closed with three layers instead of one or two. The cord rests on a smooth surface instead of on a row of sutures or a freshened surface on which adhesions are liable to form. On the other hand, the direction of the cord is somewhat altered and the cord is left next to the skin. The first plane of sutures takes in Poupart's arch on the outer side, and on the inner side it includes the inner lip of the severed great oblique and the margin of the lesser oblique or the tendon below. The sutures are taken in the outer lip of the severed aponeurosis of the greater oblique at some distance back of the edge. The free edge left is drawn across over the line of sutures and is sutured along the line where it reaches, some distance beyond the first line of sutures. The cord can be all outside or part can be sutured in.

65. **Pathologic Histology of Amebiasis.**—Two large plates show ten microscopic views of the findings in the bowel and liver in amebiasis. They indicate that the ameba penetrates into the bowel wall from the submucosa into the lumen, reaching it in the blood. The abscess in the liver seems to be the work of the ameba alone as long as it has not opened. After spontaneous or surgical evacuation, the pyogenic germs are liable to become installed secondarily.

66. **Syphilis in the Etiology of Gastric or Duodenal Ulcers.**—Castex' plea that treatment for syphilis is often called for to remove the cause of ulceration in stomach or bowel was summarized recently, page 134. He here gives the details of eight clinical cases in which the disturbances returned after operative treatment. There was great improvement in every case but it was only temporary. In each case a history of inherited or acquired syphilis was elicited, often ignored by the patient, and the improvement or complete cure under specific treatment confirmed the importance of this factor in the lesion. He regards the night pain in such cases—to explain which various thories have been advanced—as further evidence of the syphilitic basis of the trouble. Chronic suprarenal or thyroid insufficiency probably cooperates in certain cases with the syphilitic vascular lesion primarily responsible for the gastric or duodenal ulcer. He declares that surgical treatment is indispensable in the various complications and mechanically facilitates healing, but does not remove the cause. The ordinary medical treatment for gastric or duodenal ulcer is merely symptomatic, and is superfluous if the lesion is amenable to antisyphilitic measures. Conditions are the same here as in the brain and spinal cord lesions of tertiary syphilis. No treatment can restore irreparable lesions.

### Revista Med.-Cirurg. do Brazil, Rio de Janeiro

September, 1917, **25**, No. 9

69 Oswaldo Cruz. C. Seidl.—p. 309.
70 *Otogenous Meningitis without Suppuration in the Middle Ear. F. Eiras.—p. 325.

70. **Otogenous Meningitis.**—Eiras refers to the meningitis which develops as the first clinical objective manifestation of a nonsuppurating otitis. His experience confirms in every detail Baldenweck and Roger's conclusions from their cases (summarized in The Journal, June 23, 1917, p. 1948). Eiras warns that the ear should always be suspected when symptoms suggest oncoming meningitis or meningism. Prompt opening up of the mastoid region may ward off further inroads not only of the meningitis but also of the otitis and save the hearing. In a recent case of his own a boy of 6 complained of earache and within twenty-four hours developed temporal headache, nystagmus, vertigo and stiff neck, with slight fever, while the drum membrane was red and

bulging. Without waiting for manifest suppuration, Eiras trephined the mastoid antrum. A small amount of pus was found and there was profuse hemorrhage. All the symptoms vanished as if by magic. The question as to whether he had not been overprecipitate in operating was answered three days later when, in changing the dressings, the antrum was found full of pus. In contrast to this experience, in another case a man with slight suppuration in one ear showed a tendency to somnolency. Eiras accepted this as a sign of incipient meningitis and advised an operation. The warning was not heeded, the man attending to business as usual. The meningitis developed as feared and proved fatal in twenty-four hours. In this case the drum membrane was widely open, which shows that in these menacing meningitis cases it is unwise to waste any time delaying to see the effect of paracentesis. In another case Eiras cured an extremely severe gonococcus otitis and mastoiditis with septicemia by opening up the antrum and sterilizing it with a silver salt, This arrested the ear affection and the toxic cachexia.

### Revista de Medicina y Cirugia, Havana

November, 1917, **22**, No. 22

71 *Second Cesarean Operation for Deformed Pelvis. J. F. Arteaga and J. A. Presno.—p. 587.

December, 1917, **22**, No. 23

72 History and Present Status of Medical Press of Cuba. J. Le-Roy y Cassa.—p. 617.
73 Propaganda for Cremation. C. Hoyos.—p. 638.
74 The Medical Press and Medical Education. G. Aldereguia.—p. 642.

71. **Repeated Cesarean Section.**—At the first cesarean section both tubes had been ligated, but nearly two years later the woman was at term with a second pregnancy. She presented also elephantiasis of the legs and acute bronchitis. The second cesarean section was completed by resection of the tubes between two ligatures, and recovery was prompt after intercurrent pneumonia.

### Semana Medica, Buenos Aires

Aug. 23, 1917, **24**, No. 34

75 *Male Characters in Woman with Hypernephroma. A. Guemes.—p. 207.
76 Implants in Treatment of Ankylosis. E. M. Olivieri.—p. 223.
77 *Physical Examination of Recruits. J. A. Lopez.—p. 233.

75. **Suprarenal Virilism.**—Guemes reproduces the photograph of a rather handsome young woman and another photograph showing the head of what seems to be a bald and heavily bearded man of 50. Both photographs were of the same person at a fifteen year interval, a hypernephroma in the cortex of the right suprarenal having transformed the woman thus completely. The microscopic findings are also reproduced. Necropsy revealed also sclerous atrophy of the ovary, an adenoma in the thyroid and considerable atrophy of the pancreas. When we encounter a woman with pronounced virilism, the condition of the suprarenals should be investigated and the proper measures taken to ward off irreparable lesions.

77. **Examining for the Military Service.**—Lopez gives a list of fifteen things some of which are liable to be overlooked unless systematically tested for in examining for the military service. They include chains of glands in the neck; lack of teeth, eight or nine as the minimum; lack of free breathing through the nose, of free movement in shoulders, elbows and hands; vascular instability with tachycardia and supplementary venous pulsation in the thorax; unequal entrance and expulsion of air in the two apices, auscultated at the middle of the line from the spinous process of the seventh cervical vertebra and the end of the spine of the scapula; large liver, determining the outlines above and below; absence of testicles, tumor in testicle; deformity of knee or foot; and large callouses on the sole. He begins at the head and examines downward, asking the man if he has any disease, and about his family, brothers and sisters, deaths among them; if any are sick; his food; married or single, and schooling. By asking the questions rapidly, the man has no time to think up misleading answers. As some questions are asked in a low tone, his hearing is tested at the same time, while his answers disclose his power of attention, perception and memory. In four or five minutes the examination can be complete if done by a system such as this.

### Kitasato Archives of Experimental Medicine, Tokyo

November, 1917, **1**, No. 2

78 *Serovaccine from Avirulent Living Tubercle Bacilli. K. Shiga.—p. 157.
79 *Experimental Purpura Produced by Antibloodplatelet. T. Watabiki.—p. 195.
80 Fate of Tubercle Bacilli Inoculated into Abdominal Cavity of White Rats. Y. Watanabe and I. J. Navy.—p. 235.
81 Regeneration of Cells in Bird Internal Ear Destroyed by Sound of Explosion. N. Satoh.—p. 251.

78. **Serovaccine for Tuberculosis.**—Shiga has been working for years to perfect a serovaccine made from living tubercle bacilli rendered avirulent by being treated with flavin, iodeosin or erythrosin, or more than one stain. The serovaccines are more readily absorbed than ordinary vaccines, and they induce a milder reaction while immunization proceeds more rapidly and surely. Shiga's report is in German, and reviews the various steps of his research in this line under Ehrlich and since his return to Japan, his experimental research and the clinical application of the serovaccine. Its chief advantage is that, while avirulent, it yet contains all the antigens of the tubercle bacilli.

79. **Purpura Induced by Antibloodplatelet.**—Watabiki's long report is in English, and is accompanied with several colored plates showing the findings in guinea-pigs.

### Mitteilungen a. d. med. Fakultät der k. Univ. Tokyo

May 4, 1917, **17**, No. 3

82 *Elasticity and Solidity of Bone Substance. T. Mayeda.—p. 289.
83 *Macroscopic and Microscopic Findings in Remaining Lung After Removal of One Lung. S. Takenaka.—p. 339.

82. **Elasticity of Bone.**—Mayeda's tests were made on rods of bone cut from twenty-nine cadavers—a total of 237 specimens. The findings are tabulated with minute detail for each cadaver and compared with the findings from similar rods of iron and wood.

83. **Findings in Lung after Removal of the Other Lung.**—Takenaka experimented on rabbits, dogs and rats and compares the findings with those of other workers in this line. Some of the macroscopic and microscopic findings are shown in eight plates. The remaining lung grows appreciably larger in the course of a few months. Both the lung and heart grow heavier and it is not always the right heart that shows this most. The remaining organs in the thorax seem to keep their relative position. The remaining lung keeps unusually full of blood, but this plethora gradually subsides.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 27, 1917, **2**, No. 17

84 *Localized and Tardy Tetanus. W. M. J. Schellekens.—p. 1530.
85 The Mechanism of the Development of Insanity. C. T. van Valkenburg.—p. 1543.
86 *Determination of the Sulphates in the Urine. A. L. Flohr.—p. 1553.
87 Combinations of Drugs. D. H. Wester.—p. 1557.
88 *Deceptive Cures of Appendicitis. E. J. Diddens.—p. 1560.

84. **Localized and Tardy Tetanus.**—Schellekens writes from the Netherlands ambulance in France to describe various experiences with tetanus. That district is exceptionally infested with tetanus germs. He shows by ten typical examples from different periods how tetanus has been conquered. First, early general tetanus was abolished by the preventive serum, and now tardy tetanus has also been conquered by the preventive serum given before any new operation that has to be done. Anaphylaxis is warded off by the preliminary injection of 0.1 to 0.5 c.c. of the serum. Among the cases related is one in which the tardy tetanus, after a secondary operation, was restricted entirely to one side, in others to the head or one limb. This localized tetanus was scarcely known before the war, except in mice and rabbits, but the preventive serum after the war wound has transferred man from the extra susceptible class—which includes the horse—to the slightly susceptible class, to which the rabbit belongs. In the rare cases in which early general tetanus develops, it

will almost always be found that there was a delay of a day or two after the wound before the preventive injection. In one case the wound was in the shoulder and the localized tetanus affected both the head and the arm. It developed two days after removal of a projectile that had entered the shoulder from the rear a week before. Antitetanus serum was injected around the wound, up to 50 c.c., and the man was given 3 gm. chloral daily and morphin at night. In two other cases of shoulder wound the localized tetanus developed after the men had begun correcting exercises to loosen up the stiff shoulder. These cases impress the necessity for preventive antiserum not only before a second operation but also as a preliminary to exercising the parts. In another case the projectile had entered and been removed from the lumbar region. An operation for hernia four and a half months later roused the tetanus germs, and rapidly fatal general tetanus developed although the operation had not involved the region of the war wound. Evidently anything that depresses the vitality of the tissues is liable to throw down the barriers against the tetanus germs. In another case, fifty days after a war wound of the back of the shoulder, general tetanus developed the day after the shoulder had been subjected to mechanical exercises. The peculiar stiffness of the shoulder and curvature of the spine must have been evidence of localized tetanus already installed but this was not recognized at the time. The man recovered after a very serious course, sometimes requiring morphin in the night as the spasms involved the muscles of respiration. As he threw off the tetanus, the spine became straight once more. Nearly all these cases were in the hospital for six or seven months before they could be discharged. In another case the localized tetanus developed a week after the mechano-exercises had been begun. The wound was in the left upper arm and the tetanus gradually spread to the other arm and the thighs and jaws, but subsided slowly in a few weeks. The experiences related confirm, he says, the necessity for not being stingy with the antiserum. With preventive injections before secondary operations, therapeutic exercises, etc., tetanus can be driven from its last stronghold.

86. **Determination of Sulphates in the Urine.**—Flohr gives comparative tables of the findings with various technics. They apparently demonstrate the superiority of the volumetric benzidin method proposed by Rosenheim and Drummond (*Biochemical Journal,* 1915).

88. **Deceptive Cures of Appendicitis.**—In the two cases reported, severe appendicitis in older schoolchildren apparently subsided completely and nothing further was heard from the appendix for about thirty years. Then peritonitis developed suddenly which nearly proved fatal. The appendix was found chronically diseased and open, part having sloughed off in one case.

### Hospitalstidende, Copenhagen

Nov. 17, 1917, **60**, No. 47

89 *Variations in the Leukocyte Count in Different Positions of the Body. G. Jørgensen.—p. 1141. Commenced in No. 46, p. 1117.

89. **The Leukocyte Count in Different Positions.**—Jørgensen reports extensive study of the blood count after change of a position that has been held a long time. The tables show that the leukocyte level is higher reclining than in the seated or erect position. The difference between the two levels may be up to 100 per cent. and it seems to be immaterial whether the change is made abruptly or slowly. The influence of position has not been taken into account hitherto in estimating the blood count, and thus errors may have crept in. Another source of error is also shown by the tabulated findings in that the leukocyte count is always higher later in the day. In one typical case the figures at 9 a. m. and at 12 and 5 p. m. were, respectively, reclining, 5,900, 7,300 and 9,300. The average of a number of cases in the late afternoon was 8,000 seated and 11,500 reclining.

### Norsk Magazin for Lægevidenskaben, Christiania

December, 1917, **78**, No. 12

90 *Action of External Factors on the Sexual Cells. **O. L. Mohr.**—p. 1401.

91 *Rupture of Labium Minus during Delivery. **J. H. Bidenkamp.**—p. 1436.

92 *Elimination of Diphtheria Bacilli in Urine. **K. Wildhagen.**—p. 1440.

93 *Tests of Liver Functioning. **L. Dedichen.**—p. 1444. Commenced in No. 11, p. 1241.

90. **Action of External Factors on Sexual Cells.**—Mohr reports research on the testicles of the *Decticus verrucivorus,* a kind of grasshopper or locust. The sexual cells displayed exceptional susceptibility to the action of radium, while none of the other elements of the testicles seemed to be affected by it. The chromosomes in the youngest spermatocytes stretch out and coil into thin rings, and the cell dies regularly. The older spermatocytes seem quite refractory at first, but after repeated exposures they also display atypical chromosome conditions. Exactly similar findings were also obtained when the action of cold instead of radium was investigated. The action occurs only at a certain phase of the development of the spermatocyte, but the susceptibility at this phase seems to be extreme. It is the phase during which the chromosomes are going through their most extensive changes. Mohr compares his findings with Tower's on 200,000 beetles and with the research of others in this line in recent years. He declares that a new basis is being laid with the aid of the Mendelian laws, and that we are now emerging from the blundering maze into which Darwin's deductive reasoning misled us.

91. **Rupture of Labium Minus during Delivery.**—Bidenkap, called to a woman half an hour after childbirth under a midwife's care, found that the left labium minus had slit nearly its entire length and the child had emerged through this slit.

92. **Diphtheria Bacilli in the Urine.**—Wildhagen examined sixty-eight specimens of urine from fourteen patients with diphtheria or who had recently recovered from it. No diphtheria bacilli were found in the urine at any time.

93. **Tests of Liver Functioning.**—The first instalment of Dedichen's long article was summarized in these columns, January 26, p. 278. He here tabulates the findings from other clinics and his further clinical experiences. His conclusions from this extensive research on numerous healthy persons and patients with various diseases, some confirmed by necropsy, are to the effect that urobilinuria is found only when the liver is below par, and that it is a sensitive test for insufficiency of the liver as it practically always accompanies liver disease. Persisting urobilinuria with heart disease, even if slight, indicates liver incompetency, and when prolonged and pronounced the urobilinuria may be accepted as a sign of cirrhotic changes, if a destructive blood disease can be excluded. Alimentary glycosuria also points to liver insufficiency, but as this occurs under so many other conditions it has little differential importance unless quite pronounced. There seems to be some tendency for the sugar to accumulate in the blood under the galactose test, but otherwise the sugar content of the blood approximates normal during liver diseases. Lactose is more instructive for functional test purposes than galactose.

Still more instructive are tests with 20 gm. glycocoll or 50 gm. gelatin. Amino-aciduria follows this when the liver is diseased, and not otherwise. It consequently has great importance for the differential diagnosis, especially as it is found constantly even with beginning cirrhosis and with diffuse infectious-toxic liver affections. Damage of the parenchyma seems to entail it more than damage of the connective tissue. A reduction in the output of urea and of $NH_3$, accompanied by an increase in the elimination of amino-acid after the glycocoll test, is a combination encountered only with cirrhosis of the liver. He found the best technic for control to be the bromin method for determination of the urea; the Bjørn-Anderson method for determination of the other nitrogen; and, for control of positive results, Bang's micromethod, which he describes in detail. Full details of the various tests in forty-nine cases are appended and the literature consulted is listed. The research occupied nearly two years and was done with the aid of a research fund supplied by the Rikshospital.

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# PROGNOSIS IN CARDIAC AFFECTIONS

## AS RELATED TO THE DISCOVERY OF MURMURS AND TO ARRHYTHMIA

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Invaluable as is auscultation in the study of disorders of the heart, it should not supplant or take priority over other means of physical investigations. The introduction of the stethoscope by Laennec was so epoch making, and aroused such enthusiasm, that medical practitioners came to rely on auscultation wellnigh to the exclusion of palpation, percussion and minute inquiry into the history and symptoms, on which previously physicians had been compelled to depend.

The influence of such teachings and of such an example has persisted even to this day, as is shown by the weight that life insurance companies and Army medical officers are wont to attach to the discovery of a cardiac murmur and to irregularities and an unwonted rate of the pulse. So prevalent is the belief that a murmur means a functionally damaged heart that most physicians at once attach an unfavorable prognosis to the presence of a cardiac bruit. And many a person has had his outlook on life darkened and saddened by the announcement of the detection of a murmur. The same thing may be said of the recognition of an irregularity of the pulse. Yet almost every practitioner of much experience can recall instances of persons who, in spite of a valvular murmur or of an occasionally intermittent or otherwise irregular action of the heart, have lived many years, some of them even to the allotted span of three score years and ten, and who have led happy, useful, often active lives. I recall one man who lived to the age of 73, despite the existence of a pronounced mitral leak from his sixteenth year. A prominent attorney of Chicago was discovered over thirty years ago at the age of 15 to have a mitral regurgitation of endocarditic origin. It is because of the conviction of the unreliability of heart murmurs or of intermittence of the pulse from a prognostic standpoint that this paper is written.

### MURMUR

It has been customary in textbooks and among teachers to divide heart murmurs into the two main categories of organic and functional or accidental. This is still a useful division, if by accidental or functional one wishes to signify that a murmur is not indicative of a serious structural defect. But, with increasing experience, I have come to believe that the instances of accidental or functional murmurs are much less common than I formerly thought. That a bruit may occur in cases of severe anemia or of chlorosis or during greatly exaggerated heart action, and may ultimately disappear with return to health or to a normal cardiac action, is quite conceivable. But is such a murmur to be considered functional or accidental? May it not be a manifestation of some temporary condition, as relaxation of the myocardium, in consequence of the blood state or of incomplete emptying of the ventricle in cases of tachycardia which gives rise to the murmur, and which on being corrected permits the bruit to vanish? Such a murmur, even though transient, signifies something more than a functional disturbance. Even if it be not a serious structural change in the heart, it yet is what should be called an organic, not an accidental, murmur.

If such a temporary bruit is a systolic one at the apex, it probably denotes a muscular mitral insufficiency due to slight ventricular dilatation and consequent imperfect closure of the mitral valve. When the systolic bruit is heard at the base, may it not be produced by some as yet not clearly understood alteration of the aortic or pulmonic ring, or of the coats of the respective artery?

This preamble brings us to the postulate forming the text of this paper, namely, that we are not to form our judgment of a case on the detection alone of a murmur, whether this is diastolic or systolic, for a really intelligent opinion can be formed only by a study of the case in all its aspects.

We cannot now consider all the rules governing the correct interpretation of murmurs, but there are a few statements bearing directly on the subject matter of this paper. Whether there are or are not inorganic, that is, functional or accidental, murmurs, the question can arise only as regards systolic bruits, for a diastolic bruit, in my opinion, is always organic or due to some structural defect. For instance, whatever the significance of an apex systolic murmur may be, a presystolic murmur in this situation can mean only a mitral stenosis, with the one exception of the so-called Flint presystolic bruit in aortic regurgitation. Likewise, however a systolic murmur in the aortic area is to be interpreted, an aortic diastolic bruit does mean an aortic regurgitation.

Therefore, our chief difficulty in formulating a prognosis does not arise in cases of diastolic so much as with systolic murmurs. Yet even as regards diastolic bruits there is a marked difference with respect to prognosis, for, as we all know, not all cases presenting the same sort of murmur offer the same prognosis. As we shall see, much depends on the degree of the lesion, on the integrity of the myocardium, and on the subjective symptoms. As a general proposition, however, it may be stated that a mitral or aortic stenosis offers a less favorable outlook than does a regurgitation at the same orifice. The condition responsible for a stenosis is generally progressive, and hence, no matter how well compensated the lesion may be at the time of examination, the life prospect is apt to be shorter than in cases of insufficiency. An aortic regurgitation commonly deemed more serious than a mitral incompetence may be endured from early childhood well on into middle age. Parenthetically speaking, however, it may be remarked that reference is here made to cases due to rheumatism and not to syphilitic aortitis.

Of systolic murmurs, the most frequent perhaps are those heard at the apex and termed mitral. These may be divided in a general way into two great classes: those of endocarditic and those of myocardial origin. The latter, although found occasionally in the young, usually occur at or after the middle period of life. They may replace the first heart tone altogether, but for the most part accompany and do not obliterate it. Their area of transmission is generally limited or is restricted to the location of the apex, and sometimes the murmur is heard only or most plainly in the recumbent and not the upright position. Usually also the area of deepseated dulness is increased transversely, and the aortic second sound is accentuated. In some cases a systolic bruit is audible in the aortic area, especially also in the dorsal decubitus, and blood pressure may be too high, within normal limits, or even too low, as compared with the stiffness of the superficial vessels. Such a murmur may be taken to indicate a muscular mitral insufficiency, and to be due to degeneration of the papillary muscles or to degeneration and relaxation of the ventricular wall. In either event, the mitral ring is not tightly closed, and the cusps are not closely pulled together. Since, therefore, the functional capacity of the heart depends on the soundness of its musculature, it goes without saying that the prognosis as regards such a murmur is not very good. Even in such, however, much depends on the age, the history of previous illnesses, habit, existence of focal infections with their possibility of still greater injury to the myocardium, and particularly on the degree of damage already sustained by the heart, as shown by hypertrophy and dilatation and by subjective consciousness of cardiac enfeeblement of angina.

In a case of true valvular or endocarditic murmur, no matter how well compensated the lesion, we must in estimating prognosis take into consideration all factors likely to injure the heart still more. For instance, a history of repeated attacks of rheumatism or the discovery of chronically infected tonsils renders the outlook doubtful, to say the least; for the patient is exposed to the possibility of fresh endocarditis with all its uncertainties.

If, notwithstanding a mitral systolic murmur of rheumatic origin, the heart is practically of normal size and the right ventricle in particular is not enlarged, it is presumptive evidence in favor of the myocardium's having suffered slight if any damage, and the heart muscle may be assumed entirely competent. In short, if the patient is capable of strenuous exercise without shortness of breath or an uncomfortable consciousness of palpitation, the prognosis may be set down as excellent. For, in a word, we must remember that it is not the mere discovery of an apex murmur or its degree of intensity that should influence our prognosis. We should bear in mind also that the behavior of a heart at the time of examination should not govern our opinion of its functional integrity, but that we must look for all secondary effects on other organs as well as on the heart itself, and must balance these up in connection with the symptoms under exercise and strain.

These principles are often ignored by Army examining boards and by life insurance examiners. For example, a fine, big fellow who had served in the war with Spain was rejected last spring by one of our examining boards because of the discovery of a systolic murmur. I found that the patient had a soft, not very pronounced systolic bruit between the sternum and left nipple, which murmur did not replace the first tone and was not transmitted beyond the mammillary line. Moreover, the second pulmonic sound was not accented, and the heart did not measure more than was to be expected in a man with his capacious chest. He did not experience breathlessness on exertion, and was able to play hard tennis without any symptoms of cardiac strain. His rejection was considered an error, as his heart was entirely competent. Another recent instance is that of a young man who had just gone through six months of training at Camp Benjamin Harrison without any injury, but, on the contrary, with benefit. Although he had received his commission as a second lieutenant, he was nevertheless refused admission to the Regular Army in the Engineering Corps on account of a systolic murmur, despite the absence of any other sign of heart defect. In fact, he had never known he had anything wrong with his heart until told of his rejection. Many examples of this sort could be narrated. Sir James Mackenzie of England cites similar instances, and expresses the opinion that these hearts should not debar young men from military service. Profiting by their mistakes early in the war, English surgeons are now recalling such men for reexamination, and are accepting them as entirely fit.

There is another systolic murmur, not apical but heard over the body of the heart in the second or third and sometimes fourth left intercostal space close to the sternum, that creates much uncertainty in the mind of the examiner. Occasionally this bruit, particularly if audible with maximum intensity in the fourth left interspace, the heart beating rapidly or violently at the time, is, in my opinion, produced within the right ventricle, and may indicate a temporary leak at the tricuspid orifice, and is the counterpart of the muscular mitral insufficiency already considered. Such a murmur does not offer an unfavorable prognosis necessarily, but must be judged of in accordance with the principles laid down above.

A systolic murmur heard in a small percentage of persons, but probably more common than is supposed, is that described by Gehrhardt as the bruit of patency of the ductus arteriosus. It is transmitted upward from the second interspace and over the apex into the upper portion of the left interscapular region. Careful percussion will detect also a line of relative dulness which, beginning below the left clavicle close to the sternum, can be traced downward and outward as far as the upper margin of the auricle. The fluoroscope may be required to confirm the diagnosis, but in three cases seen within the past two years, the diagnosis was ventured on the auscultatory and percussion findings alone, and was substantiated by the roentgen ray. This murmur has no evil prognostic significance, since the congenital defect does not impair the functional capacity of the heart.

What can be said of diastolic murmurs more than has been said already? An aortic regurgitant bruit of rheumatic origin may be compatible with perfect functional competence, but in the main is of more doubtful future than is a mitral insufficiency. Mitral stenosis, no matter how well compensated, renders the heart unfit for much physical effort, and disbars for military service.

It is hoped and believed that our Army medical officers are now being permitted by the Army Medical Board to use their judgment in passing on questionable cases, and that examining surgeons are recognizing the fact that the mere discovery of a murmur should not necessarily reject a man; for experience will prove that the preparatory physical training to which recruits are subjected will harden and render fit the heart muscle the same as it does the skeletal muscles.

Finally, let it be said that the same rule should apply to persons being examined for life insurance. For instance, only the other day a man of 31 was denied insurance because of the discovery of a systolic murmur that was said to develop on violent exercise; and yet I was utterly unable to detect any bruit in the sitting, recumbent or standing position, or even after the man had hopped up and down the office several times. Neither was there any enlargement of the heart, and the blood pressure was absolutely within recognized normal limits. Such a verdict as was given to this applicant is a rank injustice.

### ARRHYTHMIA

Let us turn for a moment to the prognostic significance of cardiac irregularities. There can be no question concerning the evil prognosis to be attached to auricular fibrillation or to the presence of persistent ventricular extrasystoles in the aged or in conjunction with a valvular lesion. The matter is different, however, when we have to consider occasional intermittence of the pulse, and the rhythm is such that only occasional pulse beats fall out and the succeeding beats follow in perfect time. This form of arrhythmia is very common, and is apt to frighten the patient, his alarm being intensified by the attitude of the physician. As a matter of fact, intermittence of the pulse in the overwhelming majority of cases is a symptom not of grave significance, since it is not due to structural change in the heart, and hence is not to be regarded as indicative of heart disease. It is due to increase of the inhibitory action of the vagus, and generally is referable to some toxic agent, as abuse of tobacco, coffee or tea, or to some derangement of digestion that is shown by a sour stomach or by constipation. When of such origin, the intermittence is generally found to disappear immediately following exercise, as hopping about the office, although it will usually return as the heart quiets down. On the other hand, the intermittence is likely to be intensified when its cause resides in some alteration of the myocardium. Furthermore, this functional intermittence, as it might be called, can generally be corrected permanently by treatment addressed to elimination of its toxic cause and by the administration for a time of digitalis. Therefore, even when there is a valvular lesion, this periodic type of irregularity of heart action does not possess an evil prognostic significance. There is no question, however, as to its harmful effect in the course of time if treatment fails to correct it, particularly if it persists in a person at or beyond middle age, when the state of the heart muscle is problematic. The same statements apply also when a valve lesion obtains, for in either case persistent and frequent intermissions may lead gradually to dilatation of the heart and incompetence.

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# TREATMENT OF THE EPILEPTIC

## BASED ON A STUDY OF THE FUNDAMENTAL MAKE-UP

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In medical literature of two or three decades ago, one often reads about the best lines of treatment for abscess and cavity formation in those suffering from lung tuberculosis. Of course, such therapeusis was doomed to failure from the very fact that nothing could be of avail in such terminal states. Soon after that period, good clinicians used to shake their heads despairingly even when there was no marked lung consolidation. It was not until we reached the stage of detecting the very beginnings of tuberculosis in lymphatic and bronchial involvement that the modern era of hopeful treatment of this disease really began. Today the gloomy view of the past in the therapy of tuberculosis, with its nauseous drug compounds and easements of narcotics, has been largely superseded by the rational one of fresh air, sunlight, proper nourishment and an intelligent living regimen.

Such a parallel of progress in therapy is on its way in the handling of many psychoses and neuroses today, and nowhere is the portent of a change more patent than in the beginning rational therapy for epilepsy. I once heard a neurologist in a European clinic say to an epileptic: "No, my man, we can treat your disorder to little purpose until the seizures which you now have infrequently are sufficiently common in daily or weekly attacks so that we can properly gage the degree and amount of sedatives you really need. Come back to us when that time shall arrive, and we will undertake to do something for you." This physician held that the only proper therapy for epilepsy was a sedative one directed solely against the seizures, and that when the latter were not sufficiently frequent he could not properly gage the amount of sedation needed; hence the advice quoted.

Fortunately for all concerned, a better view is beginning to be taken of the proper therapy for essential epilepsy. Few physicians today hope to eradicate this nerve disorder when epileptic seizures are frequent and exhaustive, when the memory has failed and the patient shows deterioration in ability to maintain proper self direction of his life. It is beginning to be realized that so-called idiopathic epileptics are rarely if ever free from the hallmarks of their disorder in physical and mental traits during seizure intervals, and in point of fact they have need of the broadest possible therapy to cover their entire life activities. To those physicians who find the epileptic ill only in his seizure periods, my message will prove of little avail. To such the seizures often appear unheralded and unexpected, and hence there is little outside of a stereotyped therapeutic formula given their patients for the interval life. The advices contain the maximum of directions to tranquilize the patient at the seizure period.

When one studies the majority of patients carefully, one notes the enduring presence of the physical and mental stigma of their peculiar make-up. Oftenest this antedates the very inception of their disorder, and cannot be properly charged solely to the seizure phenomena, as this personality and temperament, as well as physique, most frequently date from birth. This being the case, we must grow to realize that the outspoken attacks in such persons are frequently but the turmoil stages of a disorder that has been in evolution for years. The grand mal attack usually is seen only after years of petit mal symptoms of absences, vertigos, or epileptic states of distraction or dizziness, which in turn are heralded by conduct and character disorders threatening more serious consequences from the earliest life. Even if we only recognize the true nature of the disorder, or confine our attention solely to abolishing the milder character of attacks, we shall still find our therapy baffled. It is absolutely essential, therefore, that the lay public shall be constantly educated to detect the potential epileptic character, although it may never break into frank seizure symptoms. Then, and not till then, will the full value of our modern therapy for this disorder change from the present narrow and pessimistic one to one more in accord, for instance, with that for the tuberculous or the more modifiable psychoses.

### THE VALUE OF EARLY DIAGNOSIS

Let us review for a moment the profound disease significance of the first grand mal epileptic attack: First of all, it means that through the accumulation of endogenous or exogenous toxins, or other more or less purely psychic causes of emotional stresses, or both, the patient loses consciousness, breaks from his accumulated difficulties or any tolerable handling of them, and regresses into an unconscious state. Now that we have come to know some of the definite levels of strivings to which the epileptic patient regresses in his unconscious state, whether as a prompting or compulsion of the unconscious forces or not, we know that the level of mental activity reached in the attack is as deep and crude as that of any psychotic patient, even that of the praecox, for instance. We know that this state is pleasurable or contentful to certain unconscious desires, as revealed by studies on the mental content obtained at the time of an attack or in the unconscious state following one, and that this regression is quite at the infantile level. Coupled with this revelation, there is a convulsive part of the attack of such expressive character that it indicates that the deepest automatic protective reflexes, as those of keeping the tongue from being bitten and a control or guard over the sphincters, are lost. Hence we have in the grand mal attack the most profound degradation of the mind and body possible, warranting the old name for epilepsy as the Great Disease. This, too, is perhaps realized for the first time at the first detection that any real disease exists at all.

Again referring to our initial parallel of this disorder with that of tuberculosis, one sees that such a belated clinical arrival on the field is fairly comparable to the position taken by clinicans of half a century ago when they first detected tuberculosis as shown by the formation of tuberculous cavities in the lungs. Although the two disorders are quite dissimilar in all clinical expressions, the detection of epilepsy at the presence of grand mal attacks for hopeful treatment is not essentially better than that of tuberculosis at the stage mentioned, only a small percentage of patients in either class being restored to health. Perhaps the analogy of the two as regards prognosis may be carried a little farther: The stage of extensive tuberculous consolidation has about the same prognosis as that of an essential epilepsy detected at its mildest beginnings in petit mal or protean manifestations of frank periodic seizures. We know that only about 10 per cent. of the latter patients are fully restored or brought to a more or less permanent arrest. Finally, when we shall detect epilepsy before any crude manifestations of attacks as such have occurred, but in the stage of *potential* epilepsy, as in the early diagnosis of lymphatic involvement of the tuberculous, may we not hope that the former will have as hopeful a prognosis as the latter? Unfortunately, we have no diagnostic bacteriologic or roentgenographic aids to help us in diagnosing the beginnings of essential epilepsy. There are, however, equally potent though at present more elusive criteria in the psychic and somatic make-up of the potential epileptic that must be the more obvious as our diagnostic standards become the clearer defined. We already know crudely what some of these constitutional factors are, as shown in analyses of epileptic patients. It is expressed in a make-up of supersensitivity, egotism and such a defective primary endowment of instincts that such persons fail of an easily adjusted or a rich emotional life during their childhood and adolescence. The fault is quantitative as well as qualitative, thus differing from these mental traits found in normal persons. When the latter statement is fully recognized, the diagnosis of the epileptic make-up will be somewhat easier.

Since, for some years to come, our main efforts at correcting or bettering the life and disorders of the epileptic will have to be centered on him as an individual badly adapted for life in the home, in society or in special sanatoriums, we shall, then, earnestly increase our efforts to open and make keener his opportunity to objectify his peculiar type of personality, his hopes and his ambitions into a properly adjusted and selected environment. It is highly important for us to study our individual cases even more carefully with this end in view. This attitude, however, should not limit our vision that the home, school and society at large may in time learn to recognize the immense importance of detecting this large and ill defined group of potential epileptic children and take proper steps by the aid of broad prophylactic measures to prevent such individuals from following an epileptic career in later life. For the present, it behooves us to study our actual case material most intensively in the broadest psychobiologic manner possible. There can be no doubt that in doing so we shall be able to contribute not a little of therapeutic as well as of diagnostic value.

At another time I shall present a careful digest of the potential epileptic character shown in a composite picture drawn from a large case material; in this article I shall be content with the more or less complete analysis of a few cases. A part of these are reported to show the gradual evolution of a confirmed epileptic character about whose unfavorable prognosis as to recovery hardly any one may be in doubt; the others are less definite and classic as a type of make-up from which one may hope most in securing an arrest of the disorder or possibly a permanent cure. While an analysis of actual concrete cases is often tedious and long drawn out, it is by far the safer scientific procedure when many of the fundamental hypotheses we have assumed to be patent as precipitating factors are still in doubt or are at present openly rejected by some clinicians as not being of a sufficiently dynamic character to induce the frank disorder of seizures of genuine epilepsy. Whatever influence the latter opinion may carry, I shall be content to state the case material and the sequence of the facts as they appear to me, and there let the matter rest.

### PRESENTATION OF CASES

Case 1.—A married woman, aged 27, who had a child one year after marriage, five years ago, had three fainting attacks which were probably epileptic in character, in the year immediately preceding her marriage. As is common, they were not carefully considered. She is the only surviving child in a family of four. Her mother was tuberculous; her father was alcoholic, and was 65 years old at her birth. While she was not a passionate child in the sense of having tantrums, she was extremely sensitive, often having periods of meaningless crying, and these still occur not infrequently to this day. She grew up a "nervous" child in the sense of being extra sensitive. From a state of frightened anxiety on hearing powerful music as a child, she continued to have attacks of trembling if any one even spoke ungently to her. It was difficult for her to adjust herself to the various duties of the home, and "things had to be just so."

As said before, when annoyed she did not have rages or tantrums, but inconsolable weeping attacks which in their results obtained for her quite as much as is ordinarily gained by tantrums in passionate children. Beneath this gentle glove of extra emotional exhibition there lay quite as adamantine a personal attitude as that commonly possessed by difficult children. This childlike system of weeping was employed on all occasions. As she grew up it was used apparently unconsciously as the means to avoid making life adaptations, such as those called for at school both in the classroom and on the playground. She never developed good power of concentration, for so soon as this faculty was unpleasantly taxed she used her favorite emotional method of avoiding the difficulty. As she did not attend a graded school, it was impossible to determine the degree of education she obtained in the preparatory school; but that her education was not up to her opportunities is shown by the fact that at 17 she had hardly finished the grammar school requirements. The commonly accepted less onerous studies, English and music, were her best school subjects. At 19 she took a musical course at a university, but here again she avoided even the intensive study and discipline of the regular course of a musical education. She took a special elective course instead. Up to this time, whenever the environmental stresses were a little too irritating or interfered with her childlike comfort or peace of mind, the environment itself was molded to meet her pleasure, and not the reverse. If this were not done she grew listless and pale, drooped, yawned, and required an extra amount of sleep and recreation. Thus she grew up cared for and watched over by foster parents in an atmosphere of comfort and ease far beyond her personal ability to maintain.

Near the end of this period, just before the patient married, her foster mother died, and an adult adjustment of a more taxing character began. First, her little personal social affairs had to be adjusted without the former aid of her foster mother; then she had seriously to take up a definite occupation looking forward to independent support of herself. She found herself totally unprepared by training or education to do this. She day-dreamed more, and when pressed not too gently to get on in her preparation she grew pale and listless, and had frightening dreams and headache. Occasionally she had slight fainting attacks and causeless weepings. While under this special stress and after having had the slight petit mal symptoms previously referred to, against the advice of her friends she married a man whose mother increased the patient's living embarrassments. The attacks became more frequent, and at the birth of her only child a year after marriage she had frequent grand mal attacks, two and three in a single night. As she says, "It was always hard for me to adapt myself to the ways of others; but now after marriage there was no other way for me to do, but in trying to do so it broke down my nervous health completely."

We now have a grand mal epileptic without gross organic disease, rather pale and anemic in appearance, undernourished and with flabby muscles, and with sluggish circulation, as shown in clammy feet and hands. She is almost continuously in a grieved, childish petulance. Her housework is not done, her child is neglected, and she herself dreams vague dreams of what she might have been had she not married a poor man and gone to live in a little uncongenial rural community where her mother-in-law now offers rather malicious sympathy and lords it over her in her invalidism and incompetence to manage her added burdens of a husband, home and child. "When I am free from care and too much work, and when I can be in the open air a good deal and study (?) my music, I am never nervously ill; besides, I pick up physically at once under the freer life." This is the pertinent lead she gives us as to the proper treatment for her grand mal epilepsy.

To summarize, we have here an undervitalized primary endowment of a young woman born of an elderly alcoholic father and tuberculous mother. She was inordinately sensitive to sounds of all kinds, and very narcissistic and mother-attached. In the failure of a proper adaptive training, and being, on the contrary, allowed to mold the environment as she liked rather than obliged herself to make the adaptation, she got on fairly well until the more specific adult demands of living an independent life at the death of the foster parent and a final unmodifiable marriage situation occurred. She then had more weepings because of hurt feelings, day-dreamed more, and when these failed to be sufficient relief, a grand mal epilepsy seems to have developed. Already in her short epileptic career her memory is poorer, and some emotional deterioration is on its way.

What is our therapy in such a case? First, the patient was given therapeutic talks on the defects of her endowment and childhood training and their results. Then followed similar talks with the husband and relatives requiring them first to remove the life stresses so that the patient might regain her ordinary physical health and proper mental poise. She was advised to discard the numerous "patent medicines" containing large quantities of bromid, which had already given her bromism and a marked stomach and bowel disorder. These preliminaries having been passed, she was urged to take music as a study and also to teach it. Both are agreeable to her, and each effort carries its own pleasure and discipline. She was urged to trade off her onerous and distasteful housework to some one else, whom she could easily employ through her earnings at teaching. In this manner we were able to start her on the roadway to better mental and physical health, and reduce the amount of irritation and sensitiveness that were so harmfully acute. She is already brighter and happier, and looks forward to cooperating in this rational plan to make good in some measure her early neglect of a proper physical and mental development. Of course, such a patient rarely realizes that the task which lies before her is enormous and that there are many pitfalls and discouragements ahead; but with wise, sympathetic guidance on the part of all concerned, we cannot doubt that she will in some measure accomplish the main purpose of her task. Too short a time has elapsed for me to report other than the start of a rational therapy, and to mention the sequence of betterment as already noted.

One is apt to think that supersensitiveness, the great primary fault in Case 1, is antithetical to that of egotism; but when one realizes that shyness, timidity and self consciousness are all attributes of the supersensitive child, and that all these traits are due to an exaltation of a self feeling and engrossment which enlarges the narcissism of the individual, one sees how really egoistic the supersensitiveness may be regarded It means that such persons do not fully objectify their love and sympathy to a proper extent, and that adaptations to reality from birth are bound to be imperfect, thus disturbing the whole mechanism of a normal healthy adjustment. The methods used for early elimination of this trait of character in children have been fully discussed in my previous studies.[1] Although this character trait of morbid sensitiveness is socially less objectionable than that form of egotism more patently inflicted on the family in the form of rages and tantrums, in its intensive expression it is truly more disastrous to such a child. It inflicts on such a child a "back kick," as it were, of the whole explosion of the emotional affect of "weepings" instead of a mutuality of infliction, as in a tantrum episode.

One is often asked, Is it not possible to avoid the undue stresses of life for these highly sensitized persons? May they not live a life of serenity and peace under the protective influence of the home or the monastery, or be permitted to go back to those levels of easy environment if they are threatened with a break in their emotional and stressful existence in later life? We see in the preceding case that practically our patient did get on fairly well until it was no longer possible to maintain such a carefree existence. Had it been possible to continue this environment, undoubtedly she would not have become epileptic—but such a life is not humanly possible. Every one knows we have already practically arranged to lower the life demands on such persons by allowing them to regress to colony or farm life with its simple rural settings. But the issue in such a public beneficence is but half met. For even in the best regulated sanatoriums or farm colonies there are bound to be heartaches and personal contacts with others similarly afflicted and similarly endowed. Then if a "packing in cotton" for such persons is neither practical nor even experimentally possible, the compromise must be sought, that of reducing the stresses and at the same time teaching the individual patients how their difficult traits of character may be eliminated or modified. In this plan of living they may gradually assume a more or less comfortable and endurable existence. We know, furthermore, as MacCurdy has pointed out, that without these objectizations of love and sympathy and contact with some degree of life stresses, the epileptic "is relentlessly pursued by the nemesis of intellectual degradation. Born social, not solitary, beings, our mental capacity seems dependent on our retaining a vital interest in our fellows. The bonds that unite all human beings are not merely essential to the species, they are an integral part of the individual. These lost, the personality, even mentality, is lost. To put the matter in lay terms: We must love, not merely be loved; we are under compunction to love or cease to be ourselves, cease even to think."

For several years I have seen epilepsy in a number who have taken holy orders and who live in as carefree an environment as can be found. It is interesting to note in detailing the history of such a patient that the real fault in the defective evolution of the epileptic personality that produces the lasting harm is not essentially in the facts of life themselves, but in the mental attitudes that the patient takes toward life. Hence the real and long continued effort we should aim to maintain for such patients is to adapt and adjust them to as adult a life as is compatible with health.

Case 2.—A Catholic priest, aged about 30, who had genuine epileptic attacks for five or six years occurring irregularly every one or two months, has now had no attacks, either petit mal or grand mal, for over a year. He is quite sound physically. Prior to his first attacks he had been living, to quote from him, "in a very uncongenial atmosphere and had felt a lot of dissatisfaction as things were, and could not express this feeling, or didn't. Finally [he] became nervous and run down, and ended in having these spells." His relatives stated a year ago when he was first brought for examination that he appeared more "tense" at that time than he had for some time before. He was more anxious in his manner. Disappointments upset him more easily. At the inception of this increased tension and state of irritability, or soon after, he had more frequent and severe attacks. Since the severe and more frequent seizures, he has shown a poorer memory and some marked emotional deterioration in conduct and adaptability. He was found to possess a highly unstable and impressionable mind, extremely sensitive and egoistic. He was an irritable, restless child given to enthusiasms and little concerned with practical affairs either in study or in consecutive purpose. He walked and talked in his sleep. He was sensitive, shy and timid, and "afraid of everybody." Having been considered a delicate child, he was allowed his own way in everything, and was quite spoiled in attentions from parents and friends. Even when a man frowned at him on the street he used to run to the protection and comfort of his mother. He relied on her or his older sister for guidance until 8 or 9 years of age.

Underneath all these fluctuations in moods of crying and timidities he was always firm in his view, and had to be bribed to meet any unpleasant ordeals of child life. At puberty he made renewed efforts to suppress these badly adapted traits, and became more nervous and fatigable. He grew up moody, reserved and very sensitive. Extra physical exercise enabled him to compensate for some of these personal difficulties. Under the severer demands of the preparatory school he grew more irritable and less able to compensate further in the enforced study and routine of the school. Later, in the more precise demands of the confessional, where he stayed constantly to hear the woes of others, and in the physical confinement and concentration of mind demanded of him, he grew extremely irritable. He said: "If any one touched me it was like an electric spark; I would go all to pieces. My mother was quite like me in similar life difficulties. I am like her in temperament." Even the restricted diet on fast days grew irritating, and slight epileptic vertigos occurred for the first time after these limitations. Forced still more definitely to pastoral and church duties, he grew decidedly worse. There was little time for physical sports and literary inclinations, and the whole life became a burden to him. By preference (he found, of course, that he enjoyed best health at it also) he liked to engage in the free and spontaneous church work among the poor. This gives him most satisfaction, and while at it he is never irritated or "run down" and has no attacks.

From the foregoing it is quite obvious what the main lines of treatment should be. He was required to give up his sedatives, cease from indoor activities, particularly the confessional, and take up a teaching position in a parish where he could follow his literary interests and engage in very active athletics. All this was done with the cessation, as stated, of his attacks for the past year. His physicial and mental health are quite restored in that he is happy and contented in the new order of life.

The next case is by no means so favorable in prognosis. It has been only recently observed, and is given here to show the gradual evolution of a character handicapped by a slight but enduring brain lesion which probably makes the sequence of an epilepsy in such an individual mandatory instead of optional in another not so handicapped. Although the epilepsy is based on an organic lesion, the sequential epilepsy takes on the development not essentially different from that of genuine idiopathic epilepsy. Instead of postulating that essential epilepsy is probably organic because it is akin to symptomatic epilepsy in its manifestations, one might bring forward data to substantiate the reverse view, that the epilepsy develops even in the infantile hemiplegias as a result of certain character and stress defects superimposed on a stationary lesion. We know that only about half such patients become epileptic in later life, and those, too, who are most unstable and poorly developed to meet the stresses of life.

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[1] Clark, L. P.: A Personality Study of the Epileptic Constitution, Am. Jour. Med. Sc., 1914, **145**, 729; A Study of Certain Aspects of Epilepsy Compared with the Emotional Life and Impulsive Movements of the Infant, Interstate Med. Jour., 1915, **22**, 970; Clinical Studies in Epilepsy, Utica State Hospital Press, 1917.

Case 3.—A man, aged 32, developed epilepsy only two years ago. The majority of attacks are petit mal in character. His paternal grandfather was epileptic and had violent tempers and was quite eccentric. Although a rather peculiar and overserious child, he showed little defect in the development of his personality until about 17 years old. At that time he lost interest in his studies and seemed unable to "get any more ideas in his head." After an unsuccessful business school training he went into the government messenger service, has not risen much above this class, and now does some routine clerical work. He is solitary in habit, and always takes his vacations alone in travel. He has always been stubborn, intolerant and cynical about the aim and purpose of his relatives and friends. He never took on any form of discipline, nor would he listen to any criticism without "flying off the handle." Naturally morose, sullen and unsympathetic, he made few friends. He was rather penurious and untactful as he grew up, and gradually became suspicious and resentful. He holds grudges for years, and never seems able to "forgive or forget." As a young man he acquired a secret dislike for the other members of the family, and this so engrossed him that there seemed no room for him to get in friendly contact with others. In new environments he seemed on the point of making a better work and social adjustment; but as he soon failed to gain all he thought he should in these new settings, he became unfriendly to his associates, criticized them severely, lost interest in the new work, failed to cooperate industrially and socially, and soon fell into his former routine of sullenness and moroseness and solitary way of living. Gradually he became so demanding as regards order and precision in his living quarters that no one dared to face his dislike in handling things or even entering his room. He never wanted to be other than the leader in games and sports, and when this desire was not granted, he would quit and go off by himself. He rarely had distinct quarrels, as contact with his fellow schoolmates was merely casual. He planned his vacations most precisely months in advance.

When he became a man and had to meet some of the business and social difficulties, he became more irritable and quick tempered. His face would flush and grow dark, and he would then "boil with rage inside"; and if further pushed, he broke into intense and abusive rage. With all this evidence of arrest in the development of his emotional life, and as he grew more egoistic and rigid in his demanding attitude toward others, he became more sensitive and day-dreamed more. As he had musical taste, he often played and sang off the conflicts. A little later in life, when these began to fail and he deteriorated more, he took a more superficial outlet of reading, and went to moving pictures. He gradually lost his little sense of humor, and now no one dares to joke him or assume even a friendly or familiar attitude, lest it provoke unpleasant results. His attitude toward the opposite sex was always matter of fact, and as girls found him stiff and unnatural, his social contact with them was soon lost. Being cut out of friendly contact with other companions, he developed solitude the more, grew more sluggish mentally and physically, ate heavily, and had a more or less permanent "grouch" about his job and his business associates. To compensate for this phase before his attacks finally began, he took up photography, went on solitary walks in the country, and developed his own pictures. But as he never joined others in the art and work, his results were very mediocre. He allowed no one to show or demonstrate his errors or how to avoid them. He was proud of his work, but it was so indifferently poor that those who did not know him told him frankly what they thought of it. Now he keeps the whole interest to himself. He had the customary piety of the epileptic, but of late this has failed in even cursory interest. He takes little alcohol and tobacco, as he is quite sensitive to any such indulgence. Just before his petit mal came on, all his business and social stresses became more intense, and he was apparently incapable of making satisfactory personal relations. He did not sleep well, and he had disturbing dreams. It became harder for him to adjust himself to his associates and the home conditions, and he began to deteriorate emotionally while his intellectual capacity showed little change.

The patient has been but recently considered; hence at this time I can only outline a proposed line of treatment. The case as reported is a common one of a hereditarily disposed person who unfortunately contracted a slight, now hardly discoverable, hemiplegia in childhood. He developed his poor adaptive social instincts but little, and the few he did apparently came to an arrest in early adolescence. Since that time one may say he has slowly been deteriorating in habits and conduct socially, steadily crystallizing, becoming rigid in taking on new adaptations, and losing the few he had. Inexorably, some point was sure to be reached at which he could no longer go on even semihealthfully, and then he took on the epileptic reactions true to the type of his fundamental make-up.

What can be hoped for in such a person's future? Obviously, not a cure. A betterment should be and can be fairly hoped for. It must be done along the lines that I have already outlined at length in previous studies.[2] His photography must form the nucleus of approach, and gradually around that and its correlates we may begin to build seriously and painstakingly for a possible physical and mental restoration.

Case 4.—A married woman, aged 33, has had only four typical grand mal attacks. The first one appeared two years ago and the last a few months after. None has occurred for over sixteen months. The case is not reported, however, to show the present free interval as a test that the free period necessarily is a permanent arrest, but to demonstrate the two-sided advantages of the combination of physical and mental therapy, and the character of readjustment brought about as the result of such treatment.

The patient was a fairly normal, healthy child, but could never overcome her intensive dislike for the contact of rough fabrics. When 3 or 4 years old, although just before she had been happy and in free play with other children, as soon as the rough underclothing was put on she would cease to play, sit down, and remain "in misery for a whole day." Her complaint of the unpleasantness of such clothing was considered a mere whim, and as such disregarded. Even the sight of such clothing near her to be put on when she got up "made her ill." She simply could not accustom herself to it, and it began to hamper her associations with other children. She had to have other styles of cloth and fittings than they—this caused her to be "different" from them, and hence she felt out of touch with them. As she grew up she wanted to go out with young people only when she could wear long dresses, being tall and a bit awkward; this greatly narrowed her free objectization of her friendly companionship with others. The whole life was "poisoned" in not being able to surmount this sensitiveness of the skin. "It was a nightmare and an obsession with me; it made me self conscious and constrained in many social ways."

Social life not being an outlet to her, she looked forward to an intellectual career at college, and social work among the poor afterward. Although in the latter life she still suffered from her skin sensitiveness, it hampered her personal activities less because the demands of fancy dress were less. That it, however, had seriously limited her social freedom and enjoyment not a little was shown in the gradual development of an egocentric attitude at the engagement and marriage. At the consummation of the latter, which was rather cold and distasteful to her, she had to make new adaptations of bedclothes and personal clothing. The extra sensitiveness of the skin then changed or broadened out, including bodily contact with the husband and the very hot summer weather. The latter was a continued summer-long complaint. As she says, " I was constantly fussing about my clothes, the weather, and everything with which I was in contact." The sensitiveness then broadened to all sorts of things in the environment not at all concerned with the former skin annoyance. She became undernourished, slept poorly, and finally developed a severe but unrecognized anemia. Then the whole environment of home, child, husband and friends became an irritable, intolerable burden, and one night in the midst of it all she had a severe grand mal attack with tongue biting and voiding. After the second series of attacks a few months later, she was brought under treatment.

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[2] Clark, L. P.: Clinical Studies in Epilepsy, Utica State Hospital Press, 1917, Section V, Experimental Study of the Mental Restoration of a Deteriorated Epileptic, and Section VII, Mental Therapy of Essential Epilepsy.

Of course, every principle of physiotherapy was requisitioned, including rest, diversions, baths and regulation of diet; but the main issue in treatment turned on freeing her from the nightmare-like entanglements of bodily and mental discomforts that so obsessed her whole life. In the analysis of them (the process was simple mental analysis, not psychanalysis), each phase of her special stress and irritations was reduced and traced back to her primary defect of extra skin sensitiveness and its gradual growth and dominance over her entire after-life. Of course the skin sensitiveness is not really removed, but there is an awareness of the bodily fault and how it may involve her in apparently unrelated personal stress and conflicts. This knowledge has given her the power of properly adjusting herself to it. What years of misery she might have been saved if the defect had been recognized, and proper adaptive training had been given in childhood! The significance of this singular defect of infancy has long since been commented on by Preyer and others in the growing sensitive child. But here its successive reappearance at different stages in our patient's life and its hampering influence at the different levels of development up to and including adulthood are exquisitely illustrated. One cannot doubt that the defect was an inheritable one and must have been a source of annoyance from birth. It grew to disastrous consequence only in later life when it made life a burden by attaching itself to all sorts of unrelated phenomena of her expanded life and its opportunities.

### CONCLUSION

One may justly say that in Cases 1, 2 and 4 the prognosis is fairly good, while in Case 3 one can probably hope only for betterment.

I cannot too earnestly urge that the epileptic as well as the epilepsy be the future object of our earnest treatment, and this, too, by our studying as carefully as possible the fundamental make-up of the primary life endowment, and basing our therapy largely on that.

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**Intravenous Treatment of Internal Hemorrhage.**—According to an abstract in the *Nederlandsch Tijdschrift*, **2**, 107, E. Ebstein reports favorable experiences with hemorrhage from the lung treated by intravenous injection of a hypertonic salt solution. He adds 0.02 per cent. calcium chlorid to a 10 per cent. solution of salt, having the mixture put up in ampules containing 2 c.c. He injects as a rule about 5 c.c., and repeats several times, even after the bleeding has stopped. He has also found it valuable in internal hemorrhage in the nose, stomach, intestines, etc., and commends it for cases in which calcium chlorid or gelatin by the mouth do not speedily help. Ebstein's article appeared in the *Münchener medizinische Wochenschrift*, No. 25.

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# PREGNANCY AND PULMONARY TUBERCULOSIS

## WITH A REPORT OF ONE HUNDRED AND THREE CASES *

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The incidence of pregnancy and tuberculosis is a frequent one. In 1913, Bacon estimated that 32,000 tuberculous women become pregnant annually in the United States, and added that between 44,000 and 48,000 women of the child-bearing age die of tuberculosis every year.

Among those who see much of pulmonary tuberculosis, it is a well recognized fact that, among women, this disease not uncommonly first manifests itself during pregnancy or shortly after the birth of the child. Why a tuberculous process should become active during pregnancy is not altogether clear, unless it can be ascribed to an added strain on the woman's resistance. In the cases following confinement, the violent exertion that characterizes many labors is commonly accepted as the probable cause of arousing to activity a latent lesion, the exertion under these circumstances being as harmful as mountain climbing or other forms of violent effort. Whether it is coincidence or whether pregnancy has any influence in rendering a dormant tuberculous process active may be debatable; but the fact that the association is of relatively frequent occurrence is common knowledge. For instance, among the women in the White Haven Sanatorium at the present time there are twenty-nine who have borne children; of this number, six, or 20.7 per cent., date the onset of their tuberculosis from a pregnancy or shortly after the birth of a child.

Furthermore, the large number of women of child-bearing age who die of tuberculosis annually makes it apparent that during this age period the combination of tuberculosis and pregnancy is always a possibility. Unfortunately, this fact is not sufficiently appreciated; and unless the woman has definite pulmonary symptoms when she consults her physician regarding her pregnancy, little thought is given to her respiratory system. Too often the pregnancy is regarded as a normal physiologic process and, aside from examinations of the urine and blood pressure, little or no attempt is made to obtain information as to the woman's general health or her previous medical history. Many of the women who first manifest tuberculosis at this time give a history of having had a small hemoptysis, an attack of pleurisy or other symptoms or group of symptoms in the past that renders the possibility of latent tuberculosis being present very strong. Failure to acquire this knowledge of the patient's past illnesses, or failure to give such information due consideration not infrequently leads to disastrous results.

The history of pregnancy in the tuberculous woman is an interesting one. Years ago, pregnancy was supposed to exert a favorable influence on the course of pulmonary tuberculosis. This was doubtless owing to the fact that pregnancy in itself tends to increase the weight of the individual, and also that during the early months of pregnancy, gestation is less likely to result in deleterious changes to the tuberculous person than during the latter half of pregnancy. The fact that the cases were not closely followed is probably the chief reason for such a view ever having been held.

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* Read before the Philadelphia Obstetrical Society, Oct. 3, 1917.

* A preliminary report of some of these cases, and references from some of the literature utilized in this report, appeared in the American Journal of Obstetrics, January, 1916.

For studying such a question as this, a review of the literature is of especial value; and particularly valuable are those reports pertaining to series of cases in which the patients have been observed over a definite period of time. The following is a condensed summary of some of the most important articles appearing on this subject prior to 1917:

Lebert found that pregnancy had a bad influence on the course of tuberculosis in 75 per cent. of cases. Deibel found this to occur in 64 per cent. of cases, and von Rosthorn in 70 per cent. Von Bardeleben found this to be true in 71 per cent., and states that 47 per cent. of these patients died during pregnancy, labor or the puerperium. In all von Bardeleben's mild cases there was more or less, sometimes only slight, aggravation of symptoms during pregnancy or the puerperium, and in most of these cases, the acute symptoms subsided, at least to some extent, in from eight to twelve months. In his series, 16 per cent. were presumably closed lesions when the pregnancy occurred, 12 per cent. were severe or acute cases, and all exhibited an aggravation of the disease, especially toward the close of the pregnancy. Heiman's collected statistics showed that pulmonary lesions grew worse during pregnancy in 73.4 per cent. Pankow and Kupferle found that 94 per cent. of their patients with active pulmonary lesions grew worse. Reiche observed ill effects in 77 per cent., and Freund in 38 per cent. of cases. Fellner and Schauta found that a relapse occurred in 68 per cent. of quiescent or mild chronic cases in which the patients had been well for a considerable period prior to pregnancy.

The findings of Pradella (quoted by Schauta) were even less favorable. In a series of 1,035 cases, he found that 95 per cent. of the patients grew worse. Kunreuther also emphasizes the dangers incident to this condition. Marletti found that 50 per cent. grew worse during pregnancy; Kamina, 50 per cent.; Schauta states that in tuberculous guinea-pigs, pregnancy distinctly shortens the life of the animal. In the animal experiments of one of us (Norris), this was also found to be the case, and especially did this occur in the period following parturition. Schauta quotes the authorities from German sanatoriums to the effect that only 25 per cent. of tuberculous women were able to work four years after childbirth, and that not all of these cases were by any means cured cases.

Albeck of Norway found that of sixteen patients, all of whom were treated in private sanatoriums, and were therefore presumably the recipients of excellent treatment, six died within fifteen months. Essen-Müller reports that death or aggravation of symptoms occurred in 50 per cent. of his series of sanatorium patients. Schauta states that in at least 75 per cent. of all cases, the disease was aggravated as the result of the pregnancy. Ebeler, from a study of thirty-two cases, recommends the immediate emptying of the uterus unconditionally in every stage of tuberculosis and in any month of pregnancy. Parry reports that in her series of thirty-eight cases, all of which were of the severe type, 50 per cent. of the patients died within two months after labor. Fellner observed a general maternal mortality in 9 per cent. Osler quotes Dubois to the effect that "if a woman threatened with tuberculosis marries, she may bear the first accouchement well; the second with difficulty, and the third never."[1] Malsbary found the highest mortality among primiparas.

Bacon estimates that 33 per cent. of tuberculous women who become pregnant die in less than one year following labor. Hoffman found that the greatest mortality among tuberculous women was between the ages of 15 and 45 years (195.5 per hundred thousand population), indicating that many women die as the result of pregnancy and childbirth. Schlimpert asserts that the greatest number of deaths from tuberculosis during pregnancy occur in childbed (75 per cent.).

In a review of the foregoing statistics, a number of facts must be taken into consideration. A certain number of patients with pulmonary tuberculosis will exhibit exacerbations even when not pregnant, and this proportion must be deducted from the figures here given when the influence of pregnancy on the course of the disease is considered. On the other hand, statistics compiled from maternity hospitals from which patients are discharged in two or three weeks after labor, no further track being kept of them, are misleading in that no note can thus be made of the exacerbations occurring in the late puerperium or during lactation.

REVIEW OF EIGHTY-FIVE CASES

| | No. | Per Cent. |
|---|---|---|
| Total number of cases (from the Henry Phipps Institute) | 85 | ... |
| Improved | 5 | 5.8 |
| No change | 69 | 81.1 |
| Worse | 2 | 2.3 |
| Deaths | 6 | 7.0 |
| Pregnancy interrupted (therapeutic abortion) | 3 | 3.5 |
| Premature labor (spontaneous) | 2 | 2.3 |
| Miscarriage | 4 | 4.0 |
| Infants alive | 63 | ... |
| Infants dead | 13 | ... |
| Infants stillborn | 1 | ... |

We have been unable to trace four patients.

The review of eighteen cases seen in the obstetric practice of one of us (Norris) confirms the foregoing statistics. Of these patients, 5.55 per cent. were apparently improved; 22.2 per cent. were unchanged; 61.11 per cent. were worse and 11.11 per cent. died either during the course of the pregnancy or the puerperium. As will be seen, these figures coincide closely with those found in the literature, but are not in accord with those observed by us at the Henry Phipps Institute, where in a series of eighty-five cases, two patients were worse and six died, or about 10 per cent. in which the pulmonary lesions were aggravated. Why, then, is this apparent discrepancy? A study of the statistics, as they appear in the literature, shows that the majority of these reported cases have not been reported by obstetricians. The majority of pregnant women are delivered either by the general practitioner or by the midwife, and only a relatively small proportion are seen by the specialist. It naturally follows that the specialist is called in consultation in the worst cases, and that the worst cases are likely to be sent to hospitals for delivery, where again they fall into the hands of the obstetrician. Thus the obstetrician is especially prone to see those patients that are doing badly, and this is doubtless a factor in the high mortality and morbidity as usually reported in this condition.

A review of the cases seen during the past five years at the Henry Phipps Institute shows that eighty-five pulmonary tuberculosis patients who have been pregnant have been observed.

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[1] Some authorities attribute this statement to Louis.

A study of these results shows that, as previously mentioned, two patients were worse and six died. Pregnancy was interrupted three times on account of the pulmonary condition; of these, two patients were improved and one showed no change. Undoubtedly, a therapeutic abortion would have been performed on a few more patients but for the fact that many were seen for the first time late in their pregnancies when emptying of the uterus has little effect on the course of the pulmonary lesion. Cesarean section was done in one case:

A woman with bilateral ulcerated lesions, frequent hemorrhages, hyperpyrexia, and rapid and weak pulse, in whom physical examination revealed evidence of the last stages of pulmonary tuberculosis, and the slightest effort was prone to bring on hemorrhage, was referred to the maternity hospital with the hope of nursing her along until pregnancy was so far advanced that a live child might be obtained. When within two weeks of term and after having been under observation for about six months, the patient's general condition became so bad that a fatal termination was expected almost hourly. With the hope of saving the child's life, spinal anesthesia was given and a rapid Cesarean section performed. The mother died a few hours later. The child was in good condition and left the hospital six weeks later in evident health, and had been gaining weight normally. At birth this infant weighed 7 pounds, and there was no cause, as far as we could determine, why it should not do well. At 6 weeks of age this infant was sent to a nursing home, where it subsequently died from an unknown cause.

In three of our cases, spontaneous premature labor occurred; one of these infants was dead, and the other children did well. Of the eighty-five cases, sixty-nine, or 81.1 per cent., showed no change as result of their pregnancy. The cases from the Henry Phipps Institute consist of about the ordinary run of pulmonary tuberculosis, and are not of the class usually seen by the obstetrician. These statistics, therefore, are of unusual value. We would especially point out the danger of drawing conclusions regarding the effect of pregnancy on the tuberculous individual from a small series of cases. Not only should a moderately large series be utilized for study, but the cases should be followed for a period of some months subsequent to delivery. It has been impossible in our cases to arrange them in periods of time. In some of the cases reported, the patients were recently delivered, and others had had one, two, or even three children.

Of the eighty-five patients, sixty-three infants are alive today, and fourteen have died. Much difference of opinion exists as to whether the infant of the tuberculous woman is or is not a hereditary weakling. It is our belief, based on a study of these cases and of a moderately thorough review of the literature pertaining to the subject, that these infants are not unusually weak, certainly not more so than would be expected from ordinary anemic mothers. Of course, taking a hundred infants born of tuberculous mothers and a similar number born of healthy sources, the latter would undoubtedly be the stronger set of children. The point we wish to make is that while the mortality in children born of tuberculous mothers is unusually high, this is due not so much to the fact that the children are in bad condition when born, but largely to the fact that they are often motherless, are usually bottle fed, and generally do not enjoy the same care as does the child with a healthy mother.

### THE PROPER PROCEDURE

After all, the important point in this subject is the question of what should be done with the tuberculous pregnant woman. Undoubtedly, tuberculous women should be advised against conception in the ordinary cases. As a rule, however, the physician is not consulted until pregnancy has taken place. What, then, shall be his course? Time does not permit extensive discussion of this point, but we may thus summarize our views:

Prior to the fifth month of pregnancy, the uterus should be emptied in all cases which show either advanced or active lesions or in which laryngeal involvement develops. This point should be determined not only by the obstetrician but also by a skilled internist, familiar with pulmonary tuberculosis. After the fifth month, little advantage is gained by emptying the uterus; and it would be best to allow these patients to go to or nearly to term. Labor should be made as easy as possible. With this end in view, induction of premature labor is often advisable. Forceps should almost always be employed, and especial care should be given to the question of anesthesia. In nonactive lesions of a moderate grade, ether, in the opinion of one of us, is the safest mode of producing the anesthesia. The question of the use of spinal anesthesia in these cases naturally arises, and if this form of anesthesia has any place, it is certainly in cases of advanced pulmonary tuberculosis when anesthesia is absolutely necessary. Immediately after birth, the child should be taken from the mother and should not be allowed to nurse. The dangers of infection to the child are very definite ones. In rare instances, tubercle bacilli have been demonstrated in the milk of women suffering from pulmonary tuberculosis. A greater danger is the contamination of the nipples or child's mouth with the tubercle bacilli by the mother's hands. Even were it not for the fact of the danger to the infant from nursing, artificial feeding should be resorted to, as our efforts should be to conserve the mother's strength in every way possible. After delivery, the dangers to the mother are by no means passed. Indeed, many authorities consider the puerperium the most hazardous period.

The problem of the pregnant woman who is also tuberculous is often a difficult one. Many maternity hospitals do not admit such patients, or if they do it is only after considerable persuasion has been used, and then only a week or so before the expected confinement. The same thing is true of the tuberculosis sanatoriums. Many of these institutions distinctly specify that they will not admit such patients. The result is that the social service departments are in a quandary as to how to dispose of them. In the interests of these women, the majority of whom are amenable to improvement so far as the tuberculosis is concerned, it is highly desirable that both the maternity hospitals and the tuberculosis sanatoriums be encouraged to care for them.

### CONCLUSIONS

1. The combination of pregnancy and pulmonary tuberculosis is a frequent one.

2. Pulmonary tuberculosis exerts little or no influence against conception.

3. Pulmonary tuberculosis exerts but little influence on the course of pregnancy, and except in the advanced stages exerts little or no influence toward causing abortion, miscarriage or premature labor.

4. About 20 per cent. of mild, quiescent pulmonary tuberculosis, and 70 per cent. of more advanced cases exhibit exacerbations during pregnancy or the puerperium.

5. Marriage is worse for tuberculous women than for tuberculous men, owing to the dangers incident to pregnancy.

6. Unless the pulmonary lesions have been quiescent for a moderately prolonged period, tuberculous women should not marry.

7. Tuberculous women should not become pregnant unless the disease is in the first stage, and has been quiescent for a minimum period of two years.

8. It is as yet impossible to determine with certainty which patients will bear the added strain of pregnancy well and which badly. We must individualize our patients. Moderately extensive lesions, recent activity, the development of secondary lesions, especially laryngeal involvement, loss of weight, fever, hemorrhage, sweats, lack of vigor, and inability to obtain proper treatment are ill omens, whereas the reverse are more favorable.

9. Prior to the fifth month of pregnancy, the uterus should be emptied if the disease manifests evidence of becoming active, or if the lesions are extensive ones or laryngeal involvement occurs. Curettage during the first six or eight weeks, and in the latter cases vaginal hysterectomy, are as a rule the preferable methods. Interruption of pregnancy does not insure an amelioration of the pulmonary condition, but does definitely improve the prognosis. About 65 to 70 per cent. of patients, prior to the fifth month of pregnancy, will be definitely improved by the emptying of the uterus as soon as acute symptoms arise, provided proper after-treatment is carried out. Late intervention has given less satisfactory results. Sterilization is rarely justifiable.

10. After the fifth month of pregnancy, it is generally advisable to treat these patients expectantly. Labor should be made as easy as possible. For this end, induction of premature labor two weeks before term is often advisable; rarely, if ever, should they be allowed to go beyond term. At labor, forceps or version is usually indicated.

11. Infants should not be nursed by tuberculous mothers, and should be especially guarded from infection.

12. Hygienic and dietary treatment should be employed at all times. These patients should be kept under close observation and should be examined by a competent internist at regular and frequent intervals.

13. In the great majority of cases the tuberculosis precedes the pregnancy. Even in those cases in which the symptoms are first observed during pregnancy, infection has generally occurred prior to conception, and an exacerbation during pregnancy has directed attention to the pulmonary condition.

14. We especially urge that all pregnant women giving a history at all suggestive of pulmonary tuberculosis be subjected to a thorough examination by a competent internist at the earliest possible date. Only in this way can the proper treatment be instigated at the time when it is most valuable.

15. It is doubly important that tuberculous pregnant women shall be given the same care as the nonpregnant person as far as rest, hygiene, diet, etc., is concerned.

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# SYPHILIS AS A CAUSE OF DIABETES MELLITUS

## RELATION OF WASSERMANN TEST AND OF LIPOIDEMIA

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The startling pronouncement of Warthin and Wilson[1] in 1916 that syphilis is probably a frequent cause of diabetes mellitus and that the Wassermann test and clinical history, when negative, are inconclusive evidence of the absence of syphilis in diabetes is of importance to clinicians who have to do with either disease. When it is considered by various authorities that there are from 100,000 to 1,000,000 diabetics and about 3,000,000 syphilitics in this country, it will become obvious that the relation of these two highly important diseases requires careful study. My experience as a clinician does not qualify me to pass judgment on the validity of the Wassermann reaction as an indicator of syphilitic infection in the living. It is generally believed, however, that when properly controlled, it is by far the best diagnostic procedure for the purpose at our disposal. Furthermore, it seems scarcely credible that there can be such a discrepancy between the actual figures and the clinical evidences of the disease as is elicited by history taking and the Wassermann test, as suggested by Warthin's study.

Rosenbloom[2] states that he has been able to demonstrate syphilis clinically in seven of his sixty-two cases of diabetes, or 10.3 per cent. He cites the experience of a number of other clinicians in which the occurrence of syphilis in diabetes is even less frequent. Joslin[3] states that only 8 per cent. of eighty-nine diabetic cases at the Peter Bent Brigham Hospital, in the service of Walker and Haller, gave positive evidences of syphilis. In his own work, six patients, of the 107 examined, reacted. These cases were selected because of suggestive histories. In my experience, the proportion is even smaller, as will be seen by the data in Table 1.

TABLE 1.—REACTION OF DIABETICS TO THE WASSERMANN TEST *

| | Number |
|---|---|
| Diabetics tested with the Wassermann reaction | 144 |
| Diabetics giving a negative reaction | 126 |
| Diabetics giving a positive reaction | 4 |
| Doubtful reactions | 1 |
| Cases in which blood serums were too anticomplementary | 13 |

* The Wassermann tests in this study were made in the laboratory of the New York State Department of Health by Miss Anna I. van Saun, serologist, through the courtesy of Dr. Augustus B. Wadsworth, director.

Many clinicians have conducted inquiries into the validity of the Wassermann reaction as a diagnostic measure. Some of these studies are briefly mentioned. In a comparative examination of the Wassermann reaction and the suspected syphilitic placenta, Slemons[4] quotes the work of Schmitt and O'Shansky, whose combined studies show that in 95 per cent. of 345 cases, there was absolute agreement in diagnosis. He cites the experience of other workers in this field, wherein the Wassermann test was positive in from 87 to 100 per cent. of known syphilitics. He concludes with the statement that in a comparative study of the Wassermann reaction and the placental findings 95 per cent. of 360 consecutive confinements indicate that the tests agree absolutely. Kolmer[5] states that in about 96 per cent. of the cases of active teritiary syphilis, the reaction was positive. In from 75 to 80 per cent. of the cases of latent syphilis, and especially in those of long standing and without treatment or with indifferent treatment, the Wassermann test was positive. In a study of postmortem Wassermann reactions, Graves[6] reports that in his series of eighty-four cases with apparent syphilitic anatomic lesions, seventy-six, or 90.4 per cent., gave a positive reaction. "Only 7 per cent. of 282 cases showed negative reactions in the presence of anatomic lesions (aneurysms) characteristic of syphilis."

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[1] Warthin, A. S., and Wilson, U.: Am. Jour. Med. Sc., 1916, **152,** 157. Warthin, A. S.: Ibid, 1916, **152,** 508.

[2] Rosenbloom, Jacob: The Relation Between Diabetes Mellitus and Clinical Syphilis, The Journal A. M. A., April 28, 1917, p. 1232.

[3] Joslin, E. P.: Treatment of Diabetes Mellitus, Ed. 2, Philadelphia, Lea & Febiger, 1917, p. 292.

[4] Slemons, J. M.: Am. Jour. Med. Sc., 1917, **153,** 212.

The literature affords much support for the belief that there is close conformity between the serologic and anatomic findings in the study of syphilitic infection. No warrant is found for the belief that latent syphilis can exist in any large number of persons whose blood serums show a negative Wassermann reaction. Warthin's limited investigation is the only study suggesting such a possibility. The insufficient serologic data in his investigation largely negative his conclusions. In his series of forty-one cases of general syphilis, there were twenty-five cases in which syphilis was either denied or not suspected clinically. Wassermann tests were made on fourteen of the patients, and ten proved negative. No Wassermann tests were made on the remaining eleven. In the entire series of forty-one cases, no Wassermann tests were made on seventeen patients, nine cases gave positive reactions, and the remaining fifteen cases reacted negatively. No information is afforded as to who made the serologic investigations, or as to the conditions under which they were made. These facts lessen the value of his otherwise exceedingly important paper in drawing conclusions as to the value of the clinical means of diagnosticating syphilis. Not one of Warthin's six diabetics in whom histologic evidence of syphilis was found at postmortem was given the Wassermann test. The absence of this information is regrettable, because without it one is disposed to look on Warthin's cases as being both extraordinary and exceptional. This conclusion is strengthened by the large amount of evidence showing that the Wassermann test in the hands of experienced workers is positive in from 80 to 90 per cent. of the cases of demonstrable syphilis, and by the experience of those clinicians who have examined by this means several hundred diabetics and have found few reactors.

For a number of years, I have had a special interest in the subject of diabetes. With the hope that, out of a large and increasing experience with the disease, something of value might be learned by carefully recorded observations of both normal and pathologic phenomena, I have made a practice of tabulating, from the histories of cases for purposes of comparative study, all observable abnormal changes in body structures or functions. From this record, there have been selected such data as would afford evidence of disturbances or lesions commonly seen in syphilis, to determine whether or not it is possible to say from the clinical examination of these patients that they had syphilis.

The data considered in the following paragraphs were all from diabetics who reacted negatively to the Wassermann test.

In 124 cases, routine examination of the following reflexes was made: pupils as to equality and reaction to light, patellar reflex, Romberg's sign, coordination, tremor and gait. In eighty cases there were no disturbances of any character in the reflexes. In thirty-six cases, there was a disturbance in the quality of either the patellar or the pupillary reflex. Not one case of Argyll Robertson pupil or positive Romberg sign was discovered, nor did a single case exhibit ataxia or lack of coordination, and there was only one case showing noteworthy tremor. In this series, evidences of syphilis of the central nervous system are lacking.

In 122 cases, the patients were carefully examined for enlarged glands. In thirty-eight cases, the cervical glands were distinctly palpable; but aside from an occasional involvement of a single gland in other parts of the body, it may be said that there was absolutely no evidence of adenitis. Of the thirty-eight patients exhibiting enlargement of the cervical nodes, thirty-three had obvious and serious mouth infection involving either the teeth, or the tonsils, or both. Cultures of many of the nodes were made, and various strains of streptococci were isolated. It is highly improbable, therefore, that syphilis is the common factor affecting these glands.

In 126 cases, careful notes were made as to the condition of the peripheral arteries. In thirty-four cases, there was an obvious sclerosis, while in the other ninety-two, no change was detected. The cause of arterial degeneration in diabetes is not as yet understood. Syphilis may be a factor in its production. It is not unlikely that other infections and intoxications may initiate it. Arteriosclerosis has been observed to follow typhoid fever, and there is reason to believe that any persistent low grade infection may cause it. Of the thirty-four patients in this series exhibiting abnormal sclerosis, one had acromegaly with high blood pressure, another had a poisonous thyroid, a third had tuberculosis of long standing, and twenty-six others had severe mouth infection. The ages of these persons are given in Table 2.

TABLE 2.—AGES OF DIABETICS EXHIBITING ARTERIOSCLEROSIS

| Ages, Years | Number |
|---|---|
| From 21 to 30, inclusive | 2 |
| From 31 to 40, inclusive | 5 |
| From 41 to 50, inclusive | 8 |
| From 51 to 60, inclusive | 8 |
| 61 and over | 11 |
| | 34 |

Some families seem to have a predilection for vascular degeneration. Arteriosclerotic disease may characterize several generations. This has been referred to in another of my articles.[7] In the absence of all other evidence of syphilis, and in the presence of known infection which may induce sclerotic changes in blood vessels, the arteriosclerosis in this series can scarcely be advanced as proof of syphilitic involvement.

A series of blood pressure determinations was made in 106 cases. Of these, fifty-two patients were normal, thirty-five had low blood pressure, and nineteen had high blood pressure. Of the thirty-five patients with low blood pressure, twenty-six had severe diabetes and were on very low diets. Twenty-three of these had severe mouth infection. Of the nineteen patients with high blood pressure, one had a poisonous thyroid, one had cirrhosis of the liver, and twelve had evident renal lesions.

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[5] Kolmer, J. A.: Syphilis and Life Insurance, The Journal A. M. A., May 6, 1916, p. 1437.

[6] Graves, S.: Jour. Immunol., 1916, **2**, 53.

[7] Williams, J. R.: A Study of the Significance of Heredity and Infection in Diabetes Mellitus, Am. Jour. Med. Sc., 1917, **154**, 396.

In general, therefore, it may be said that a critical clinical examination of a large number of diabetics does not lend support to the hypothesis that syphilis is a prominent causal factor.

In the course of the study of diabetes, it is the practice in our clinic to make routine examinations of the blood for cholesterol, in which the method of Bloor is employed. The data afforded by these investigations are of interest and importance in this study. This information may be thus summarized: Cholesterol determinations were made on eighty-nine diabetics giving negative Wassermann reactions. In fifty-two of these cases, the blood serums contained less than 250 mg. cholesterol per hundred c.c., which is normal. Eleven of the eighty-nine cases had blood serums with cholesterol between 250 and 300 mg. per hundred c.c. In twenty-six of the eighty-nine cases, the blood serums contained more than 300 mg. of cholesterol. In thirteen cases of diabetes, it was not possible to make a Wassermann test because the blood serums were too anticomplementary. In ten of the anticomplementary cases, cholesterol determinations were made; seven of the patients had serums with a cholesterol content above 300 mg., one had a blood cholesterol between 250 and 300 mg., and the other two had lipoidemia, on later examinations. In many cases it was necessary to make repeated tests in order to obtain a satisfactory Wassermann reaction, because of the anticomplementary character of the serums. Almost invariably these serums contained large amounts of cholesterol. In two of the four cases of known syphilis in which positive Wassermann reactions were obtained, cholesterol determinations were made. One of these had less than 250 mg., and the other had more than 300 mg. of cholesterol. The influence of lipoidal substances in the complement fixation test is well understood by serologists. Cholesterol is purposely added to reinforce or make more sensitive the Wassermann test. From this study, therefore, it would seem probable, as Henes[8] suggests, that, if the blood serum of a patient contained an excess of lipoid in the form of cholesterol, it would serve to reinforce any syphilitic antibodies. The Wassermann reaction as a test of syphilis must be particularly crucial in individuals who have a cholesterinemia. The fact that thirty-seven diabetics out of eighty-nine examined had a cholesterinemia and yet gave negative Wassermann reactions is strong biochemical evidence of the absence of syphilitic infection.

## CONCLUSIONS

1. Many combined clinical and pathologic studies reported in the literature support the belief that the Wassermann reaction as a clinical diagnostic aid is a dependable procedure in from 70 to 90 per cent. of all types of syphilis.

2. In the hands of clinicians who have had a wide experience in the study of diabetes, the Wassermann test has been positive in only from 3 to 10 per cent. of the cases examined. In my experience, only four cases out of 143 examined thus reacted.

3. Careful physical examination of 126 cases for the lesions which characterize syphilis does not lend support to the view that the disease is a common causal factor in the production of diabetes.

4. Thirty-seven of my patients had a cholesterinemia and yet reacted negatively to the Wassermann test. Since cholesterol is purposely added by serologists to increase the delicacy of the test, it would seem that if these patients had had the slightest trace of syphilitic infection, they would have reacted positively.

5. This study does not support the view advanced by Warthin that syphilis is the chief etiologic factor in the production of pancreatic diabetes. Indeed, if it proves anything, it is that syphilis is rarely the provocative agent.

388 Monroe Avenue.

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[8] Henes, Edwin, Jr.: Cholesterinemia and the Wassermann Reaction, The Journal A. M. A., June 12, 1915, pp. 1969-1972.

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# BACILLUS TYPHOSUS ASSOCIATED WITH PYONEPHROSIS*

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BISMARCK, N. D.

Typhoid carriers have been frequently found among persons who have had typhoid fever, and among others who have never had it. Some of these carry the typhoid bacillus in the intestine, and with every bowel movement, many bacilli are thrown into the sewage, on the soil, or wherever the stool happens to be deposited. Others carry the bacillus in the urinary tract, and every micturition contaminates everything soiled by the urine.

The case reported here followed typhoid. It is of interest because of a severe kidney lesion produced, and, to a certain extent, because of a long interval between the typhoid fever and the severe symptoms produced by the kidney lesion.

*History.*—A farmer, aged 41, admitted to the Bismarck Hospital, June 22, 1917, complaining of bladder trouble, with such symptoms as frequent urination and discomfort, had had typhoid at the age of 28, and during the attack he had been sick five weeks. At the age of 32, he had experienced a second attack, which had kept him in bed sixteen weeks. Severe nephritis had complicated this attack. All the family had suffered attacks of typhoid at this time. The present illness began with chills and fever about three weeks before his entrance into the hospital. He had no pain. He was troubled with frequent urination and with discomfort in the bladder, and the scrotum was moderately swollen. On examination, tenderness was found in the region of the right kidney. The urine contained much pus. The roentgen-ray examination revealed an irregular shadow in the region of the right kidney. Thorium could not be forced into the right kidney. The left kidney appeared normal. In the light of these findings, the clinical diagnosis of a right pyonephrosis, calculus obstructing the pelvis of the right kidney, and a severe secondary cystitis was made. The right kidney was removed, June 28, 1917, and was found greatly enlarged,

COMPARISON OF THE ORGANISM FROM THE KIDNEY WITH THE RAWLINGS STRAIN AND WITH B. COLI

| Culture Medium | Bacillus from the Kidney | Bacillus Typhosus, Rawlings | Bacillus Coli |
|---|---|---|---|
| Broth | Cloudy | Cloudy | Cloudy |
| Agar-agar | Translucent streak | Translucent streak | Nearly opaque streak |
| Glucose agar stab. | No gas | No gas | Much gas |
| Litmus milk | No change | No change | Acid, coagulated |
| Potato | Small growth | Small growth | Large growth |
| Gelatin | Not liquefied | Not liquefied | Not liquefied |
| Indol | Negative | Negative | Positive |

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* From the pathologic laboratory of the Bismarck Hospital.

purulent and gangrenous throughout, the pelvis and calices containing much calcareous material. Microscopically the changes were those of suppuration and gangrene.

*Bacteriologic Examination.*—From the purulent material of the kidney, a bacillus was obtained that corresponded to *Bacillus typhosus.* It was a motile bacillus, and was compared with the well known Rawlings strain and with a common strain of *Bacillus coli.* The cultural characteristics are shown in the accompanying table, which shows also that the organism from the kidney corresponds culturally to *B. typhosus.*

The blood serum of the patient agglutinated the Rawlings strain in a dilution of 1: 6,400, and the bacillus isolated from the kidney was agglutinated in a dilution of 1: 3,200, while *B. coli* was not agglutinated in a dilution of 1: 50.

### SUMMARY

In all probability the patient had been a typhoid carrier since the second attack of typhoid, a period of nine years.

As no other organisms were found in the kidney, the typhoid bacillus must be considered the cause of the suppuration and gangrene. Calcification probably resulted from chronic suppuration.

Since the patient did not seek relief until after the development of cystitis, his health apparently was not seriously affected by the infection of the kidney.

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# CHILDBIRTH AND TUBERCULOSIS *

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AND
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It is thought that this series of childbirths in tuberculous women may be of interest because the patients were cared for in the Sea View Hospital, which makes special provision for these cases.

Some time ago a ward in this hospital was designated for the care of pregnancy and childbirth in tuberculous women. There seemed to be a need for this, and apparently there were few tuberculosis institutions that attempted to fill the need. The idea, in general, was to place the pregnant tuberculous woman in this ward, where the usual sanatorium treatment for tuberculosis was carried out as much as was possible during pregnancy and after labor.

### ROUTINE

After admission to the hospital, the taking of the history, the physical examination and the obtaining of specimens of urine, sputum, etc., were done in the general female admission wards, where the patient was placed in bed for an observation period of about two weeks, as is the custom with all tuberculous patients. Then, in case of pregnancy, the pelvis was examined, a vaginal smear was examined for gonococci, and Wassermann and gonococcic fixation tests were made. After the usual two weeks of observation in the admission ward, where the stage of the disease and the mode of sanatorium treatment were determined, the woman was transferred to the obstetric ward. In the obstetric ward, the care was the same as for all tuberculous patients, the amount of exercise allowed being dependent on the activity of the tuberculosis and the general rules observed in pregnancy.

These patients seemed well satisfied, and their being together seemed to add to their contentment. Their meals were served to them in this ward and, to satisfy their natural reticence, they were allowed to remain as much apart from other patients as they desired. This ward was not, however, closed to other patients, for this was not feasible, and was obviously not desirable.

When labor occurred, the woman was removed to the surgical pavilion, for reasons of asepsis, and brought back to the obstetric ward shortly afterward. She was placed in a single room for two or more weeks and treated as any other maternity patient. The child was removed, immediately after labor, to the children's pavilion. The child was not permitted to nurse, being fed artificially from birth. The parents were advised that the child should be sent to a tuberculosis preventorium for one year at least, and if they aquiesced, this was done as soon as it could be facilitated. The mother was confined to bed while the uterus was undergoing involution, and after this, if all things were favorable, she was cared for according to the usual sanatorium methods for tuberculous patients.

### REPORT OF CASES

There were seventeen cases:

Case 1.—A multipara, aged 23, with far advanced pulmonary tuberculosis complicated by cervical adenitis, of about three years' duration, at admission six months pregnant, gave birth to a dead fetus one month later. She retrograded during pregnancy, and died one month after labor.

Case 2.—A multipara, aged 29, with moderately advanced pulmonary tuberculosis of about four months' duration, underwent normal full time labor, a few days after admission. She was discharged at her request about two months later, with her condition slightly improved.

Case 3.—A primipara, aged 20, with far advanced pulmonary tuberculosis of about two years' duration, at admission about five months pregnant, underwent premature labor with instrumental delivery, two months later. The child died six hours after birth. The mother retrograded during pregnancy, and died a few days after labor.

Case 4.—A primipara, aged 20, with far advanced pulmonary tuberculosis complicated by tuberculous laryngitis, of about seven months' duration, at admission four months pregnant, refused to consider termination of pregnancy, and underwent normal delivery five months later. She retrograded during pregnancy, and died a few days after labor.

Case 5.—A multipara, aged 25, with moderately advanced pulmonary tuberculosis of about two years' duration, underwent normal full time labor three months after admission. She was discharged at her request eight months after labor in improved condition. She seemed to improve slowly during pregnancy and after labor.

Case 6.—A multipara, aged 30, with far advanced pulmonary tuberculosis of about one year's duration, underwent normal full time labor five months after admission. She seemed to improve a little during pregnancy and to retrograde slowly after labor. She was discharged at her request about two months after labor in an unimproved condition.

Case 7.—A multipara, aged 29, with far advanced pulmonary tuberculosis of about seven months' duration, underwent normal full time labor three months after admission. She retrograded during pregnancy and died about one and a half months after labor.

Case 8.—A multipara, aged 28, on whom cesarean section for placenta praevia had been performed one year before, and who had moderately advanced pulmonary tuberculosis of about five months' duration, underwent normal full time delivery four months after admission. She seemed slowly to retrograde during pregnancy, and after labor slowly to improve. She was discharged at her request five months after labor in an improved condition.

Case 9.—A multipara, aged 36, with far advanced pulmonary tuberculosis of about five years' duration, underwent normal full time labor three months after admission. She retrograded during pregnancy, and died two days after labor.

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* From the Sea View Hospital.

Case 10.—A multipara, aged 25, with moderately advanced pulmonary tuberculosis of about three months' duration, underwent normal full time labor one month after admission. No improvement was noted until after pregnancy and labor. She was discharged at her request three months after labor in an improved condition.

Case 11.—A multipara, aged 22, with far advanced pulmonary tuberculosis of about two years' duration, underwent a normal full time labor one month after admission. She retrograded slowly during pregnancy and after labor, and was discharged at her request in an unimproved condition one month after labor.

Case 12.—A multipara, aged 24, with moderately advanced pulmonary tuberculosis complicated by bone tuberculosis in both wrists, of about three years' duration, underwent a normal full time labor four and a half months after admission. She seemed to improve during pregnancy and after labor, and was discharged at her request about two and a half months after labor in an improved condition.

Case 13.—A primipara, aged 22, with far advanced pulmonary tuberculosis complicated by tuberculous laryngitis, of about two years' duration, at admission about three months pregnant, refused to consider termination of pregnancy, and underwent a normal labor six months later. She seemed to improve slightly during pregnancy. After labor she retrograded slowly, and was discharged at her request about four months later in an unimproved condition.

Case 14.—A multipara, aged 36, with moderately advanced pulmonary tuberculosis of about four months' duration, underwent a normal full time labor five months after admission. Her condition seemed unchanged during pregnancy. She improved slowly after labor, and was discharged at her request about one month later in an improved condition.

Case 15.—A multipara, aged 34, with moderately advanced pulmonary tuberculosis of about one month's duration, underwent a normal full time labor about four months after admission. She seemed to improve slowly during pregnancy and after labor, and was discharged at her request about one month after labor in an improved condition. She was readmitted three years later, with far advanced pulmonary tuberculosis of about three years' duration, and underwent a normal full time labor about two months after admission. She retrograded during pregnancy and after labor. She is still in the hospital.

Case 16.—A multipara, aged 33, with far advanced pulmonary tuberculosis of about three months' duration, underwent a normal full time labor about two months after admission. She retrograded slowly during pregnancy and after labor. She is still in the hospital.

Case 17.—A multipara, aged 22, with far advanced pulmonary tuberculosis complicated by tuberculous laryngitis of about three years' duration, underwent a normal full time delivery about four and a half months after admission. She retrograded during pregnancy, but since labor has slowly improved. She is still in the hospital.

### COMMENT

All together there were eighteen childbirths, one patient having two children born in the hospital, the second being three years after the first.

The duration of the tuberculosis is that stated by the patient, and is the duration of the clinical tuberculosis, which, as used here, means the length of time that the tuberculosis has been evident to the patient. Ten stated that the onset of their clinical tuberculosis occurred before pregnancy; of these, after labor, four died, three seemed improved and three seemed unimproved. Three stated that the onset of their clinical tuberculosis occurred at about the time they became pregnant; of these, after labor, one died and two seemed improved. Five stated that the onset of their clinical tuberculosis occurred after they became pregnant; of these, after labor, four seemed improved and one seemed unimproved.

During pregnancy, as near as could be ascertained, ten seemed to retrograde, five to improve, and three were apparently unchanged.

After labor, of the moderately advanced, seven were improved; of the far advanced, five died, one improved and five retrograded.

Conclusions drawn from so small a series of cases would very probably be erroneous. However, a few general impressions were received which perhaps have some value. Since in this series of cases all had pulmonary tuberculosis, the following observations apply to this type of the disease:

The establishment of obstetric services in tuberculosis institutions is an aid in tuberculosis hospital and sanatorium treatment. By means of the obstetric service, the tuberculous mother can receive sanatorium treatment during pregnancy and after labor. This is desirable because pregnancy and labor frequently have a profoundly disturbing effect on pulmonary tuberculosis. With facilities to care for pregnancy and labor, in the institution in which the mother is receiving treatment for her tuberculous disease, the mother suffers the least interruption of her treatment. Measures for the prevention of tuberculous infection of the child can be readily carried out. The mother receiving treatment for tuberculosis in a hospital or sanatorium will usually realize the advisability, and agree to separation from her child, and permit it to be sent to a tuberculosis preventorium. Of course, such an obstetric service has its disadvantages. Naturally the mother dislikes to be separated from her child, but the possibility of infection during nursing and from fondling makes this desirable. Artificial feeding has its many drawbacks. And there may be objections that making an "institutional baby" is unfair treatment to the child. But weighing both advantages and disadvantages of the plan of the service, it seems that the health of both mother and child are perhaps better conserved, as a rule, by these methods.

The effects of pregnancy and labor on the course of the tuberculous disease are extremely problematic. Not only are the effects variable, but they are difficult to foretell, and frequently a long period of observation is necessitated to ascertain the ultimate effects. In open active tuberculosis, seemingly, there is rarely a good effect, especially when the onset of the clinical tuberculosis has occurred before pregnancy. When the disease seems to have little activity and has never been very active, some will apparently improve during pregnancy and after labor. It is questionable if the prognosis in such cases is bettered. In others, pregnancy and labor frequently seem to whip a slightly active tuberculosis into a rapidly advancing, quickly fatal disease. Generally, the less the tuberculous disease and particularly, the less the activity of the disease, the better the prospects of the mother. One, however, is impressed with their inability, considering all things, such as the stage, activity, complications, etc., of the disease, to foretell in the individual case what effect, if any, pregnancy and labor will have on the course of the tuberculosis.

The question of the termination of pregnancy in the tuberculous is an open one. The literature on this subject is voluminous and varies widely. Some believe in not only the prevention of conception, but also the termination of pregnancy in all instances. Others less radical think that the interruption of pregnancy should depend on the history, extent and activity of the tuberculosis. Still others believe that pregnancy should follow its course. Like most debatable questions in medicine, there is clinical material to aid in the substantiation of the claims of all three groups. The impressions, regarding maternity, gained in the short series of cases described above, were mixed and confusing. Some who were thought to have a poor initial prognosis seemed to progress favorably; others retrograded when it was unexpected. To have decided for or against maternity in the early months of pregnancy in each of this series would have been difficult, and mistakes favorable or unfavorable to mother and child would have been made. Pregnancy and childbirth seem to add to the uncertainties of the prognosis of tuberculosis, and their advent gives apprehension. To answer the question of the termination of pregnancy in the individual case of tuberculosis is extremely difficult, and perhaps the best way is to imagine one's self in the position of the tuberculous woman and then decide.

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# ACQUIRED GENITAL SYPHILIS IN THE INFANT

## REPORT OF CASE

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It is extremely rare to find in the literature any mention of the age at which syphilis is acquired. This is probably due to the fact that by far the greater majority of chancres, particularly in the genital lesions, are contracted in early adult life through venery. Rarely is a chancre noted on the glans penis before the fifteenth or after the fortieth year. In an analysis of ninety-eight cases of chancre in private practice, the youngest was in the fifteenth year and the oldest in the fifty-eighth year, with an average age of 24 years.

There have been thousands of cases of acquired syphilis with extragenital chancre observed in the infant, and numerous cases of this type are reported in the literature. The youngest patient on record is one reported by Grünfeld,[1] an infant aged 3 weeks, with a chancre on the scalp. Weil[2] reports the case of an infant, aged 4 weeks, with a chancre at the root of the nose. In both of these cases the source of infection was traced to parturition; the mother in each case had contracted syphilis in late pregnancy, and the vulva showed numerous mucous patches. Dr. Howard Carpenter has informed me that he observed an extragenital chancre of the cheek in a baby, aged 5 weeks.

The varying sources of acquired infection in infants may be thus classified: parturition, circumcision, vaccination, breast feeding, hand feeding, fondling, household utensils, toilet articles, careless and unclean methods in caring for wounds, the removal of foreign bodies and miscellaneous sources.

The majority of extragenital chancres reported in infants occur about the head, face and mouth. Trosseau[3] has reported the case of a boy, aged 4 months, who acquired a chancre on the buttock from contact with mucous patches on the mother's vulva. The child was in the habit of going to sleep with its buttock against its mother's abdomen.

It would seem, from the numerous cases reported in the medical literature by noted syphilographers, that extragenital chancre in infants is of rather frequent occurrence. That such is not the case is evidenced by statistics from the clinics of Fournier,[4] Tarnosky, Gay and the Kalinkinsky and Alexandrovsky infirmaries. They have reported collectively seventeen cases of extragenital chancre in children under 2½ years of age out of 897 cases, or not quite 2 per cent. Fournier in forty-five extragenital chancres had four, or approximately 9 per cent., in children. Kapustin[5] states that 23 per cent. of syphilis in Russia in children from 1 to 10 years of age is acquired extragenitally. Extragenital chancre in early childhood is an uncommon condition, and has become more so in this aseptic age. Few cases have been reported in the past decade.

The only cases of genitally acquired syphilis in early childhood reported in the literature are those infected during circumcision. This was quite common when the rabbis practiced suction of the circumcision wound, after taking a mouthful of wine. This was done to procure perfect hemostasis, remove all surplus blood, and thereby prevent "festering." In the early part of the last century, many of the rabbis and Jewish physicians began a crusade against this custom and succeeded in bringing about a reform, so that at present the mohels, or professional circumcisers, are picked men who are given a thorough examination as to their physical fitness and a rigid training in asepsis and the surgical technic of circumcision. They are under the constant supervision of a special committee composed mostly of surgeons, and are compelled to report to this committee every circumcision scheduled, twenty-four hours before the time set for the operation.

Epidemics of syphilis acquired through circumcision have been reported by Segel,[6] Ricord,[7] von Pitha,[8] Hutchinson[9] and others. An interesting series of seven cases is described in detail by Hutchinson. He was called in consultation because the circumcision wounds, which had practically healed, were breaking down and ulcerating. He speaks of the unequal severity of the infection when derived from the same source; the absence of typical chancres, the presence of very little induration; the presence of buboes, some having undergone abscess formation and suppuration; and the rapid development of secondaries in all infants.

During a period of six weeks, this rabbi had been infecting his patients with syphilis, not all of them, but one now and then. The greater majority, which included a large number, as he had a very large practice, had escaped during this period. The rabbi was a man past middle life, wholly free from syphilis; he denied the practice of sucking, and declared that he always sterilized his instruments. Further questioning elicited the information that he was in the habit of throwing the prepuce into a silk-lined compartment of his instrument case and taking it home so that it might be ceremonially burned. In the same compartment he carried his gauze dressings. The silk lining proved to be spotted here and there with blood stains. Hutchinson was of the opinion that at some time the rabbi had thrown in the prepuce of a syphilitic infant, and that the syphilitic virus had been kept alive and revivified from time to time by fresh blood stains, and from here transferred to the gauze and thence to the child.[10]

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[1] Grünfeld: Wein. med. Presse, 1879, p. 1492.

[2] Weil: Arch. Dermat., 1879, p. 92; Statistics on Extragenital Chancre, Brit. Jour. Dermat., 1888, p. 426.

[3] Trosseau: Gaz. d. hôp., 1853, p. 522.

[4] Fournier, J. A.: Treatment and Prophylaxis of Syphilis, New York, Rebman Company, 1907.

[5] Kapustin: Arch. f. Dermat. u. Syph., 1889.

[6] Segel: Wein. med. Presse, 1867, p. 1.

[7] Ricord: Gaz. d. hôp., 1862, p. 42.

[8] Von Pitha, reported by Jaffe: Die Rituelle Circumcision, Liepzig 1886.

[9] Hutchinson: Syphilis, London, 1909.

### REPORT OF CASE

I have deemed this case worthy of reporting because of the extreme youth of the patient, the typically indurated chancre situated in the usual site, and the very obscure source of infection.

A well developed, healthy boy, aged 16 months, of good disposition, was referred, March 7, 1917, for a single ulcer, the size of a dime, in the sulcus, just to the right of the middorsal line and extending back on the reflected layer of the foreskin. The foreskin was long, but retracted easily. The duration of the ulcer had been two weeks; it was noninflammatory; was not painful, and was typically indurated. It possessed the clinical characteristics of chancre in flopping over like a boat on retraction of the foreskin. It was positive for *Spirochaeta pallida*. There was slight inguinal adenopathy. The patient received four injections of neosalvarsan, 0.15 gm., intramuscularly, at weekly intervals. The chancre was healed at the time of the second injection. The Wassermann reaction was negative six weeks after the last injection. At the time of the second visit, a profuse purulent meatal discharge was noted, which on appropriate staining was found to contain typical gonococci.

The most probable source of infection was a colored nurse. A careful physical examination by the family physician revealed no clinical evidence of syphilis. She had very bad teeth; otherwise the examination was negative. Her blood gave a + + + + Wassermann reaction. Before noting the discharge from the meatus, we thought of transmission by some form of sexual perversion by mouth, but the family doubted this, as there was very little opportunity for her to practice it, and the presence of the discharge tends to preclude this idea. We cannot help feeling that there must have been some evidence of syphilis around the nurse's genitalia.

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[10] In addition to the references already given, the following will be found of interest:
Bulkley: Syphilis Insontium.
Knowles, F. C.: Syphilis Extragenitally Acquired in Early Childhood, New York Med. Jour., 1908, **88**, 108.
Reuben, M. S.: Ritual Circumcision, New York Med. Jour., 1917, **105**, 688.
Bierhoff, F.: Notes on Conditions Resulting from Ritual Circumcision, New York Med. Jour., 1912, **95**, 1037.

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**Need of Industrial Physicians.**—While teachers of medicine have devoted a certain measure of attention to yaws, sleeping sickness, and to other conditions little related to the immediate needs of the American practitioner, practically no instruction is given in industrial hygiene to students, many of whom will settle down to practice in industrial centers.—L. I. Harris, M.D.

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# PAGET'S DISEASE OF THE BONE

## EXCELLENT REPAIR AFTER SURGICAL OPERATIONS

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Sir James Paget first brought to prominence a definite and unexplained type of bone disease that has rightly been classified under his name, though the Germans later named it "osteomyelitis fibrosa"— a name that is clinically delusive, as there is nowhere a fibrous change, but only a large bony overgrowth. Genetically, bone structure is classed with fibrous tissue in embryologic development; but it is not an excuse for a name that is misleading and not elucidating to the student.

Though the disease appears first in some isolated bone, it is not essentially a "one-bone disease." Usually it is noticed in a curvature and enlargement of one tibia, femur, clavicle or ulna; and the surgeon often examines the skeleton in vain endeavor to find a second diseased bone. Nevertheless, in almost all cases, a roentgenogram of the head will reveal a thickening of the frontal, parietal and occipital bones, sometimes of enormous degree—to an inch in thickness, with no prior suspicion.

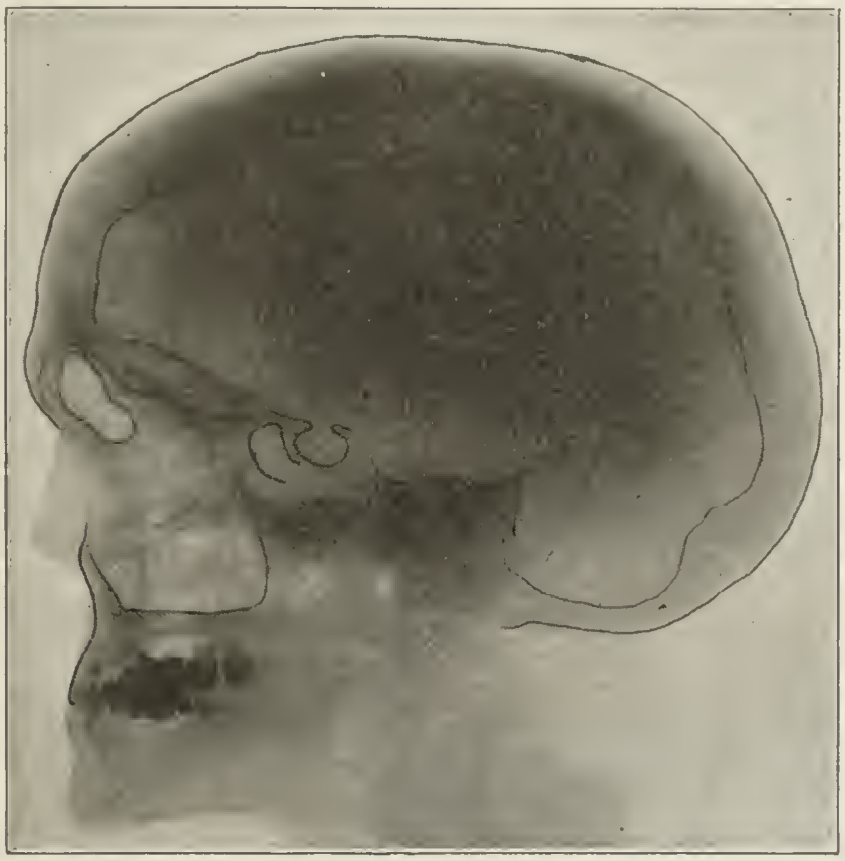

Fig. 1.—Paget's disease consistent with perfect health and cerebration, showing no material change during five years.

This is often the only corroboration of diagnosis. The essential condition is one of very chronic osteitis, productive of spongy overgrowth, with absorption of the compact structures in the long bones, and occasional development of cysts lined by epithelium, sometimes filled by fluid or granulation tissue. In the skull the enlargement is never at the expense of the cranial cavity. In the long bones there is curvature with much increase in bulk, by periosteal and endothelial growth. Occasionally, though rarely, a sarcomatous degeneration may ensue. While the disease is not widely recognized, it is by no means so uncommon as would be implied by the general ignorance of the profession about it, and quite a number of cases go unrecognized.

I have two purposes in writing thus briefly about it, while referring the reader to more extended articles on the subject: 1. To call attention to the admirable repair of such diseased bones, when surgical operation is called for. 2. To direct attention to its not infrequent appearance in the jaw bones, in order that it may not come unrecognized to the notice of dentists.

In fourteen private cases of this disease seen during recent years, four cases with jaw complication have come to my notice. In two of these, extensive surgical operation was required and most excellent results were obtained. Its slow development is emphasized in one case of a woman whose lower jaw I had treated for a cyst on several occasions for twenty-two years. Only three years ago it suggested itself to me that it might be Paget's disease, and, on taking a roentgenogram, I found a very thick, typical skull. When its nature was thus shown, I ventured a wide removal of the outer plate and all cancellous and cystic structure of the forward half of one side of the lower jaw, leaving the inner compact structure. I thus obtained a good surgical cure.

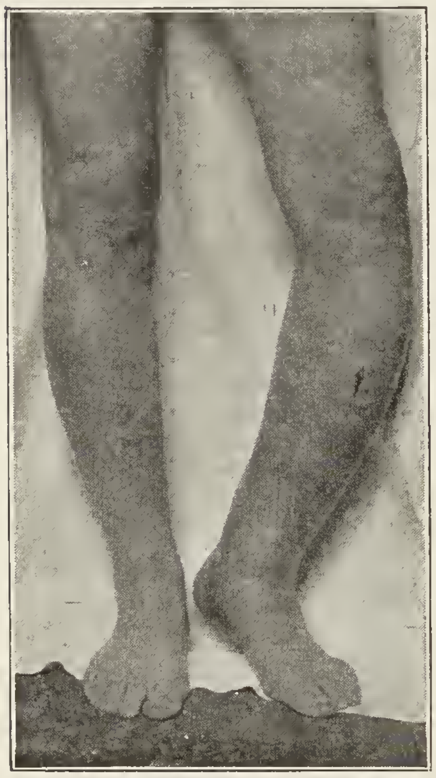
Fig. 2.—Typical Paget's disease of one bone.

In another case, a bold and successful operation restored a lawyer to useful life:

> The patient for many years had been the victim of enormous overgrowth of the alveolar roof of the mouth, which produced a repulsive change in his countenance. Roentgenoscopy revealed also a large characteristic overgrowth of the calvarium. To remove the entire excess bone growth of the upper jaw imperiled the roof of the mouth, as both anterior and posterior palatine arteries would be sacrificed. I judged, however, that nutrition would be sufficient through the median line and the soft palate attachment.
>
> Three remaining teeth were drawn, and a horseshoe shaped incision was carried round the entire upper jaw along the line of the teeth. The mucoperiosteum of the roof was stripped from the bone back to the soft palate and the posterior median line. The alveolar part was stripped upward. A horizontal block of bone, more than 1 inch thick, was then removed by broad chisel, rongeur and bone gouge. Large blocks of it at the back were dissected from their periosteal covering, and a rough bony roof left against which the soft parts were held by compresses and a splint, devised like a modified bit, held up outside by a bandage over the head.
>
> The upper and lower mucous edges were stitched so as to create a projecting shelf to hold a future dental plate. This was adjusted effectually after four months, and a restoration of physiognomy to that of twenty years before was the happy outcome of the surgical work.

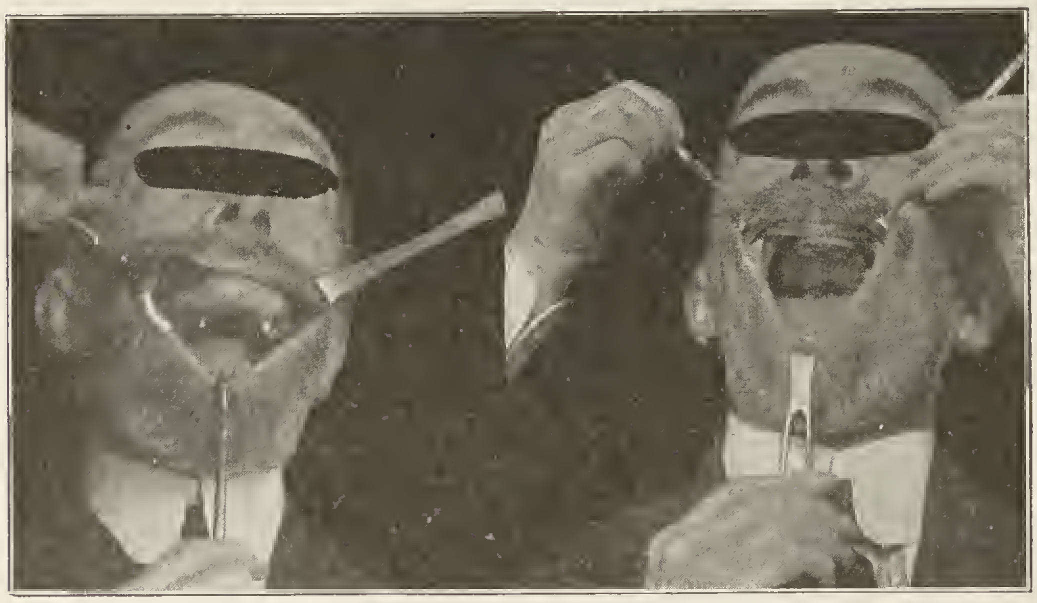
Fig. 3.—Enormous bone hyperplasia perfectly corrected by operative removal.

13 West Fiftieth Street.

# SYPHILITIC JOINT DISEASE SIMULATING TUBERCULOSIS

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Until recently, the diagnosis of tuberculous joint disease was considered one of the simplest and most definite problems with which the orthopedic surgeon is confronted. It is evident, however, from the gradual elimination from this classification of such conditions as Perthes' disease, hemorrhagic osteomyelitis (Barrie) and other benign lesions, and also from studies of congenital syphilis pursued by me during the past two years, that this simplicity is merely apparent. We have, indeed, enjoyed a sense of diagnostic security entirely unwarranted by the facts. Heretofore it has been the custom to consider as probably tuberculous those cases of articular disease characterized by a gradual onset of symptoms, the presence of spasm on passive movement, limitation of motion in all directions, atrophy and limp, if a weight bearing joint was involved, or alteration of attitude when the lesion was vertebral.

This method of diagnosis has been practiced for many decades, and in more recent times has been bolstered up by roentgenographic demonstration of a pathologic focus in one of the bones comprising the affected joint. In view of our lately acquired knowledge, it is difficult to understand why we have for so long a time complacently accepted tuberculosis as the most probable etiologic factor in the production of the clinical picture described. The records of more than a hundred cases collected during the past year give proof that a similar symptomatology may be produced by inherited syphilis, and the roentgenographic findings in this series show no characteristics to differentiate them from what we have previously supposed to be tuberculous lesions. Just what proportion of diagnostic errors have occurred in the past it is impossible to estimate; but it is evident that many patients who might have been restored by medication to their normal activities in ten or twelve months, or less, have been condemned to years of immobilization in plaster casts or braces, only to recover with permanent deformities.

The literature on joint lesions of inherited syphilis is extremely limited in both volume and scope. Beyond the ample descriptions of osteochondritis of infancy, which Parrot has so well portrayed, frequent references to arthroses of the knee and elbow and a limited though increasing recognition of syphilitic joint conditions resembling tuberculosis, the recorded clinical and pathologic observations fall far short of a comprehensive exposition of the subject. There exists an extensive group of syphilitic invasions including those of the vertebrae and bones of the large joints still unrecognized by the writers of orthopedic textbooks, though occasionally referred to in current medical publications. It is evident that, generally speaking, the influence of inherited syphilis as a common etiologic factor in chronic joint disease has been overlooked.

To draw the line definitely between syphilis and tuberculosis in the diagnosis of joint lesions is not always easy.

It is regrettable that the Wassermann reaction in its present state of development is frequently negative in the presence of a direct family history of syphilis and where existing lesions in children of syphilitic parents clear up under mixed treatment. Nor is there a reliable laboratory test for tuberculosis to aid us in diagnosis. Fortunately, however, nearly every joint case due to inherited syphilis will, on exhaustive search, reveal some remaining imprint of the previous activity of the disease, and the family history, if carefully analyzed, will often yield valuable information. It would seem wise, therefore, to approach the diagnosis of joint disease in children from a standpoint diametrically opposite to that from which the subject has heretofore been considered. As we have no accepted test as yet to indicate the presence of tuberculosis, and we do have certain indexes of congenital syphilis to serve as a guide, the first step in solving our diagnostic problem should be the elimination of syphilis before we conclude that a case under examination is tuberculous, for syphilitic joints, contrary to the teachings of the past, will be found quite as numerous as those due to tuberculosis.

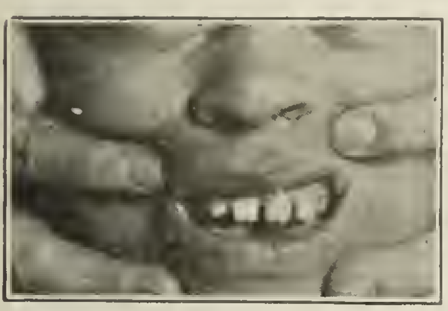

Fig. 1.—Hutchinson teeth; widely spaced upper incisors in a syphilitic boy.

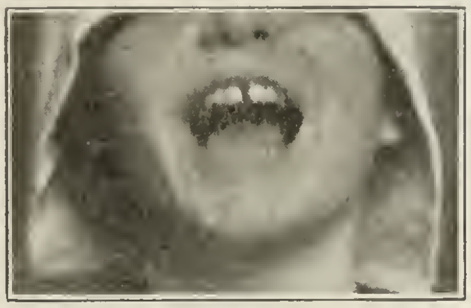

Fig. 2.—Widely spaced upper central incisors in otherwise perfectly regular teeth. Inherited syphilis; positive Wassermann reaction. Two other children in same family have similar teeth and active lesions of hereditary syphilis.

The importance of the family history is self evident; but as many joint lesions are seen in third generation cases, this is often inconclusive. It is necessary, consequently, to inquire closely into the early life of the patient from the time of birth onward; to note the physical and mental development of the child during infancy; to search for a history of skin diseases and to be sure that every eruption that is called measles is surely measles and not a syphilitic rash; to look for corneal opacities; to examine for unduly tender tibiae, sternoclavicular joints and sternums; to inquire about supposed attacks of "rheumatism," growing pains and articular disease of any sort, and to question in regard to headaches and all other possible manifestations of inherited syphilis.

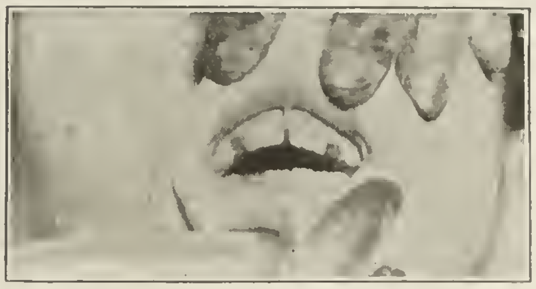

Fig. 3.—Widely spaced upper incisors; fluted lower incisors. Boy in plaster cast six years for tuberculous knee. Disappearance of all symptoms, return of function to joint, and regeneration of large bone lesion under mixed treatment.

After all of this has been done, there still remains a field for observation which, if the case is one of syphilis, will more than likely throw a convincing light on the subject. This field is the teeth. It so happens that certain dental units are formed and calcified, either wholly or in part, during the last half of gestation and the first few months of the child's life. These are the deciduous teeth, the first permanent molars and the incisors. In cases of inherited syphilis, therefore, they are very likely to bear some mark of a previous inflammatory process in the maxillae which is usually at its height during that period. An erroneous impression has existed that dental defects are largely due to diseases occurring in infancy or the early years of childhood. While this is in part true, it is important to remember that many of the peculiarities in structure significant of inherited syphilis are produced in utero or before the child has been subjected to external infections, and that, so far as is now known, the only pathogenic organism transmitted directly from parent to child is the *Spirochaeta pallida*, unless we accept as authentic certain rare cases of tuberculosis that have been reported.

The conclusions of Hutchinson regarding dental stigmata have been considerably modified by later investigators, including Fournier, Hallopeau, Moon and Cavallaro. It is now recognized that inherited syphilis may be responsible for numerous anomalies of the teeth, and that notched upper central incisors are but one of many of its curious manifestations. That this should be the case is most natural in view of the fact that the dental structures of the fetus are a common site for syphilitic inflammation, both destructive and productive in its nature, causing an alteration in the normal development of the follicle as a whole, the enamel organ and the walls of the alveolar processes. To describe all of the dental dystrophies that syphilis may produce would be entirely impracticable in a contribution of this length. It will be sufficient to say that even slight deformities should be regarded with suspicion in the presence of active joint lesions of uncertain pathology, and to call attention to some of the more striking defects found in the teeth of syphilitics.

Among the dental dystrophies, the so-called erosions, which include pitted labial surfaces of the teeth, cup-shaped depressions, sulci of various types and other peculiarities of enamel formation, are numerically important.

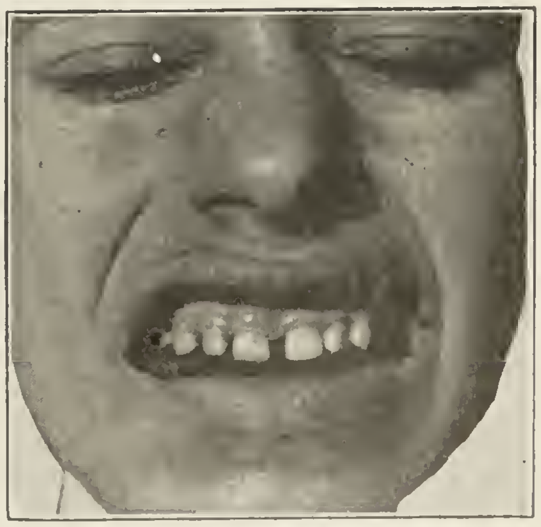

Fig. 4.—Widely spaced upper incisors; no dental units missing. Hip symptoms that had persisted two years disappeared under mixed treatment. Wassermann reaction negative. Brother has dental evidence of inherited syphilis.

Perhaps the most frequent anomalies suggestive of inherited syphilis, however, are widely spaced incisors, either upper or lower, and irregularities on the lingual surface of the upper molars. Diastema of the incisors has been noted by other observers in connection with Hutchinson teeth, but it was not until I called attention in April, 1917, to its significance when appearing as the only defect in otherwise perfectly regular teeth, that its diagnostic importance was recognized. Nor should it now be considered as pathognomonic of the disease, for there is no evidence to prove that it may not be produced by other causes. The fact remains, however, that it occurs with extreme frequency in syphilitic children, and when present in connection with active joint lesions it points with considerable certainty to the etiology of the pathologic process. The value of the sign is indicated in the appended case reports.

Irregularities in the form of the first permanent molar have been noted by Moon of London, and Sabouraud of Paris. I desire to amplify the descriptions given by these observers because neither has fully covered the subject. No doubt the first permanent molar frequently bears the imprint of syphilis, because its development occurs at a time when the inherited disease is most active in the fetus. The follicle is well formed, and calcification of this tooth begins at about the sixth month of gestation. It is very susceptible, therefore, to the destructive or inhibitive influence of the vasculitis that is so often present in the dental structures of the syphilitic embryo. The ultimate result of this interference with normal evolution of the unit may be expressed in hypoplasia of the enamel, in which case the dentin is exposed to view either on the grinding surface or perhaps well down on the lateral aspects of the tooth, or the enamel may cover the entire tooth except at the tips of the cusps, which appear as yellowish or dead white points. Occasionally, the grinding surfaces are contracted, with inward inclinations of the cusps. Again, unusual elevations of enamel may occur on the intercuspal grooves. In adults we find smooth, ivory-like superior surfaces as the result of attrition of insufficiently protected dentin. Very frequently there appears an alteration in the normally smooth lingual surface of the crown. This may be nothing more than a lateral ridge or slight shoulder that will catch the point of an instrument, passed over it, or it may take the form of a prominent outgrowth resembling a supernumerary cusp, as described by Sabouraud. To this condition I have given the name "humpy molar," which expresses the gross appearance of the tooth without endeavoring to explain the origin of the deformity. Whether the abnormality is merely a ridge or is a strikingly developed rudimentary cusp, the clinical significance is the same. It is due to some interference with the development of the follicle, and is present in a very large percentage of subjects with proved inherited syphilis. It is, moreover, seen on the second permanent molars, and in my series appeared very frequently on the molars of the deciduous group.

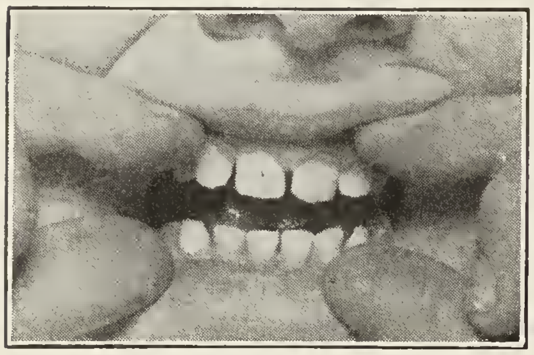

Fig. 5.—Moderate grade of widely spaced upper central incisors. Knee symptoms of five years' duration disappeared under mixed treatment.

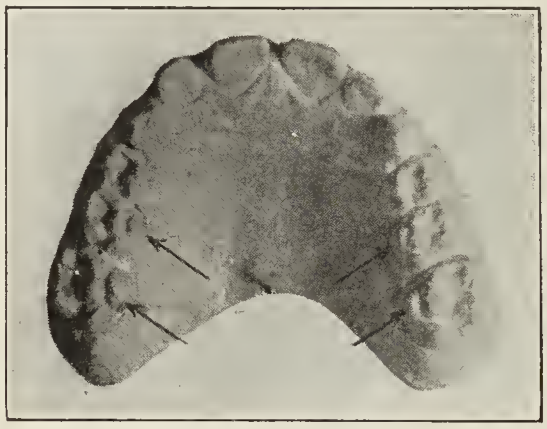

Fig. 6.—Extreme grade humpy molars. Specimen shows deformity of first permanent and one deciduous molar. Hip case; positive Wassermann reaction.

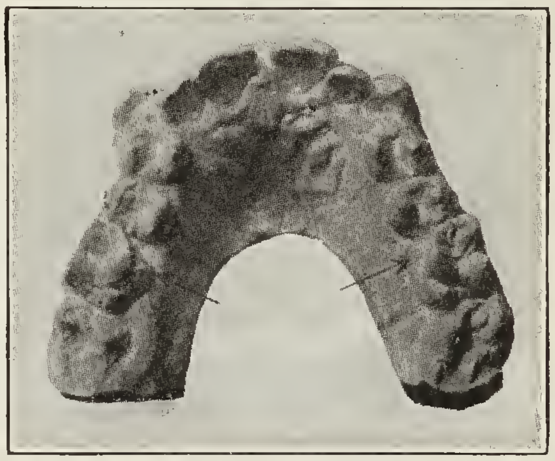

Fig. 7.—Moderate grade humpy molar. Hip case; positive Wassermann reaction.

These two conditions, widely spaced incisors and humpy molars, are the most striking dental indexes of inherited syphilis, excepting, perhaps, Hutchinson teeth, and are so easy of recognition that it would seem almost a duty to look for them in the examination of any patient suffering with joint disease.

In addition to these alterations in structure there are several general characteristics of the teeth that should be borne in mind. For instance, early decay of both the first and the permanent sets is so frequently found in proved syphilitics as to establish a connection between this condition and the inherited disease. The retention of deciduous units long after the period when they are usually replaced is another significant fact. Microdentism is likewise a condition often associated with congenital syphilis and therefore of interest to the diagnostician.

The value of the dental findings described may be seen in the cases reported, selected from a series of 100 in which the only clue to the probable etiology of the joint lesion was furnished by the teeth.

### REPORT OF CASES

Case 1.—M. C., aged 4, had been treated for tuberculosis of the left knee for two and a half years, wearing plaster casts practically all the time. March 19, 1917, the knee was enlarged, tender and painful on any attempt at motion; the whole leg was atrophied and one-half inch shorter than the right. Roentgenoscopy revealed considerable destruction of the outer condyle of the femur and the inner half of the head of the tibia. On the evidence of inherited syphilis furnished by widely spaced upper central incisors, mixed treatment was prescribed. Two weeks later the pain had subsided and the knee could be flexed 20 degrees without discomfort. Improvement continued, and three months after medication was begun there was normal motion of the joint, except for lateral instability due to bone destruction noted in the roentgen-ray report; there was no pain; the child was very active.

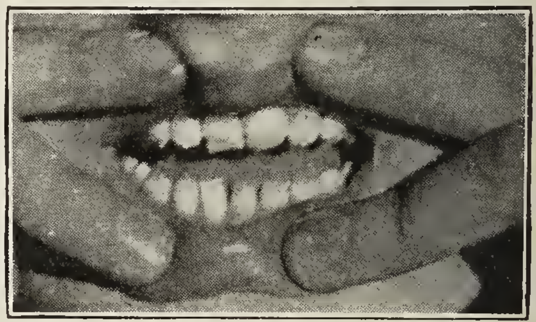

Fig. 8.—Hypoplasia of enamel of upper and lower incisors. Congenital torticollis operated on three times without result; restoration to normal position and function after six weeks of mixed treatment.

Case 2.—R. F., aged 6, had had left hip disease diagnosed at the Hospital for Ruptured and Crippled, May 22, 1916. A plaster spica was applied, and worn six months. The spica was omitted for a time, but the symptoms reappeared and the plaster was reapplied. It was worn till April 18, 1917. Examination of the teeth revealed widely spaced incisors.

There was very little motion in the hip; there was sharp spasm on passive movement; mixed treatment was prescribed. Four weeks later the thigh could be flexed to 100 degrees; no pain was felt; there was very little spasm, but considerable limp. Oct. 10, 1917, all symptoms had disappeared; the child was very active; there was flexion of the thigh to 10 degrees inside a right angle.

Case 3.—F. K., boy, aged 8, had been treated for four months for tuberculosis of the left hip. He had worn a plaster spica for two and a half months. Roentgenoscopy revealed involvement of the acetabulum and marked destruction of the head of the femur. Examination, May 28, 1917, revealed humpy molars of severe grade; there were 15 degrees of motion in the hip joint accompanied by spasm and pain; the whole leg was atrophied and held in outward rotation. Mixed treatment was prescribed. Three weeks later the pain and spasm had disappeared, and there were 20 degrees of motion; the spica was omitted. Improvement was continuous, and, Sept. 7, 1917, there was flexion to a right angle, outward rotation had been overcome, and pain and spasm had disappeared. The patient participates in all boys' games, but walks and runs with some limp.

Case 4.—H. K., girl, aged 16 months, for several weeks had had typical symptoms of tuberculosis of the right knee, and came in with this diagnosis. There were pain, swelling, spasm and fixed flexion of the joint. She also had a dactylitis of the fourth finger of the left hand which had existed for three months. The patient had widely spaced upper central incisors, and was placed on mixed treatment. Two weeks later the pain had almost disappeared, the leg could be brought to full extension, and the child was much more active and did not limp. In two months all symptoms had disappeared from both knee and finger.

Case 5.—R. M., aged 12, had symptoms of lumbar Pott's disease in March, 1915, and was treated at two orthopedic clinics, wearing plaster jackets till August, 1916. In April, 1917, the symptoms returned, and the child appeared sick and complained of pain. Examination revealed rigidity of the lumbar region, and humpy molars. The child was placed on mixed treatment. One week later there was slight improvement in the pain; three weeks later the pain had disappeared, and the spine was less rigid. After three months of mixed treatment the child had no symptoms, and the spine was perfectly flexible.

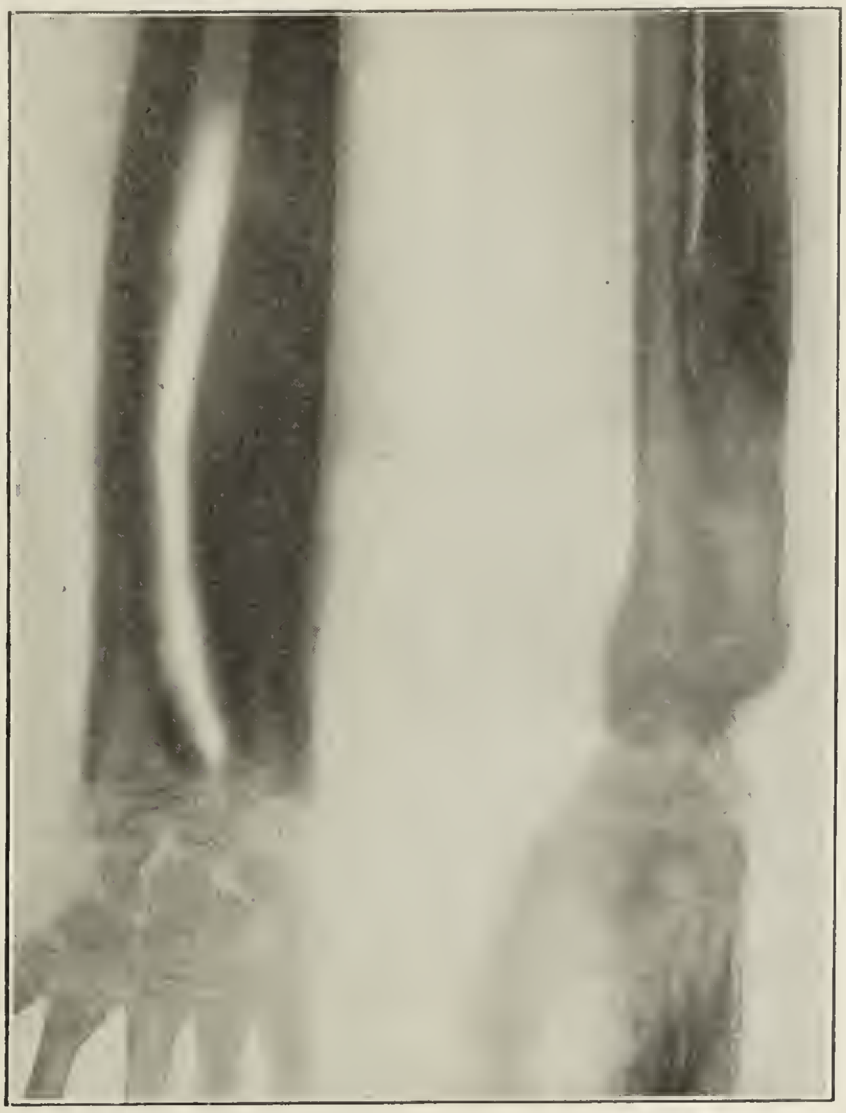

Fig. 9.—Syphilitic osteomyelitis of lower end of ulna, with symptoms simulating tuberculosis of wrist joint.

Case 6.—H. T., aged 21, was referred to me in March, 1917, for tuberculosis of the wrist. A short time previously, one kidney had been removed for tuberculosis. The wrist symptoms and the roentgenogram were typical of tuberculous arthritis. Immobilization in plaster and the usual forms of treatment were of no avail. Although the Wassermann test taken before the kidney was removed proved negative, certain dental anomalies suggested inherited syphilis. Accordingly, Sept. 15, 1917, the patient was put on mixed treatment. Progressive improvement followed, and eight weeks later pain, spasm and tenderness had disappeared, and the joint was freely movable, except for some limitation in flexion.

Case 7.—W. U., a boy, aged 15, when 10 years of age, had pain in the left elbow, which became restricted in motion. He was treated for tuberculosis of the joint. Ankylosis at a right angle followed, and lasted two years. A persistent sinus remained after evacuation of an abscess. Under mixed treatment, the sinus closed, full motion returned to the joint, and the patient has remained symptom free for two years. The boy has widely spaced upper incisors. Two other children in the same family have similar dental stigmata. Both have had active symptoms of inherited syphilis. Of these three children, two gave negative Wassermann reaction, and the third, + + + +.

Case 8.—F. P., boy, aged 4, had been treated for tuberculous knee joint disease for twenty-one months when he came under observation, and he presented all the classical symptoms. There were enlargement of the joint, tenderness, spasm and no motion. A large lesion in the lower end of the femur was disclosed by the roentgen ray. He had worn a Thomas knee splint for over a year, and previously had worn a plaster cast. He had humpy molars, and was therefore given potassium iodid and put to bed without protection to the knee. In two weeks all pain and tenderness had subsided, the swelling was considerably less, and the joint had about 30 degrees of motion. After three weeks' treatment he was allowed up without apparatus, walked and ran about the ward without pain, and flexion of the joint had increased to a right angle. His subsequent recovery was without incident.

Case 9.—H. L., boy, aged 5, had worn plaster jackets for Pott's disease for three years. Roentgenoscopy revealed involvement of the second and third lumbar vertebrae; small kyphos was present; the child was exceedingly pale and delicate. Examination of the teeth revealed humpy molars. Mixed treatment was prescribed. A month later his general appearance had so much improved and his activity so much increased that the jacket was omitted. Improvement was progressive, and four months later there was no trace of the kyphos nor any remaining stiffness in the spine.

Case 10.—C. P., aged 5, had been treated for tuberculous hip for three years. When admitted to the Post-Graduate Hospital, the hip was extremely sensitive, and two sinuses that had existed for over two years were discharging profusely. The child had been wearing a hip splint. Examination of the teeth revealed widely spaced upper and lower incisors. On this evidence of inherited syphilis, he was placed on mixed treatment and confined to bed. One week later the pain was appreciably less. Three weeks from the beginning of treatment the sensitiveness of the hip had entirely disappeared, and the discharge from the sinuses was less. In two months the child was walking about with a stiff hip, and there was no pain and no discharge from the sinuses. Roentgenoscopy reveals extensive joint destruction, eliminating the possibility of a return of joint function. This case illustrates the commonly observed clinical fact that, in syphilitic joints, mixed treatment exercises a potent influence on the control of pain and the healing of old sinuses.

## COMMENT

These cases have been selected for the purpose of illustration, and are typical of the majority in the series. It should not be assumed, however, that every patient enjoys a prompt and rapid recovery. Results will vary according to the type of tissue invaded, the virulence of the organism, and the resistance of the patient. When there is no bone involvement, joint symptoms of long standing usually disappear in a few weeks and sometimes with astonishing rapidity. Bone lesions, on the other hand, clear up slowly, even when accompanying acute symptoms cease early; and when regeneration does take place, approximately a year of continuous treatment is necessary.

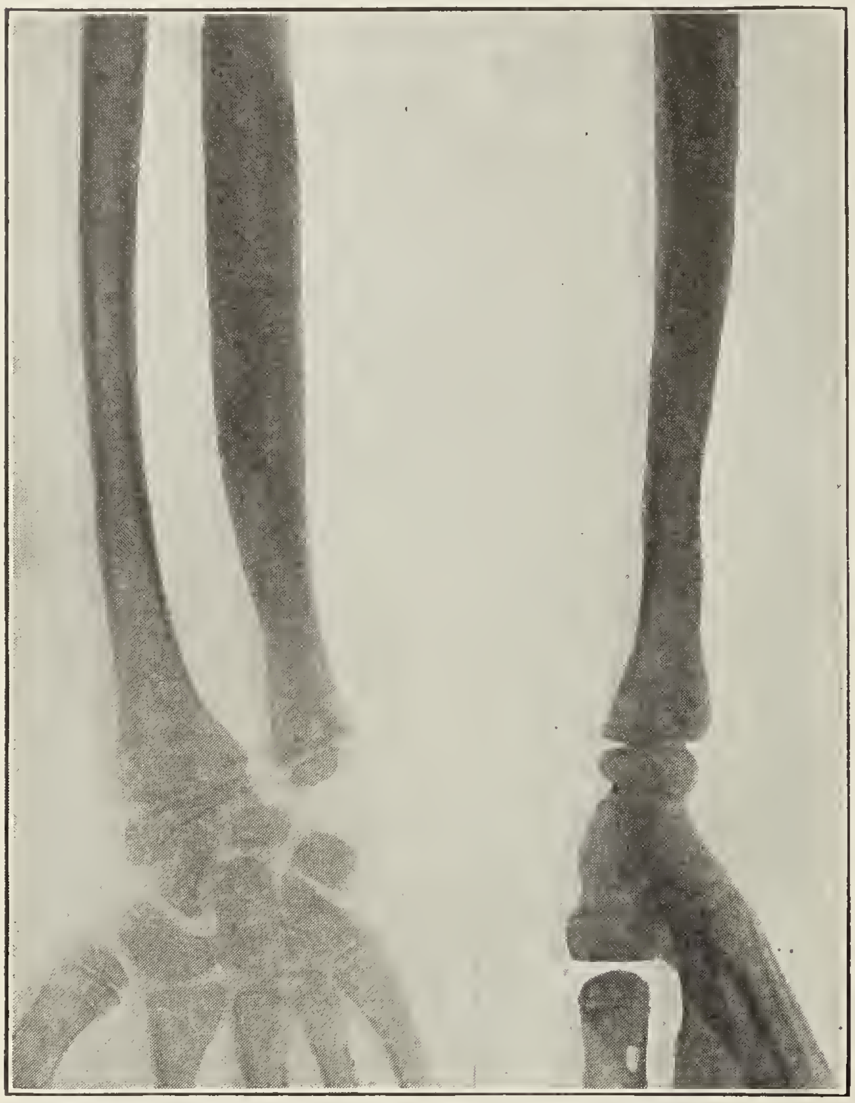

Fig. 10.—Same case illustrated in Figure 9, showing the effect of eleven months' treatment with mercury and potassium iodid.

A subsequent report on an additional hundred cases including other orthopedic conditions is now in preparation, and will be published in due time. In this the results of a comprehensive series of Wassermann tests in congenital syphilis will be submitted. This confirmatory evidence of the diagnostic value of dental dystrophies has been made possible by the generous cooperation of Dr. Cyrus W. Field, to whom I am indebted for valuable assistance in the present work.

576 Fifth Avenue.

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**Proprietary Medicines.**—The use of these preparations by the medical profession is certainly carried to excess. The distressing neglect of materia medica by the majority of our medical colleges is probably the chief cause of the fault. Students are given a limited knowledge of a few drugs. They are not sufficiently grounded in a knowledge of medicines to enable them to meet the demands of practice or to intelligently discriminate between the good and bad of what is afterward offered them. They soon realize the inadequacy of their armamentarium and seize on any suggested additions. This means, of course, that they fall an easy prey to the detail man, the circular, or the well-filled advertisement page.—Bethea, *Materia Medica and Prescription Writing.*

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# DUODENO-URETERAL FISTULA OF SPONTANEOUS ORIGIN

## REPORT OF CASE *

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The proximity of the duodenum to the right renal pedicle, and the danger of injury to the former during nephrectomy, have been pointed out by Dr. W. J. Mayo,[1] who cites four cases of duodenal fistula following nephrectomy, the first three of which were fatal, the fourth being cured by transperitoneal closure of the duodenum. The case reported herewith is doubly interesting in that it further emphasizes this danger of duodenal injury during nephrectomy, and presents a most unusual (and apparently unique) condition, namely, a definite demonstrable fistula connecting duodenum and ureter, *which existed before any operative procedure had been carried out.*

### REPORT OF CASE

*History.*—A man, aged 29, complained of dull, aching pain in the right flank of four years' duration, and of extreme frequency of urination, urgency and bladder irritability. There was nothing of importance in his history up to four years before admission, at which time he was ill for several weeks with a fever, diagnosed as typhoid, but associated with pain

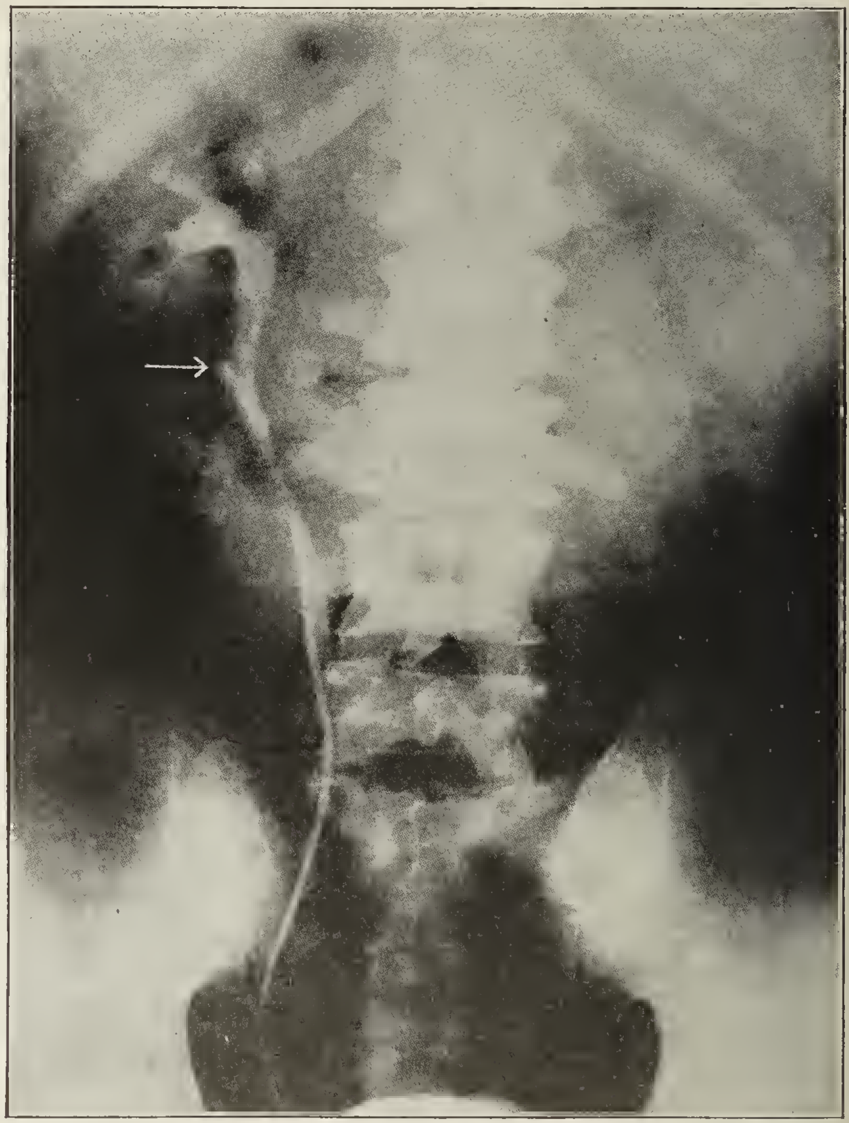

Fig. 1.—The fistula is demonstrated by a small knuckle or diverticulum of thorium seen projecting from the right ureter at the level of the upper border of the third lumbar vertebra.

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* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital.

[1] Mayo, W. J.: The Transperitoneal Closure of Duodenal Fistulas Following Nephrectomy, Mayo Clinics, 1915, **7**, 349; Accidental Injuries to the Descending Portion of the Duodenum During Removal of the Right Kidney, The Journal A. M. A., Jan. 31, 1914, p. 343.

in the right flank, the same pain of which he complained on admission. One year after onset he had an acute attack, during which this pain became very severe and radiated to the testicle. Appendectomy done at this time (McBurney incision, undrained) gave no relief. The pain persisted up to the date of admission, with intermittent attacks of chills and fever, about a dozen in all. Bladder symptoms (extreme frequency of urination with pain and burning in the penis) began about eighteen months after onset, and persisted up to the date of admission. About the same time the bladder symptoms began, the patient noted greenish purulent-looking material in the urine. On admission he was voiding every few minutes, and stated that since onset he had rarely been able to hold the urine longer than one-half hour.

*Physical Examination.*—The patient was a fairly well looking young man, showing signs of moderate loss of weight. There was no abnormality of the chest or abdomen to be made out. Rectal examination was negative.

Urine: Macroscopically the urine was cloudy in three glasses, but otherwise negative. There was no albumin or sugar. Microscopically, there were large numbers of pus cells, bacilli and cocci. The carbolfuchsin stain for tubercle bacilli was negative.

Phenolsulphonephthalein Test: After intramuscular injection of 6 mg. of phenolsulphonephthalein, 42 per cent. was excreted during the first hour, and 10 per cent. during the second.

Roentgenoscopy: Neither renal shadow was to be made out, nor was there any shadow suggesting a calculus in the region of either kidney, ureter or bladder.

Cystoscopy: There was no evidence of urethral obstruction, and the bladder contained no residual urine. The bladder capacity was 175 c.c. The mucosa showed a moderate diffuse cystitis, but there was no apparent abnormality of either ureteral orifice or of the trigon, and no apparent lesion in the bladder sufficient to account for the symptoms.

Ureteral Catheterization: The ureteral catheter was readily inserted on the left side, but with considerable difficulty on the right. The left kidney secreted normal, clear, pus-free urine, containing 30 per cent. phenolsulphonephthalein (6 mg. intravenously) after collecting for one-half hour. During this time through the right ureteral catheter there came (very slowly) a few cubic centimeters of cloudy fluid, distinctly green, the sediment from which was made up largely of an amorphous mucoid material, containing a few pus and epithelial cells and an occasional bacillus. There was no urea content and not a trace of phenolsulphonephthalein. The resemblance of this greenish fluid to bile was mentioned at the time, but this possibility was not seriously considered, nor were tests for bile carried out. Two subsequent ureteral catheterizations, done at weekly intervals, gave the same results as the first. The green fluid and the complete absence of urine from the right kidney were constant.

Pyelogram (thorium): The left renal pelvis was normal in size, shape and outline, the calices sharp and clear cut.

The right renal pelvis presented a rather peculiar, atypical picture, as shown in Figure 1. The lower half appeared normal in size and shape, although the outline of the calices was rather hazy. The upper half of the pelvis was not visible, the shadow stopping abruptly in a transverse line. At the level of the upper border of the third lumbar vertebra, and at about the ureteropelvic junction, there was visible a small nipple or diverticulum of thorium projecting from the ureter for about 1 cm., in a direction that seemed to be upward, outward and backward, and apparently ending blindly (Fig. 1). It was thought at the time that this might be an incompletely filled bifid ureter.

*Preoperative Diagnosis.*—It was clear that the right kidney was functionally dead. Since the pyelogram ruled out hydronephrosis and pyonephrosis, it was considered that the kidney had been the seat of an old inflammatory process, and that the secreting tissue had been largely replaced by scar, with the preservation of the almost normal outlines of the renal pelvis.

*Operation.*—Nephrectomy was performed, Aug. 6, 1917. The kidney was found to be fixed and embedded in dense scar tissue, with a resulting complete absence of respiratory movement, making delivery very difficult. It was not until more than an hour had been spent in clamping, cutting and ligating adhesions (which occurred over the entire surface of the kidney, excepting that covered by the peritoneum and the colon), that the kidney could be brought up into the wound. Blunt dissection was out of the question. The ureter, which was of about the size and consistency of a lead-pencil, was then found, divided and ligated about 8 cm. below the kidney, after which it was possible to free the kidney except for a dense mass of scar tissue at the hilum, including vessels and pelvis. At this time it was noticed that a knuckle of duodenum was pulled up when traction was made on the kidney (Fig. 2), and that a small area of duodenum (about 1 sq.cm.) was intimately associated with the scar tissue, which included ureter, pelvis and vessels, in an indistinguishable mass. The duodenum could not be dissected free without the danger of injury, and therefore a small, button-shaped bit of scar tissue (about 2 cm. in diameter), including the site of duodenal attachment, was cut away from the larger mass of scar and allowed to drop back with the duodenum. During this procedure the renal pelvis was cut into, and a portion of its fibrous wall left attached to the duodenum. The scar pedicle was then clamped, divided and ligated, and the kidney removed.

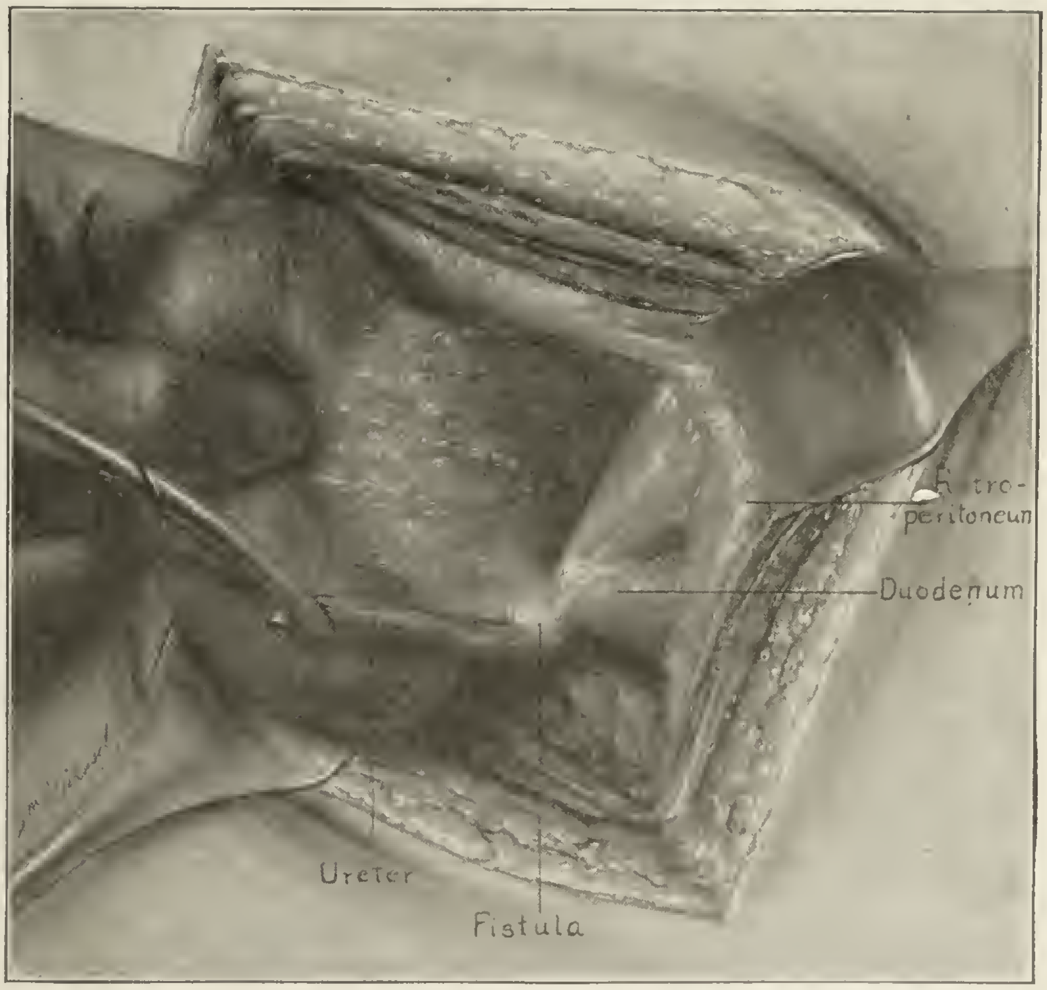


Fig. 2.—When traction was made on the kidney, a knuckle of duodenum was pulled into the wound, and the duodenum at this point was found to be intimately associated with the ureter just where the latter entered the mass of scar tissue constituting the pelvis and pedicle.

Examination of the duodenum showed it to be soft, pliable and normal in consistency, excepting at the one small area (1 cm. in diameter) where it was intimately associated with the above mentioned small area of fibrous pelvic wall. (Strictly speaking, the location of the fistula was the ureteropelvic junction.) Since the opening into the duodenum through this scar tissue was too small to be readily found, and since the patient's pulse was becoming rapid, it was considered inadvisable to attempt excision of the scar tissue, with closure of the duodenum. The incision was therefore immediately closed with ample drainage.

*Pathology.*—In the gross, the excised kidney was seen to be almost entirely replaced by scar tissue, showing no resemblance to the normal kidney architecture. At the ureteropelvic junction, the point at which the duodenum had been adherent, the scar tissue through which the fistula passed had been excised at operation and left adherent to the duodenum. There was therefore at this point an opening (about 2 cm. in diameter) into the pelvis, at the ureteropelvic junction. Microscopic sections showed, as was apparent in the gross, that there had been a prolonged chronic inflammatory process throughout the entire kidney, with a replacement of almost all the tubules and glomeruli by fibrous tissue.

*Convalescence.*—The patient made a good recovery. For three days there was only a serous ooze from the wound, but on the fourth day there appeared a profuse watery discharge with an odor similar to that of the content of the upper intestinal tract, and causing an excoriation of the skin for several centimeters on each side of the incision. This discharge of duodenal content gradually lessened and had ceased by the twelfth day, after which there was no further digestion of the skin, and the wound slowly granulated and finally healed after seven weeks.

The most striking feature of the convalescence was the immediate cessation of bladder symptoms. On the day following the operation the patient began voiding without pain and at normal intervals, for the first time in two and one-half years, a remarkable contrast to the extreme bladder irritability before operation. He left the hospital at the end of the seventh week, in excellent condition and free from symptoms.

### CASES IN LITERATURE

A careful study of the literature fails to reveal any other case of duodeno-ureteral fistula. In addition to the cases of duodenal fistula following nephrectomy reported by Mayo,[1] there is a somewhat similar case of Thévenard[2] in which a duodenal fistula developed ten years after nephrectomy in a persistent sinus, probably tuberculous, which had existed since nephrectomy, with intermittent abscess formation.

Van Vranken[3] has reported a case, in a man, aged 45, with a large abscess of obscure etiology, pointing over the left Poupart's ligament, which he drained, finding that the abscess cavity communicated with the descending colon. After a month of fecal drainage from the abscess cavity, urinary drainage also appeared and persisted for several weeks, the fistula finally healing completely, although the case was followed for only six months. This case, in which colon and ureter discharge into a common abscess cavity, is the only one to be found in the literature which is in any way analogous to the case reported above.

### COMMENT

In view of the history of intermittent attacks of chills and fever, accompanied by pain in the right flank; of the evidence found at operation of an old inflammatory process involving the perirenal tissues; and of the fact that the duodenum, excepting at one point, was normal in appearance and consistency, the most plausible explanation of the origin of the duodeno-ureteral fistula is that the latter was preceded by a perinephritic abscess, which went on to spontaneous cure by rupture into both duodenum and ureter. The condition cannot be explained by an embryologic defect on account of the diverse origins of duodenum and ureter, the former arising from entoderm, and the latter being an evagination from the wolffian duct, which is derived from mesoderm. It was fortunate that during the operation a good exposure was obtained, because the knuckle of soft-walled duodenum, when pulled up alongside the dense scar tissue at the hilum, could not be palpated, and was discovered only by inspection. It might readily have been clamped and severed with the pedicle, particularly if the necessity for hastily controlling hemorrhage through an inadequate incision had arisen.

The most interesting feature was the immediate cessation of bladder symptoms on the day after operation, the over-night return to normal of a bladder which for two and a half years had been a constant source of distress. The only reasonable explanation is that the irritability was due to the constant presence of small amounts of duodenal content, and presumably trypsin, in the bladder.

### CONCLUSIONS

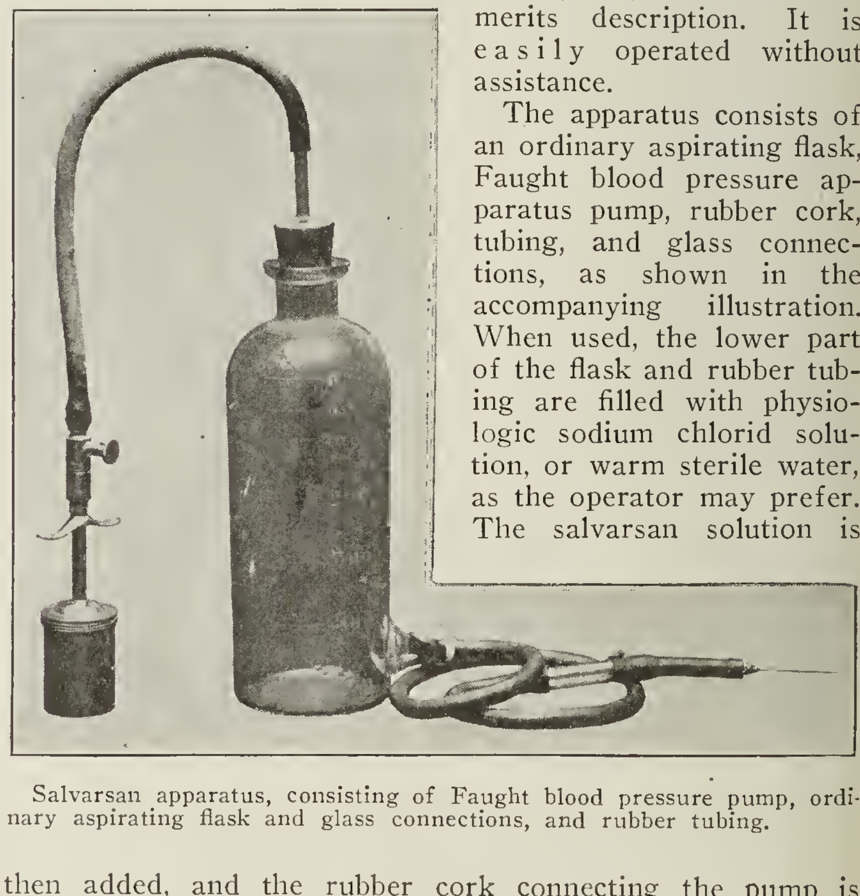
1. This case of duodeno-ureteral fistula is apparently unique.
2. In cases in which there is marked inflammatory reaction around the renal pedicle, the only safe procedure is to locate the duodenum before applying clamps.

## *Clinical Notes, Suggestions, and New Instruments*

### A SIMPLE, YET EFFICIENT, SALVARSAN APPARATUS

B. N. Wade, M.D., Portland, Ore.

In view of the different types of salvarsan outfits in use, it is with some hesitancy that I describe this one. Yet, as I have used it with satisfaction in my office during the past two years, I believe it merits description. It is easily operated without assistance.



Salvarsan apparatus, consisting of Faught blood pressure pump, ordinary aspirating flask and glass connections, and rubber tubing.

The apparatus consists of an ordinary aspirating flask, Faught blood pressure apparatus pump, rubber cork, tubing, and glass connections, as shown in the accompanying illustration. When used, the lower part of the flask and rubber tubing are filled with physiologic sodium chlorid solution, or warm sterile water, as the operator may prefer. The salvarsan solution is then added, and the rubber cork connecting the pump is strapped in the mouth of the flask with adhesive strips. This prevents the cork from blowing out when pressure is increased within the flask. The solution is kept from flowing out of the tubing by the clamping of the latter with an artery forceps. The salvarsan is then given intravenously in the usual way. Pressure can be added and the solution can be given either slowly or rapidly, according to the wish of the operator. The escape valve on the pump allows the pressure to be diminished when this is desired.

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[2] Thévenard, M.: Fistule duodéno-cutanée au niveau d'une cicatrice de nephrectomie lombaire, vielle de dix ans; gastro-entérostomie, exclusion du pylore; guérison, Paris chir., 1913, **5**, 870.

[3] Van Vranken, A. F.: Uretero-Intestinal Fistula, as a Result of Abdominal Abscess, Not Due to Appendicitis, with Recovery, Tr. New York Med. Assn., 1894, **11**, 553-556.

## *Military Medicine and Surgery*

### THE GERMAN PLAN FOR CARE, REEDUCATION AND RETURN TO CIVIL LIFE OF DISABLED SOLDIERS AND SAILORS

At the fall meeting of the Swedish Medical Association, its president, T. Sjögren, reported his observations on a recent trip to Germany, in which he made a special study of the methods adopted in that country "to uncripple the war cripples." The report is published in full in the *Förhandlingar* of this association for November 30, which has just been received. The following is abstracted from President Sjögren's report:

#### THE SYSTEM ADOPTED IN GERMANY

"The broad and solid foundation assured by the law of May 31, 1906, had given a groundwork for the empire's responsibility and care for the thousands of wounded who have been streaming back from the various fronts in unprecedented numbers since the first weeks of the war. The well planned and powerful organization which has been created for the purpose is called the *Kriegsbeschädigtenfürsorge,* but there is no centralization of it for the whole empire. All the private forces and organizations are subordinate to the military organization, and the head of this is the medical department of each army corps, the chief corps medical officer being in charge of the whole for his section. Notwithstanding this lack of centralization, uniform principles prevail throughout the whole country. There is some difference, of course, in the different states and provinces; in some, private benevolence is more prominent, in others, the state's fulfilling of its obligations takes the lead. Be this as it may, every where prevail and are applied the three main principles: to advise the wounded man in the choice of a self-supporting occupation; to train him in it, and to find a position for him when he has learned it.

"The needed institutions are created by the concerted action of the army authorities and the officials of different civilian organizations working with the various army corps.

#### IMPORTANCE OF NATURAL ACTIVE MOVEMENTS FOR REGAINING FUNCTION

"In my visit to Germany for the study of this question, I spent most of the time at the institutions in the Brandenburg district, which is in the charge of the Third Army Corps. They are considered models in their line. The largest and best known is at Görden, not far from Brandenburg am Havel, equipped for 1,000 beds. This large institution had just been completed for an insane asylum when the war broke out. It was then taken for a military hospital and curative workshop. The principles applied there in the after-treatment of the wounded differ in many respects from what has been practiced to date elsewhere. The greatest emphasis in the after-treatment is placed not on passive orthopedic movements but on active gymnastic exercises, carried out under military words of command. This principle was introduced by the chief medical officer of the Third Army Corps, General Leu, and I must confess that it strikes the medical observer as strange. But only by this means is it possible to get the wounded to use active exercises at such an early stage of the healing. This was emphasized by the wounded themselves as well as by physicians. Dr. Leu's fundamental idea was that the patient's dread of pain from the active movements and the attending physician's fear of disturbing the course of the healing have been the reasons for the hitherto prevailing system of voluminous supporting bandages, even in cases in which they most certainly could be dispensed with. Under these efforts to spare the wounded extremity, weeks or even months pass without its getting any active movements, and the consequence is that it suffers from disuse, as also when crutches are used too long, or when after a wound of the chest, the man is told not to breathe forcibly and is kept long in bed.

#### EXERCISES UNDER MILITARY WORDS OF COMMAND

"The principle has been overlooked that active movement, within the natural range of movements, in the static position for the normal play of the body and limbs, is the quickest of all methods for restoring approximately normal conditions in and the free use of a wounded limb so far as possible. It is of course not the idea to apply force; all depends on the persuading and convincing power of the physician's words. Above all, the wounded man must gain confidence in himself and in the functional capacity left by the wound. Dr. Leu lays great stress on the difference between the exercises done under his orders and those generally used heretofore, exercises with expensive mechanical appliances, hot air apparatus, electricity, diathermy, etc. He points out that these mechanical exercises are not always done without pain, and they do not take the place of the natural movements, no matter how defectively the natural movements may be done to start with. These natural movements can be done at any time and at any place, with increasing confidence and without the aid of any mechanical devices. Passive movements may reenforce the active, but can never take their place. With the more extensive use of the whole body, the natural movements have a beneficial influence not only on the wounded member, but on the whole organism and on the vital forces in general. To be able to aid in this and promote this is one of the most exalted tasks of the military hospital, as many of the inmates have been weakened by loss of blood, suppuration and confinement to bed, so that the whole constitution has suffered. The most important organ of all, the heart, suffers earliest and most. In the same way as the skeletal muscles relax and lose weight and strength under the lack of exercise, the heart muscle becomes reduced in size and energy along with all the other muscles. Exercise, that is, systematic use of the skeletal muscles, implies likewise systematic use of the heart muscle, and this brings recuperation, the benefit from which is felt throughout the whole organism. This physiologic fact entails the consequence that the use of the whole body must be insured from the earliest possible moment, and as systematically as possible, rather than restricted local treatment, such as massage and passive movements. Only when we have succeeded in restoring as early as possible the free use of the body, are we confident that the functional capacity of all its component parts is on the highest attainable plane.

#### SYSTEM FOLLOWED AT GÖRDEN

"These are the principles which guide the after-treatment of the wounded in the district over which the Third Army Corps has control. How far they are followed in other parts of Germany, I am unable to say. But I could see for myself the fine results attained with them. During my visit to Görden in July, I followed the program for an entire day's work. There was present at the same time a commission of Holland physicians sent by their government to study the German system of caring for disabled soldiers. A gymnastic exercise began the day's work. A body of about fifty soldiers, some of whom had had an arm or a leg amputated and who had been provided with artificial limbs, or who had ankylosis or other injury, were lined up on a large open gymnasium field. The leader was a young staff medical officer who led the exercises with vim and lively interest. At his first word of command: 'Attention,' no one would have imagined at a superficial glance that it was a company of cripples. From simple movements of the head, he passed to more complicated arm, leg and trunk exercises. As in the group of men there were a number of beginners, there was not much uniformity in the exercises. But all seemed to do them with a good will and with a spirit of emulation. After these exercises, more difficult ones followed. Around the exercise field there was a kind of race track, as for walking matches, with hurdles, the hurdles being thresholds of various sizes and shapes, to train the men who had lost a leg, ladders with rungs at different intervals and steps with the steps of different heights, deep sand over part of the route, etc. Then the men passed to sports, football, casting the disk, etc., with jumping exercises for the amputated. It was certainly a strange sight to see the men with one leg going through these various exercises and games. But no one could help being impressed with the zeal and apparent pleasure with which the men took part in them; most of them were managed in competitive form. It should be added that passive exercises, massage, etc., are carried on along with these active exercises, but only subsidiary to the latter. The main aim is to start active movements at an early stage. Work on the stump is begun while the man is still in bed, mobilization of the nearest joint being the aim of this treatment.

#### DIFFICULTY IN GETTING LEADERS

"The introduction of this exercise method of treatment encountered great difficulties at first, and this from a purely personal reason. The army medical officers who were to lead the gymnastic exercises were not found equal to the task. They had no knowledge of pedagogic gymnastics, and displayed very little interest in it. The underofficers who were available were mostly elderly, and were not convinced of the advantage of such exercises even when the good will was not lacking. After Dr. Leu in his indefatigable zeal for the effectual application of these principles of early physical exercises posted in all the hospitals in his district detailed instructions how the exercises were to be carried out, the war hospital physicians in general took up with zeal this service otherwise foreign to them, and they have even trained up valuable aids in the subordinate personnel at their disposal.

### CHOICE OF NEW CAREER FOR THE MAIMED

"I had a long talk with Dr. Leu in regard to his methods. He is warmly interested in athletics and sports, and I found him well acquainted with our Swedish athletics and our champions. In his system of rehabilitation of the wounded, after the medical treatment has reached the stage at which it is possible to foresee with some degree of accuracy whether the wounded man will be able to resume active service or is disabled for further service, he is handed over to a special advisory commission. The number of the thus disabled is calculated as about 3 per cent. of all the wounded. The task of this commission is to impress on the man that he must not rely alone on the pension to be given him by the state. Hand in hand with this encouraging and sustaining work, the commission advises him as to the best possibilities for him to make himself self-supporting in the days to come. The advisory board consists of one or several reliable men selected from practical life, employers or working men, besides the medical chief of the hospital. The man coming before it is examined privately, so that he can speak freely and openly. Whenever possible, the man is advised to return to his previous occupation, and employers as a rule feel so much sympathy for the men that as a general thing they are taken back. Even if they have lost an arm or a leg, in most of the practical trades there is a possibility of their resuming work. Sometimes it is possible for the man, if his old occupation is impracticable, to fit himself for some other occupation along the same lines so that his previous skill and knowledge may not be wasted. A complete change is, of course, necessary in certain cases in which the injury or the maiming is such as to unfit the man completely for his old trade. Before the man is taken in hand by the advisory board, he has had the opportunity to watch day by day the progress of his comrades in the workshop of the institution. In the war hospital bulletins, which are published everywhere, he finds listed the efforts being made by the state and private individuals to aid the disabled soldiers, and to secure suitable positions for them, and he finds in the institution full information in regard to all the possibilities for training in various trades and occupations which the training schools offer to men maimed in various ways.

### THE DISABLED SHRINK FROM RESUMING RESPONSIBILITY

"As a rule, a large proportion of the men would like to get some subordinate official position, doorkeeper, or clerical work. There are several reasons for this. Many of them feel that they have not sufficient courage and self-reliance to make a place for themselves in an open occupation; the unprecedented demands which the war has made on the physical and mental powers of many who are yet young have required the extreme of efforts from them. When, in addition to this, the man is severely wounded, with the loss or restriction of functioning of some part of the body, the prolonged confinement to bed thereafter, and possibly several operations, it is no wonder that a condition of depression ensues which may last for months or even years. Men who have worked with their bodies or their hands are tormented by the fear that on account of their maimed condition they will not be able to compete with others in their line. The long absence from their work and the lack of practice likewise play a certain rôle. The disabled soldiers also cannot help dreading that their pension will be reduced if they become self-supporting and their skill increases. These fears, which are called by the general term *Renten-Hysterie*, are entirely unjustified. The pension is not determined once for all forever, with no chance of changing it, but a change in the amount will occur only in exceptional cases. In determining the pension, it is planned not only to take into account the reduced earning capacity, but to compensate besides for the inability of the wounded man to take part in the recreations and sports of his comrades on his holidays.

"The men who express a preference for some subordinate official clerical position or doorkeeper are not only those who were trained to manual work, artisans, and the like, but they include also wounded who by their education and training would seem to be entitled to hope for more from the future than such subordinate positions, even although they are maimed. These persons all give the impression that they feel that they have done their main life-work, and that the longing for a tranquil existence now overshadows all other ideas.

"There are always a large number of the wounded who are unable to resume their former occupation, and must support themselves with clerical work or as gatekeepers, messengers or the like. But the principle must always be borne in mind that the great desideratum is for the men to resume the work which they had been doing before the war, even when the conditions at first seem to make it impossible for them to return to their former occupation. The advice as to the occupation requires the solving of many interesting and important questions, and the physician's cooperation as a member of this advisory board is extremely important.

### THE TRAINING SCHOOL

"After the disabled soldier has decided on a certain occupation to strive for, and he starts on his training in the workshop, the question as to his future is not decided thereby. By means of a well organized system of control, each member of the board watches over the progress of the man in the workshop and courses of training. If he seems listless and does not keep up with the course, his case is discussed again by the board. His family is called in to talk with him, and he is encouraged to express his own ideas as to his future occupation. In occasional but rare cases it is found futile to attempt to teach a trade or other occupation, and some other means of livelihood must be discovered. There is no direct compulsion to force the men to take part in the work of the workshop or the training school. Compulsion would result in the man's doing sham work, and this would not be good for the man himself, and would counteract the efforts of the whole system for rehabilitation of the wounded. The work thus gets only its proper value when it is preceded by encouraging enlightenment. The will to work is strengthened by the example of the man's comrades, and by the premiums given for assiduity.

"The training school is the most important link in the whole system. The training begins in the hospital, as the larger *reservlazaretts* are equipped with workshops for this purpose, or have some nearby. The work in these training schools shops is called 'work therapy,' as the inclination to want to do some kind of useful work is found in nearly every one, and is a powerful mainspring which no other method of treatment possesses. In addition to its ethical importance, the wounded men are protected by the work against the injurious influences of protracted idleness. Its principal purpose, however, is to give the maimed man a chance to adapt himself to his trade under his present altered physical conditions. The 'work therapy' can be regarded from another standpoint, namely, as the physician orders a certain kind of work to correct certain crippling conditions, as, for example, when the hand is crippled, the physician sets the man to work making cigars or baskets, so that gradually as his joints grow more supple, he can pass to more difficult handwork.

### SUBJECTS TAUGHT AND FACILITIES FOR TEACHING

"The instruction and training in the war hospitals' schools and workshops are both theoretical and practical. Among the subjects taught are bookkeeping, mercantile business, accounting, correspondence in German, French and English, shorthand, writing with the left hand, typewriting, agriculture, electrotechnics, and linear drawing for carpenters and architects. Different workshops have been equipped for training in cigar making, basket weaving, shoemaking, bookbinding, carpentering, joinery, painting and tailoring, and large numbers of both wounded and normal persons are engaged in making the artificial limbs and other prostheses needed in such large quantities. The workshops and schools I saw at Görden and elsewhere are large, light and airy rooms, completely equipped with what is needed for the different trades. The foremen, who are also the instructors, superintend the progress of the work, while physicians keep a constant oversight over the men and their physical progress. Exact records are kept besides of their regular appearance at work and over the results. The whole seems to be managed with military punctuality and system. Of course not all the war hospitals are equipped so completely as the Görden institution. Many of the smaller ones have made arrangements with industrial establishments in the vicinity to which the men are sent to work and get their manual training. In the province of Brandenburg, with its forty-three large and small *reservlazaretts*, no less than seventeen factories have been given up by their owners for this purpose. This is a striking example of the great sacrifices people are ready to make when it is for the benefit of disabled soldiers. In this connection I will mention a small workshop fitted up in Berlin by the generosity of a private individual.

"In the program made out for me by the medical authorities was included a visit to the Kaiser-Wilhelm-Haus in Ziegelstrasse. I had no knowledge beforehand of this institution, and my astonishment, therefore, was great when the staff medical officer who was taking me round led me into the old Langenbeckhaus, with which I was so familiar from attending medical congresses in it for twenty years. The physician in charge took me into the airy workshop arranged in the building's large assembly room. The portraits of noted surgeons that formerly adorned the walls had disappeared, and instead of voices raised in scientific discussion, there was now only the noise of machinery and motors, run by more or less maimed and crippled soldiers. This improvised workshop is devoted exclusively to repairing rifles and other firearms from the state firearm factory at Spandau. Although this required very delicate work, yet it was being done satisfactorily by these crippled men. There were 150 in all; they had completed their hospital course and were installed in a so-called *Sammelstelle* nearby. During the pauses in the work, the men were given treatment with massage, diathermy, etc., in the hall two stories above. The men worked only two hours a day at first, but this was gradually increased to six hours. As they grew more skilful, they left the institution to seek positions in civilian circles. All the workers were paid for their labors, at first by the hour and later a regular wage. The figures given me by the physician in charge showed that some of the men getting this wage in addition to the army pension were receiving a larger income than that of an ordinary normal workman. Here, too, I learned that the workmen at first were very unwilling to take hold and perfect themselves in the work, from fear that their pension would be reduced as they grew more skilful. Since, however, the socialist paper, *Vorwaerts,* published an explicit statement that this fear is entirely unjustified, the men are no longer swayed by it. A copy of this paper is given to every newcomer, and the work proceeds undisturbed by any such scruples.

"In regard to the payment made the men for their work while they are learning, it is evident that with such a widespread organization without any centralized head, the system comprises all kinds of principles; but it is generally recognized that at the beginning of training the man's work is not worth very much. At Görden the men are merely given premiums for regular and persevering work and industry. The premiums range from three cents up to twelve and a half a day. Skill premiums are given to those who have lost a leg or arm who display special ingenuity in dressing and in eating as well as at their work.

### FARMS FOR DISABLED SOLDIERS

"A German physician, du Bois Reymond, urged as long ago as 1915 that disabled soldiers should be taught farming, above all, as owners of their homes. On account of the extraordinary numbers of wounded, it is out of the question for them all to have their own farms to cultivate, but when a strong love of rural life, with some experience in farming, is encountered along with some capacity for manual work, the presumptions are in favor of success in the cultivation of a farm. Money to buy the land is the greatest obstacle to this, and the state is empowered to rent land free for the first few years under these conditions. Capital for buildings, etc., can be secured at a low rate from the numerous home-ownership associations. The soldier's pension is usually enough to pay the interest, etc., on the debt. He has thus only to supply with his own labors the direct living expenses of himself and his family.

### BLINDED SOLDIERS

"Among all the wounded, none arouse so much compassion as those who have been blinded. The soldiers have given their best for their country—their eyes. Those born blind are usually contented with their lot; but the sudden loss of vision is inexpressibly depressing. During the Crimean War, about 0.65 per cent. were blinded; during the Franco-Prussian War, 0.86 per cent.; in the Russo-Japanese War, 0.22 per cent. But in the present war, from 5 to 8 per cent. of all the wounded have been eye-wounds. The effort is made to collect all the blinded in special institutions where they have the advantage of specially trained ophthalmologists. In all cases in which one or both eyeballs have been lost, it has been found wise not to delay in fitting an artificial eye. The making of these eyes has reached such perfection that it is difficult to distinguish them from a normal eye. Knowledge of the fine cosmetic result has proved very favorable in restoring the patient's peace of mind, and given him greater confidence. From the practical standpoint it is very important that the man's first training begins in the hospital as soon as his general condition permits. Chief in importance is his learning to know things and find his way around by touch. Experience has shown that the blinded soon learn to find their way around a familiar room, and make themselves useful; then gradually they learn to find their way about a strange room and on the street. Then instruction is begun in writing and reading the script for the blind, and if the man is long in the hospital, occupational training is begun, making baskets and nets. Those inclined to be musical are given instruction and encouraged to entertain others with their music, but great care is taken not to allow this to be carried too far, as otherwise there is danger that the men on leaving the hospital may not feel inclined to go to work. The *Vorwaerts* paper telling that increased skill will not lead to reduction of their pension, printed in the letters for the blind, is given to them, and also the notices of openings for them after training in occupations available for the blind. These are mainly piano tuning, massage, typewriting, telephone service and music. Experience has shown, further, that the blinded can run certain safe machines and thus serve in the manufacture of certain articles, thus opening industrial life to them. As a rule, the real occupational training does not begin until the man has left the hospital. It usually requires about two years. Of course it is often difficult to find positions for the blinded even after they are well trained. Consequently it is wise for the blinded to keep always in touch with their training school. Even for well educated blind persons, the circle of occupations open to them is limited. It has been said in various quarters that the state will have to contribute by making positions for the blinded. I have not entered into the question of the size of the pensions given disabled soldiers, as this varies with the degree of disability; but I will mention that the war blinded receive a regular pension of 1,368 marks ($355), with an additional 360 marks for underofficers. Officers are given a pension of 4,000 marks, with peace pay of 3,000 marks, and more in proportion to the regular pay. I was not able to get any figures as to the actual number of blinded soldiers; that the number must be large is shown by the 5 to 8 percentage of wounds involving the eyes. In April, 1915, after six months of the war, the number of blinded in Germany, outside of Saxony, Wurttemberg and Bavaria, was said to be 300.

### THE ONE-ARMED

"A large proportion of the disabled have lost an arm. As the left arm is unprotected when the soldiers are lying in the position for shooting, the left arm is wounded more often than the right. The wounds in the left arm are sometimes exceptionally serious on account of the wrist watch being shattered by the projectile, the fragments acting like secondary missiles, inducing extensive laceration and compelling amputation. The right arm is frequently wounded also. In all the training schools, special attention is paid to training the left hand to write. This is considered the basis of training in the use of the hand, fitting it for other important tasks. When the one-armed has learned to get along without the help of others, dress himself, eat, write, and use simple tools, he is soon anxious to start in on some regular work. His relatively high pension protects him against actual want. If he wishes more than this to support himself and family and be a useful member of the community, he has to take up some occupation. The state provides the one-armed soldiers with two prostheses, the working arm, with devices to be attached to serve as hooks, rings, claws, etc., according to the work he has to do. For Sundays and holidays he has another arm, the Sunday 'beauty arm.'

### RESUMPTION OF STUDIES BY WOUNDED STUDENTS

"According to a special decree of the medical department of the war ministry, wounded and sick students who have been sent back from the front for care in the home zone, whose studies had been interrupted by the call to the colors, are sent to cities where there is a university or college so that they can be carrying on their studies during their convalescence. Of course this applies only while they are unfit for service; under no circumstances is their return to the front to be delayed on this account. This decree is intended particularly for those students who are so disabled that there is little likelihood that they can return to active service, or only after a long interval. It has been found that these special arrangements for students have materially aided in their completing their special training. The medical chief of the home zone hospitals also has it in his power to extend the same privileges to any sick or wounded soldier who at the outbreak of the war was taking special training in any branch.

### SPA TREATMENT FOR SICK AND WOUNDED SOLDIERS

"Among the most important and effectual therapeutic measures for the after-treatment of the wounded are the courses of treatment at mineral springs and other health resorts which are so numerous in Germany. Even before the war, there had been special arrangements for such courses for sick officers and privates. By the new regulations that came into force in 1915, these provisions were much extended, and the number of these curative institutions materially increased. They now number 200, and the official list specifies the different curative features of each.

### REMUNERATIVE EMPLOYMENT FOR DISABLED SOLDIERS

"To secure positions for disabled soldiers is as difficult as it is a huge undertaking. Time has shown that manufacturers, farmers, merchants and foremen of shops are ready to take disabled soldiers into their employ. As this securing of jobs is too large a task for private enterprise, the government war department publishes a weekly bulletin with articles bearing on the question of employment for maimed soldiers. It publishes lists of help wanted in all the trades and occupations open to the disabled soldiers. This bulletin is kept on file in all the army offices even at the front, at all the hospitals of all kinds, the health resorts, etc., and is everywhere easily accessible for the wounded men. The different trades open to them are too long to enumerate.

### DISABLED OFFICERS

"All that has been said of the wounded men applies also to disabled officers. The absolutely disabled are taught a new occupation, if necessary. An organization has been formed, the Deutsche Hilfsbund für kriegsverletzte Offiziere, which aims to advise disabled officers and help them to prepare for a new career, providing them with opportunity for academic study or training for commercial, technical or mercantile positions. Berlin university allows disabled wounded officers free access, without registration or fees, to the lectures in every department.

### PROGRESS IN MAKING ARTIFICIAL LIMBS

"Great progress has been realized in the making of artificial limbs. The general interest in the question is best shown in the numerous endowments for prizes for improvements in prostheses. In Magdeburg a society has been formed for distribution of prizes for improvements in this line. The special features in which improvement is particularly needed are specified in the announcements of the society. The Verein deutscher Ingenieuren has offered 15,000 marks, nearly $4,000, for the best artificial arm for industrial workers, bearing in mind simplicity, durability and light weight, ease in taking off and putting on without help from others, and adaptability to the use of various tools. German engineers have also been officially urged to apply their inventive talents to the construction and improvement of prostheses—a field which had been neglected in Germany before the war. On the initiative of the government, courses of training for instrument, prostheses and bandage makers have been organized, in order that all innovations and improvements in this line may become as widely known as possible without delay. A permanent exposition of prostheses and aids for the crippled is kept open at Charlottenburg, which I visited. All the technical devices it is possible to conceive of were there displayed, including tools, instruments and machines as used in different trades and adapted for the disabled men, with demonstrations as to their use by the maimed and crippled.

"An official decree, dated September, 1915, gives detailed instructions as to the providing of prostheses for the wounded. Later instructions were given also as to preparing the stump for the artificial limb. An enthusiastic German writer in an official communication said in regard to the progress that had been realized in the matter of artificial limbs, 'Every week, one might say every day, brings new suggestions, new inventions, and much which seemed yesterday to be useful and important will in a short time have only historical interest.' Allowing for the exaggeration in these remarks, the outsider must admit that the world war has brought great progress in this field."

# Therapeutics

## PNEUMONIA

### ITS PREVENTION AND TREATMENT

Pneumonia is today the most serious acute infectious disease confronting the physician. Second only to tuberculosis among the acute infectious diseases as a cause of death, it attacks suddenly and kills quickly.

Occurring usually in endemic form, it also appears frequently in epidemic form, and has become one of the most threatening of the diseases that attack soldiers. No better evidence of this is needed than the list of causes of death of soldiers in our expeditionary forces and the large number of cases in our cantonments, several of which have already suffered severely from epidemics occurring secondary to measles and other infections as well as in the primary form.

### DEFINITION

In outlining a plan of procedure to follow in the prophylaxis and treatment of pneumonia it is essential to have clearly in mind the causation and natural course of the disease. Pneumonia, or inflammation of the lungs, includes acute lobar pneumonia as well as various forms of atypical and bronchopneumonia.

### THE INFECTING ORGANISM

Acute lobar pneumonia is due to infection by the pneumococcus, usually runs a rapid course, and is characterized by a diffuse exudative inflammation of large parts of one or more lobes of the lungs. Bronchopneumonia, on the contrary, may be due to a variety of bacteria, but is usually associated with streptococci. Most cases of pneumonia which follow or complicate contagious diseases are due to streptococci, i. e., are septic pneumonias.

Mathers[1] studied a series of cases of pneumonia of atypical types, occurring during and following attacks of grip in 1915-1916. The clinical and pathologic picture was that of a streptococcus bacteremia with metastases in the lungs, joints, kidneys, serous surfaces, gallbladder and appendix. The prominent gross pathologic lesions were extensive hemopurulent pleuritis and pericarditis, marked hyperplasia of the lymph glands, parenchymatous degeneration of kidneys, liver and myocardium. The lungs were usually only partially consolidated, very heavy and pliable. Often most of an entire lung was involved. In almost all cases hemolyzing streptococci were present in the sputum and lung. These cases correspond to those often observed in association with diphtheria, scarlet fever, measles, etc. It is likely that the cases of pneumonia occurring so extensively in connection with epidemics of measles in our training camps are in large part of this sort.

While we have been in the habit of saying that lobar pneumonia is caused by the pneumococcus, recent studies have shown that strains of pneumococci which are alike so far as cultural properties are concerned are still widely separated in their biologic qualities.

When the study of pneumonia at the Hospital of the Rockefeller Institute[2] was undertaken, a large number of races of pneumococci were isolated and studied as to their immune reactions. Animals were immunized to each strain, and the blood serum of each immune animal was then tested as to its power to agglutinate each of the strains and also as to its power to protect mice from infection by each strain. As a result of these studies the strains of pneumococci grouped themselves into four classes or types. The serum produced by immunizing with each member of a group acted in a similar manner on all the strains of the group, agglutinating the bacteria and protecting mice against infection. On the contrary the serum produced by immunizing with a member of one group had no such power over the strains of the other groups. The four groups of pneumococci are spoken of as Types I, II, III and IV. Type I is found in 33 per cent. of cases of lobar pneumonia; Type II in 29 per cent.; Type III in 13 per cent., and Type IV in 20 per cent. The pneumococci found in normal mouths belong to Type IV.

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[1] Mathers, G.: Tr. Chicago Path. Soc., April 1, 1916.

[2] Avery, O. T.; Chickering, H. T.; Cole, R., and Dochez, A. R.: Monographs of the Rockefeller Institute, No. 7, Acute Lobar Pneumonia, Prevention and Serum Treatment.

These studies have a very important bearing on the prophylaxis and specific treatment of lobar pneumonia. Making use of the serum of animals which have been immunized against cultures of the four types of pneumococci, it is possible to test the strain from each case of pneumonia and to place it under the type whose corresponding serum causes it to be agglutinated. This is very important if immune serum is to be used, as the only cases of pneumonia which are benefited by serum are caused by organisms of Type I.

In 448 cases studied in the Hospital of the Rockefeller Institute, 145 were of Type I, 148 of Type II, 55 of Type III and 100 of Type IV. Of these cases, pneumococci were found in the blood in 136 instances. The mortality when the organism was found in the blood was 55.8 per cent., whereas in the 312 cases with negative blood cultures, the mortality was only 8.3 per cent. This shows that the presence of the pneumococcus in the blood during lobar pneumonia indicates a severe infection and a bad prognosis.

### GENERAL CONSIDERATIONS

Although pneumonia has been considered a self-limited disease tending to recovery, this can hardly be said to be generally true. The sthenic type of pneumonia which does tend to recovery, with one or more lobes distinctly involved, is now not so frequent as a less circumscribed pneumonia, or an asthenic type with a low temperature and without much tendency to self-limitation and, as the statistics show, not a great tendency to recovery. The crisis which should introduce recovery means, according to Hektoen,[3] the destruction of the pneumococci in the lungs and blood. This, he says, is accomplished by phagocytosis and by extracellular digestive processes. Therefore, the greatest defense against pneumonia is a production of leukocytosis and of antibodies in the blood. Such patients as rapidly die of a toxemia have this blood defense in insufficient amount. When this defensive process has been produced in sufficient amount rapidly to destroy the pneumococci, the recovery is by crisis; when it is in sufficient amount to destroy them only slowly, the recovery is by lysis. The latter form of recovery is the one that we now see most frequently.

### PREVENTION

It has generally been considered that all persons harbor the pneumococcus in the throat, and that it is thus ever ready to attack the person who becomes debilitated, and especially to add its attack to that of the influenza bacillus or to follow a streptococcal infection of the throat or nose. It is no doubt true that exposure and a weakening of individual resistance do play a prominent part. Recent studies of the incidence of the various types of pneumococci in the throat of normal persons, in the throats of those suffering with pneumonia, in healthy persons in contact with cases of pneumonia, as compared with those not in contact, and in the dust of rooms in which lobar pneumonia had not occurred, as compared with the dust of rooms in which cases of pneumonia had occurred, all show that pneumonia, in a considerable proportion of cases at least, arises chiefly by infection from without. It was shown definitely that pneumococci of Types I and II are practically never found except in the environment of persons ill of the disease or in the environment of carriers.

It seems advisable, therefore, henceforth to regard every case of pneumonia as a focus for the spread of the infection, and the same measures should be instituted as have been found efficacious in other communicable diseases. These include primarily (*a*) isolation of the patient as far as is possible and convenient, (*b*) collection of the sputum in special containers and its disinfection, and (*c*) sterilization and prevention of contamination from utensils, bedclothing, personal clothing, handkerchiefs, and other material in close contact with the patient.

The physicians, orderlies or nurses in attendance on patients with pneumonia should practice the greatest care in order to avoid transmitting the disease to others. This involves the wearing of a clean gown when attending patients, the thorough cleansing of the hands by soap and water before and after attending each patient, and, as has been suggested by Weaver, the wearing of a simple protective face mask when in attendance on patients. This not only prevents the physician or other attendant from becoming infected, but also prevents the patients from becoming infected through their attendants with secondary infections with organisms which they do not already have.

The room in which the pneumonia patient lies should be cleansed daily to avoid dissemination of dust, and after the patient's recovery it should be thoroughly aired, washed and sunned to dispose of any remaining organisms.

Cases of the common contagious diseases, as measles and scarlet fever, in which secondary pneumonia occurs should be isolated and not allowed with uncomplicated cases. Those attending such cases may have the protection offered by gauze masks, as recommended by Weaver. In a recent editorial by Victor C. Vaughan[4] on "Measles and Pneumonia in Our Camps," the principles involved in preventing the spread of pneumonia are clearly stated. He says: "Valuable as improvements in the determination of the types of the pneumococcus and the development of curative serums are, the prevention of infection and the limitation of its spread are far more important."

### CARRIERS

Finally, a search should be made for pneumococcus carriers of the organisms of Types I and II especially, and these carriers should be instructed as to prevention of the spread of the organisms. They may also be provided with a disinfecting mouth wash or gargle, and should use it persistently until the organisms have disappeared from the throat and the sputum.

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[3] Hektoen, Ludvig: The Mechanism of Recovery in Pneumonia, The Journal A. M. A., Jan. 24, 1914, p. 254.

[4] Jour. Lab. and Clin. Med., January, 1918.

Kolmer and Steinfield[5] refer to the studies of numerous observers who have shown the high pneumococcidal activity of ethylhydrocuprein hydrochlorid and of quinin preparations. They studied the possibility of disinfecting the sputum and the mouth with such preparations. The results indicated that 1 : 10,000 dilutions of ethylhydrocuprein hydrochlorid or quinin bisulphate, quinin hydrobromid, and other cinchonics in a 1 : 10 dilution of liquor thymolis[6] constitute mixtures that may readily be used as mouth washes or gargles. Such a gargle may be used at least twice daily by those in contact with pneumonia cases, as well as by persons with pneumonia. Similar dilutions in Dobell's solution may be used for spraying the nose. For washing the mouth and gargling, a solution is conveniently prepared after the following formula:

| | Gm. or C.c. |
|---|---|
| ℞ Ethylhydrocuprein hydrochlorid or quinin bisulphate | 0.005 |
| Liquor thymolis | 5.0 |
| Distilled water to make | 50.00 |

### PROPHYLACTIC VACCINATION

Prophylactic vaccination against pneumonia with killed organisms has been studied on a large scale by numerous observers. The results of these studies have been carefully analyzed by the workers in the Rockefeller Institute. They believe that the results of studies on animals indicate that the employment of this method would result in a great saving of human life. Studies on the production of immunity in animals suggest strongly that more effective and rapid immunity may be produced by the frequent injection of small amounts of vaccine than by the infrequent injection of large amounts. Lister, who recently studied an epidemic in South Africa, concluded that "three subcutaneous inoculations, at seven days' interval, should be employed; each dose should consist of 6,000 million cocci of each group against which immunity is desired." He found that his own serum still contained agglutinins and opsonins against the types of organisms injected eight months after the last inoculation.

### TREATMENT

1. *Rest.*—The patient's rest should be as near perfect as possible. Not only should the room be situated for the best possible fresh air, but it also should be as quiet as possible. Friends and relatives should not disturb the patient. Sleep and a quiet heart are more essential in pneumonia than in almost any other disease. Perfect rest does not mean that the patient should not be turned frequently, or that he should not have at times several pillows. The point should be emphasized that the circulation in the lungs should be changed by alterations in position. A patient with pneumonia should not lie flat all the time. Hypostatic congestions readily occur with pneumonia, especially if the heart's action is impaired.

It is most desirable that such patients receive hospital care and attention. If transfer to a hospital is to be made, the patient should not be allowed to stand, dress and walk, but should be moved with the least possible exertion to himself.

It is questionable whether sufficient value attaches to baths to justify too frequent disturbance of the patient for their application.

2. *Fresh Air.*—It has now long been demonstrated that a pneumonia patient has less fever, a slower pulse, a better blood pressure, and breathes less frequently in cool, clean air than in close house air, and this whatever the season. Wards on the roof are very valuable for hospitals in the treatment of pneumonia as well as tuberculosis. The balcony, veranda, or even tent treatment of pneumonia is advisable at certain seasons of the year with certain types of patients, when such facilities are obtainable. It is always essential that the room of a pneumonia patient should have more than one window — the more the better — and that these windows should be open, except when the patient is being bathed or his clothing is being changed. Under no circumstances is it wise to have a draft of cool or damp air blowing directly over the patient's face, but screens can modify the direction of the wind or brisk air. Very young children and old persons should not be subjected to severe cold atmosphere, while older children and strong adults may not only endure cold, but may even thrive in it. The fresh air or outside air treatment of pneumonia is subject to the modification of common sense. If a patient's body and extremities become cold or chilled when properly covered, the fresh air treatment is too severe.

3. *Diet.*—The food should represent something of all the elements required for nutrition. This means protein in the form of eggs, meat juices, properly made meat broths and milk. The eggs may be in any form desired, except fried. The milk should never be sufficient in amount to cause intestinal gas, or gastric indigestion.

The next necessary element for nutrition is starch, and it should not be forgotten that many a seriously ill patient may die of acidemia from carbohydrate starvation. Egg albumin and milk do not represent the proper food for patients more than a few days. The starches can be presented in cereal gruels, rice, oatmeal, malted milk, toast, crackers, and even by potato soup. Ice cream, custard, chocolate, and a small amount of sucrose or lactose are all of value.

The patient should be allowed plenty of water, as, however valuable a deprivation of water may be in aborting an acute cold or acute bronchitis, it is not advisable to withhold water in pneumonia. Unless there are edemas from a failing heart or from kidney insufficiency, water will increase the amount of urine and therefore remove more products of waste metabolism from the blood, thus tending to prevent the toxemia which is to be feared. Water promotes the secretion of the skin, which is desirable, and also renders the exudate in the lungs less tenacious and more easy of expectoration.

Elements of nutrition which must not be forgotten are: sodium chlorid, iron when meat juices are not given, and lime when little milk is given, and especially if there is much blood in the expectoration. The sodium chlorid can be given by properly salting the patient's food, especially his gruels, and even at times his milk. The iron may be given as a saccharated oxid of iron, 3-grain tablet, crushed at the time of taking, or crushed by the patient's teeth, and administered twice a day. The lime may be given as lime water in tablespoonful doses in milk or in water, three or four times in twenty-four hours; or it may be given in a capsule as calcium glycerophosphate, in 0.3 gm. doses.

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[5] Kolmer, J. A., and Steinfeld, Edward: The Disinfection of Pneumococcus Carriers, The Journal A. M. A., Jan. 5, 1918, p. 14.

[6] This solution, which is used in the Philadelphia Polyclinic Hospital as a substitute for liquor antisepticus, is prepared after the following formula: benzoic acid, 64 grains; boric acid, 128 grains; thymol and menthol, each, 16 grains; oil of eucalyptus, oil of wintergreen and oil monarda, each, 4 drops; alcohol and glycerin, each, 4 ounces; water sufficient for 16 ounces.

The whole question of the diet is also subject to common-sense modification to fit the patient. There are enough suggestions in the foregoing to furnish sufficient nutrition while meeting almost any patient's desires. The main object is (1) to avoid starving the patient on any element that he requires to promote metabolism and keep up nutrition, and (2) to avoid gastric and intestinal indigestion. If the tongue is heavily coated and the patient is so seriously ill that he does not digest properly, 5 drops of dilute hydrochloric acid in water, directly after his protein meals, will aid the stomach digestion and often clean the tongue. It may also stimulate intestinal digestion. If there is much intestinal gas, the diet should be closely studied to ascertain which food is causing it. Provided the blood pressure is not too high, the heart not too irritable, and the patient not too nervous and restless, coffee morning and noon, or coffee in the morning and tea at noon, or tea both times if the patient prefers, is advisable and often beneficial. Tea and coffee should be considered as representing caffein, and if the action of caffein is desirable, these beverages may be given. They should not be given in the late afternoon or evening, as they tend to prevent sleep.

4. *The Bowels.*—The bowels should move daily. Constipation should be prevented, but a diarrhea is not desirable. A cathartic may be given in the beginning of the disease, the one preferred by the physician. Later, his preferred laxative, whether a cascara mixture or some other combination, should be given. An occasional enema of glycerin and water, 1 ounce of each, will be found valuable. It will empty the colon and prevent the necessity of giving large doses of a laxative or a cathartic. Such treatment will aid in preventing tympanites.

Diarrhea will weaken the patient and add one more element to cause weakness of the heart. If it occurs, the bowels should be cleaned out with a laxative, castor oil if it can be taken, and then movements should be prevented by 1/10 grain of morphin. Saline cathartics are likely to increase the amount of gas in the intestine, and hence are generally contraindicated. Bismuth is likely to remain too long in the bowels and promote the growth of germs and the absorption of toxins, which will add one more danger in the pneumonia toxemia that is constantly feared. Phenyl salicylate (salol) in 0.25 gm. doses, in capsules, may be given in these diarrheal conditions, four or five times in twenty-four hours, for a few days, and will often stop excessive fermentation.

5. *Abdominal Distention.*—The routine use of a daily morning enema of soap suds has been suggested to prevent this complication. If abdominal distention occurs, milk should be temporarily eliminated from the diet. Compresses soaked in olive oil, 3 parts, mixed with turpentine, 1 part, may be applied. These should be covered with flannels wrung out in hot water, the heat being retained by covering with a thick pad. The hot flannels must of course be renewed frequently, as needed. These may be continued until relief occurs. Following the application of the stupes, medicated enemas may be employed. The following has been suggested:

| | |
|---|---|
| Oxgall | 4 gm. |
| Oil of turpentine | 8 c.c. |
| Asafetida | 12 gm. |
| Soap suds | 2 pints |

This is followed in an hour by an ordinary soap suds enema.

Frequently pituitary solution in doses of 0.5 c.c. given hypodermically may be effective.

6. *Care of the Skin and Mouth.*—It is rare, with the proper diet, the proper treatment of the bowels, and with plenty of fresh air, that the temperature in pneumonia is so high as to require sponging with cold water. Even when the temperature is very high, with a cerebral complication, tepid sponging in a warm room is as severe treatment as should be tried. Ordinarily, then, sponging once or twice a day with hot water is advisable, both for the comfort of the patient and to remove perspiration and keep the skin active. The temperature is more or less reduced by the warm sponging, the blood vessels of the surface are slightly dilated, the circulation is equalized, and the normal activities of the skin, which are essential, are increased. Also, warm sponging tends to relieve the tension of blood in the head, and many times aids in promoting sleep. If the patient's temperature is low, hot-water sponging is certainly advisable, and hot-water bags should be used around the extremities and even around the body. Such a condition is often seen in pneumonia in alcoholics. Profuse, cold, clammy perspiration should never be allowed to remain on the patient's body. Warm alcohol sponging in such conditions is advisable, that is, sponging with pure alcohol. A dash of alcohol in a basin of water has no therapeutic or physiologic value, and represents nothing but a fad.

Cleanliness of the mouth, teeth and tonsils is very important. The patient may have infected himself from his own tonsils or his own gums; such possibilities should be remembered, as well as the necessity of keeping the mouth as clean as possible during the illness.

The sputum, being as likely to communicate disease as is that from tuberculous patients, or even more so, should receive the same antiseptic care as does that of tuberculosis. The patient's mouth, excretions from the nose, and the nurse's hands and contaminated clothing or gauze should be treated in the manner so well understood in tuberculosis.

### VACCINE TREATMENT

Vaccines during acute pneumonia are of doubtful utility and perhaps sometimes absolutely harmful. They have been tried so extensively under favorable circumstances with such uncertain or unfavorable results that there seems no good reason for continuing their use.

### SERUM TREATMENT

As has been stated, workers in the Rockefeller Institute have prepared antipneumococcus serums. The serums against infection with Type I organisms appear to have produced especially good results, and to be highly effective in treatment of cases of pneumonia due to its type of organism. The serum of Type II is much less efficacious and, indeed, it has not yet been thoroughly demonstrated whether it has any valuable effect on the outcome of the disease. The serum for Type III organisms has apparently but slight therapeutic power, and has not been considered worthy of use in infections with this organism; the same is true of infections with Type IV pneumococcus. Commercial preparations of these serums are available and also polyvalent serums. These polyvalent antipneumococcus serums are of extremely doubtful value. It has been suggested that polyvalent serum be given until the type of the organism is determined, and that following this, the specific serum for Type I or Type II may be utilized if the infection proves to be of that character. With pneumococci, at least as regards the first three types, the immunity reactions appear to be specific, and for this reason the workers in the Rockefeller Institute do not advise the routine manufacture of polyvalent antipneumococcic serums. In fact, they suggest that for the present, the production of antipneumococcic serum should be confined to Type I. It has also been suggested that every pneumonia patient receive, immediately after admission to a hospital, a large dose of antipneumococcic serum of Type I, with the idea that the case may prove to be of that character, and considerable time will be gained.

While cases caused by other types of pneumococci than Type I are not benefitted by serum, it is quite likely that they may be harmed. The intravenous injection of a hundred or more cubic centimeters of horse serum can hardly be devoid of harm and is certainly not to be used except when very decided benefit may be expected to follow its use. Hence the first thing is to determine the sort of bacterium causing the pneumonia in the individual, and if it is a pneumococcus to determine the type to which it belongs. If it is a Type I pneumococcus, serum treatment may be undertaken. The value of the serum in the treatment of pneumonia is uncertain, but the results reported are sufficiently convincing to warrant its further trial under suitable conditions. It should be used only when correct diagnosis of the type of infecting organism has been determined. Under present conditions this can hardly be done, of course, outside of a hospital or in a laboratory which has specially trained workers. The serum may then be used, except in very young children who appear but little intoxicated by the injection, or in adults mildly ill and already showing signs of decreasing fever and intoxication.

Before administering the serum, patients should be questioned as to previous injections of immune serums for diphtheria, meningitis or for tetanus infections, and also concerning previous symptoms suggesting asthma, hay-fever, or special sensitivity to proteins, including those in serum. They suggest also the use of the intradermal skin test, injecting first 0.02 c.c. of sterile diluted horse serum, diluted with salt solution 1 : 10, with injection of a simple salt solution as a control, to learn whether or not the patient is especially sensitive to the serum. If sensitivity is present, the injection of the serum produces a large urticarial wheal surrounded by an area of erythema.

It becomes evident when one views critically the present status of the serum treatment of pneumonia, that it can be properly carried out only in institutions where it is possible to make accurate bacteriologic diagnoses and differentiations of the types of pneumococcus, and where facilities for the intravenous administration of large amounts of horse serum with safety are at hand. Even at best a limited number of cases are suitable for treatment with immune serum, a large proportion of lobar and the very large group of atypical and bronchopneumonias not being susceptible of attack by these measures.

*Technic.*—The serum is injected into a convenient vein, usually at the bend of the elbow, the skin being previously cleaned with iodin and alcohol. If there are facilities for making blood cultures, blood may be first withdrawn for this purpose. The serum is injected into the vein with a syringe, or by the gravity method, the injection being done steadily and slowly, the injection of the first 10 to 15 c.c. occupying from ten to fifteen minutes. During this time the patient is carefully watched for symptoms of reaction, such as increased rapidity of the pulse, difficulty of respiration, cyanosis or urticaria. If no symptoms arise, the remainder of the injection may be completed in from ten to fifteen minutes.

*Dosage.*—The amount of serum necessary will vary in individual cases. It is generally believed that the initial dose should be large, perhaps from 90 to 100 c.c. of the standard serum. The specific serum treatment having been begun, it should be continued until a definite favorable result has been obtained, and the serum may be given every eight hours in doses of from 90 to 100 c.c., unless there are contrary indications.

The average total amount of serum required in cases in the hospital of the Rockefeller Institute was about 250 c.c. In many cases an elevation of temperature follows the injection of the serum within from twenty minutes to an hour, and this in turn is followed by a marked fall. If the temperature continues low and the patient's condition is good, no more serum is administered. The temperature is taken every two hours, and if it rises within twenty-four hours to 102 F. or over, a second dose of serum is at once administered. If no fall of temperature occurs following the first dose, or if it does not fall to 102 F. within eight hours, a second dose of serum may be given. The same rule governs the administration of the third or subsequent doses.

### MEDICINAL TREATMENT

We are past the stage when any dogmatic advice can be given in regard to the use of drugs in pneumonia. The physician who has charge of a pneumonia patient must decide whether a drug is needed to combat a condition or symptom and which drug is the best for the object aimed at. The following are suggestions of drugs that have positive value for certain conditions, and brief descriptions of the pharmacologic action expected of them:

*Morphin or Codein.*—If the pain is acute in the beginning of pneumonia, one of these sedatives should be given. Acute pain is depressant and should not be allowed. Strapping of the chest is inadvisable in pneumonia. An ice bag over the painful region of the chest does not abort pneumonia and is generally not desirable, and on account of the generally high fever at this time, hot-water bags are not advisable.

A cough that is frequent and unproductive, as it may be in the first stage of pneumonia, will be quieted and the pain alleviated by codein sulphate in doses of 0.01 gm. (1/6 grain) every two, three or four hours as is necessary.

*Acetanilid and Antipyrin.*—Acetanilid, 0.1 gm. (2 grains) every three hours for four or five doses, or antipyrin, 0.5 gm. (7½ grains) every four hours for two or three doses, may be of advantage in lowering the high temperature in the first stage of this disease. These drugs also will lower the blood pressure and quiet the heart. Such an action may be needed in the very acute first stage of pneumonia, provided the heart is normal. At this stage the lowering of the blood pressure produced by these drugs is often beneficial. Later in the disease, even if there is high temperature, such coal-tar products are contraindicated.

During the administration of the specific serum, drugs affecting the temperature should not be given, as this is the best guide to the value of the serum, necessity for repeated dosage, etc.

*Ammonium Chlorid.*—If the expectoration is very adhesive and cohesive, scanty in amount and hard to raise, ammonium chlorid acts satisfactorily and is indicated. The dose should be 0.25 gm. every two hours, given in a sour mixture, or in lemonade; and if there is much pain or if there is ineffective, frequent cough, it may be combined with codein sulphate. Ammonium carbonate, with its irritant, nauseating action, has no tangible cardiac stimulant action; therefore it should not be used.

*Digitalis.*—If the patient does not die of the acute onslaught of the germ by incombatable toxemia, or by exhaustion from a later general toxemia, or from a migration of the pneumococci to the meninges, his survival or death depends on the ability of his heart to withstand the disease.

Porter, Newburgh and others have stated, on the other hand, that the heart muscle is not vitally injured in pneumonia. Respiration ordinarily fails before circulation. The heart in pneumonia may be influenced by digitalis in the same way as in normal persons, as shown by Cohn. The workers in the Rockefeller Institute suggest the use of some form of digitalis as a routine in these cases. They use digipuratum, but any other standardized form available may be satisfactory. Its use should be commenced early so that the patient is partially digitalized when necessity arises. Patients are given 0.5 gm. a day by mouth, if seen early. If, on being seen later, they appear quite ill, 1 gm. may be given. When digitalis effects appear, the drug is discontinued as long as the patient's condition indicates that its use is not necessary.

*Strophanthin.*—This drug, in recently made sterile ampules and injected directly into one of the veins in the elbow, provided digitalis has not been recently administered, is often efficient in tiding a patient over a shocked condition. It should rarely be repeated.

*Strychnin.*—This is a drug that has been very much overused. Clinically, strychnin often does very good work and even seems to tide our patients over critical periods. In a sluggish, inefficiently contracting heart, when digitalis is contraindicated, strychnin may be of benefit. The rule for strychnin should be, when indicated as shown by this discussion, to give to an adult not more than $\frac{1}{30}$ grain, hypodermically, if deemed advisable, once in six hours, and such a dosage should not be long continued. As soon as there is improvement, it should be given by the mouth instead of hypodermically.

*Camphor.*—Laboratory findings and some hospital reports have not shown that camphor is of value in heart failure. On the other hand, clinical experience at the bedside not infrequently shows that hypodermic or intramuscular injections of a sterile preparation of camphor and oil improves the pulse as to its regularity and volume, causes the surface of the body to be warmer, and often relieve a cardiac dyspnea by thus equalizing the circulation. When there is cardiac dyspnea, when the pulse is small, and especially when it is slow and weak and the surface of the body is cold, and when there is cold perspiration, that is, a partial collapse condition, camphor given hypodermically every three or four hours until there is improvement may be of benefit.

*Caffein.*—The administration of this drug as coffee or tea has already been discussed under diet. Perhaps no drug, except epinephrin, the action of which is very fleeting, so frequently raises the blood pressure in serious conditions as does caffein. In emergencies it may be administered hypodermically, or it may be given by the mouth several times in twenty-four hours. It should not be forgotten that it is a cerebral stimulant and not a sleep producer. Its action on the heart is almost always for good, except in some few patients who show an idiosyncrasy to it, the heart becoming irritable from any form of caffein.

*Oxygen.*—This has been used by inhalation, but observers have not agreed as to the effects. S. J. Meltzer[7] has recently recommended its use by insufflation. Sufficient data is not at hand to admit of any opinions as to its value.

*Venesection.*—In some cases with the right heart distended with blood, venesection gives great relief.

*Nitroglycerin.*—When pneumonia occurs in a full-blooded, sturdy man, especially if he is of the age when his blood pressure is a little high, small doses of nitroglycerin, as $\frac{1}{200}$ to $\frac{1}{100}$ grain, every four to six hours, tends to dilate the peripheral vessels and relieve the internal congestion. It also slows and quiets the circulation. By bringing more blood to the surface of the body, it also tends to promote loss of heat and a reduction of temperature. It will never weaken a heart as long as the blood pressure is high; it should not be used if the blood pressure is low.

*Hypnotics.*—It is hardly necessary to name the different hypnotics. As stated above, in very weak conditions the only safe hypnotic is morphin. In delirium and in insomnia it may be well to use some other hypnotic than morphin. Almost any one of them causes some subsequent cardiac depression. The best hypnotic is perhaps chloral, although there is prejudice against its use. Probably an effective dose of chloral is no more depressant to the heart than is an effective dose of any other hypnotic.

*Ethylhydrocuprein Hydrochlorid.*—This drug, when first advanced, was reported to have a specific bactericidal effect on pneumococci both in vitro and in vivo. Extensive studies have been made as to whether or not it has a curative effect in pneumonia. In general, no definitely beneficial effects have been observed, and, in fact, it has been found that its routine use internally may involve danger of the drug's producing injury to the eyes. Because of its proved effect on the organism, the use of the drug or of quinin, of which it is a derivative, in mouth washes or gargles, seems justifiable.

### CONCLUSION

There is no specific cure for most cases of pneumonia. The resources of the physician will be taxed and his judgment put to a severe test by many a case of this disease, but a successful outcome in many apparently hopeless cases will reward his efforts.

As stated at the outset, a restful, quiet room, a sensible, efficient nurse, a sufficient amount of fresh air, and a suitable diet and proper care of the bowels will prevent high temperature, heart failure, low blood pressure, insomnia, tympanites and toxemia in very many cases, and prevention is far better than the treatment of these serious conditions.

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[7] Meltzer, S. J.: The Therapeutic Value of Oral Rhythmic Insufflation of Oxygen, The Journal A. M. A., Oct. 6, 1917, p. 1150.

**Happiness.**—Our happiness in this world proceeds from the suppression of our desires, but in the next from the gratification.—*The Spectator.*

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SATURDAY, FEBRUARY 9, 1918

## JUVENILE DELINQUENCY

There is a widespread belief that the causation of delinquency is to be found in mental and physical defects of the individual that might in many instances be remedied or ameliorated if they were properly recognized. For this among other reasons, there has been a growing demand for the basic facts. It has become obvious, for example, that the idiotic and the feebleminded cannot be cured. No way is known by which they can be made normal; and as the conditions represented by such persons are both incurable and congenital, our attention must be turned to the prevention of feeblemindedness in the future. The difficulties that this offers can better be appreciated when it is realized that a conservative estimate by Goddard has placed the number of feebleminded persons in the United States at not less than a quarter of a million.

At the Second Pan-American Scientific Congress, held in Washington in 1916, Dr. Healy, the director of the Psychopathic Institute of the Chicago Juvenile Court, stated that the after-careers of young offenders studied some years ago show clearly the immense importance of investigating the causation of delinquency at the only time that it really can be studied satisfactorily, namely, during the years when delinquency begins. All of our experience goes to show that the many writers who insist that practically all criminal careers begin during youth are entirely correct. Not only is the high point for crime according to ages well within the later years of adolescence, but also many delinquents begin their careers even younger. Thanks to the French psychologist, Alfred Binet, it is now recognized as possible to measure the intelligence of children, and it has been demonstrated that normally the intelligence develops as the body develops. Any child that does not have the intelligence normal to his age is said to be defective, and if his intelligence is as much as three years behind the chronologic age, he is considered mentally defective or feebleminded. The change that this discovery has brought about in our thinking and in our attitude toward various social groups is remarkable, says Goddard. We are realizing, he adds, that many persons whom we thought bad, vicious, perverse, careless, indolent or lazy, the result of bad environment in one form or another, are in reality feebleminded. Because of their lack of intelligence they have fallen victims to the bad influences of their environment, which, had they been normal, they would easily have overcome.

For the idiot and the imbecile we need have little concern in any scheme to educate or rehabilitate the delinquent. Their permanent status is better understood. The morons, or "persons who on account of brain defect existing from birth or early age are unable to compete with their fellows in the struggle for existence or to manage their own affairs with ordinary prudence," offer greater difficulties because frequently they are scarcely distinguishable from normal persons except by the expert. They represent the type of persons of whom Richard Cabot has said that they have an excellent appearance, and can talk intelligently on many subjects, but are forever unable to go without a hand on the shoulder, without some guidance.[1]

To what extent are the juvenile offenders, who offer such serious social problems to almost every community, recruited from the hereditarily unfit of the types just discussed? On the recognition of their make-up the solution of the question of delinquency depends in no small measure. The physician and the psychologist are being drawn more and more into cooperative relation with the courts. Recently Faber and Ritter,[2] of the Department of Pediatrics in the Leland Stanford Junior University School of Medicine, undertook a study of the boys placed in the care of the Boys' and Girls' Aid Society of San Francisco by various juvenile courts of California. The great majority of these boys were committed to detention because of truancy, incorrigibility or active crime. The investigation was planned primarily to disclose physical and mental defects; but incidentally the home conditions of the mentally normal or dull normal boys were inspected. The mental findings made by means of modern child intelligence tests showed that of the boys studied, 43.6 per cent. were normal; 25.5 dull normal (total normals 69.1 per cent.); 17 per cent., borderline; 9.6 morons, and 4.3 imbeciles (total defectives, 30.9 per cent.). Taken as a whole, the physical defects were those common to any group of children whose hygiene has been long neglected.

It is evident, therefore, that delinquency is by no means confined to the mentally or physically incompetent. The situation is more serious in that it involves normal persons who have become delinquent. This needs to be widely emphasized. The Stanford investigators believe that for the normal boys improved environment, improved personal hygiene, and better general education would have made useful citizenship possible.

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1. Cabot, Richard: A Layman's Handbook of Medicine, 1916, p. 254.
2. Faber, H. K., and Ritter, A. J.: A Mental and Physical Survey of a Group of Juvenile Delinquents, Am. Jour. Dis. Child., December, 1917, p. 444.

In the case of defectives, feeblemindedness is in itself a sufficient explanation of delinquency. Those who belong in this category should be promptly segregated from normal persons. For the latter Faber and Ritter urge careful and systematic attempts at education in order to determine and develop latent ability. Without special and extremely capable training, they say, these boys, who have potentialities not only of "floating" in society and of becoming good citizens, but even, in some instances, of attaining positions of superiority, will inevitably return to a career of delinquency or crime from which at a slightly later age it will be impossible to rescue them. Now that we have already swerved in this country from the tradition of set punishment for each offense, the courts are entitled to all the help that medical and other sciences can give toward the decisions that must be made. Such reports as we have referred to are desirable in larger numbers before the etiology, diagnosis, treatment and prophylaxis of delinquent tendencies can be properly developed.

## MANIFESTATIONS OF OLD AGE

The importance of the acid-base equilibrium of the organism, or the mechanism whereby the hydrogen ion concentration of the blood and tissue fluid is maintained within certain narrow limits of variation, has been dealt with repeatedly in these columns.[1] When this highly significant function, which ordinarily responds to all sorts of physiologic "strains" involving a change in the production or distribution of acids and bases in the metabolism, is upset or overtaxed, pathologic effects promptly manifest themselves. It is fundamental, therefore, that the mechanism should remain sensitive, that it should respond promptly to the emergencies which attend abnormal conditions in the body.

It is a characteristic of old age that, during this period of life, once efficient functional organs may break down. The bodily machine wears out sooner or later; sometimes it is the heart, sometimes the kidney or the nervous system that fails to do its full duty in the declining years. MacNider[2] has discovered that the mechanism by which the acid-base equilibrium is controlled is not so easily kept within the bounds of normality in the later years of life as it is in youth. His evidence is derived from the studies on nephritis and allied conditions that have been conducted for some years at the Laboratory of Pharmacology in the University of North Carolina. Thus, uranium, which induces an acute nephritis, was found to be more toxic in this respect for old animals than for younger ones. The acid intoxication that attends uranium poisoning develops much earlier in older subjects. The old animals show an earlier appearance in the urine of acetone bodies, a greater quantitative output of these substances, and a greater tolerance for an alkali.

Again, by the intravenous use of an alkali in young animals, the kidney can be successfully protected against the toxic effect of an anesthetic, while in the older ones the difficulty of furnishing such protection appears to increase with the age of the animal. Old animals also show a severer grade of acid intoxication, in uranium nephritis, as indicated by a more marked increase in hydrogen ion concentration of the blood, which is associated with a more rapid depletion of the alkali reserve of the blood and a greater reduction in the tension of alveolar carbon dioxid. MacNider says that, associated with this change in the acid-base equilibrium of the blood, there develops a kidney injury which is histologically more marked in the old than in the young animals. The acid-base equilibrium of the latter is more easily restored after an upset. The degree of protection furnished the kidney seems to depend on the animal's age. Senile changes in the organism thus involve something more than mere anatomic alterations; they may include the most fundamental chemical performances on which the life processes are dependent.

## THE PROTEINS OF THE BLOOD PLASMA

Although probably more is known about the composition of the blood than of the chemical make-up of any other tissue of the body, our knowledge of the subject must still be regarded as decidedly fragmentary. A striking characteristic of the blood is its large content of protein substances. The abundance in which these are present of itself directs attention to their presumable importance. Liebig taught, more than fifty years ago, that the blood proteins were the foodstuffs *par excellence* of the body. The dominance of his authority served for many years to support the readily conceived hypothesis of the immediate nutrient property of the plasma proteins. Ingested nitrogenous nutrients were conceived to be converted somehow into blood proteins during or after their absorption from the alimentary apparatus, so that a uniform nitrogenous pabulum was offered to the hungry cells.

In view of this one might expect that the content of proteins in the blood would vary widely according to the momentary nutritive condition of the organism. Modern physiology has demonstrated that there is, on the contrary, a surprising uniformity of composition and an unquestioned specificity of quality in the blood proteins. Abderhalden's researches on the composition of the latter after the feeding of large quantities of protein decidedly unlike that in any part of the body showed that if there is a new construction of proteins from the amino-acids formed in digestion, such proteins are characteristic of the organism and do not possess the properties of the proteins originally ingested. The distinctive antigenic properties of the blood proteins likewise seem to be essentially unmodified by diet. Blood proteins and tissue proteins are radically different from a biologic standpoint.

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[1] Nephritis, Blood Phosphates and Acidosis, editorial, The Journal A. M. A., May 5, 1917, p. 1326; The Estimation of Acidosis Under Clinical Conditions, May 5, 1917, p. 1327; The Newer Conception of Acidosis, Aug. 25, 1917, p. 646; The Output of Bases after Intake of Acid, Oct. 6, 1917, p. 1172.

[2] MacNider, W. deB.: Concerning the Influence of the Age of an Organism in Maintaining Its Acid-Base Equilibrium, Science, 1917, **46**, 643.

Some attention has been devoted toward ascertaining the rôle of the serum proteins under extreme variations of bodily condition brought about in both physiologic and pathologic ways. Recently Hanson and McQuarrie[1] of the Physiologic Laboratory at the University of California have studied the effect of substances that either retard or accelerate metabolism, with reference to the proportion of blood proteins. Their experimental results consistently indicate that after effective doses of drugs like quinin, sodium cacodylate and thyroid extract, the quantity of albumins and globulins in the blood serum is independent of the rapidity of the nitrogenous metabolism. Even prolonged inanition fails to bring about a change.

So long as there is no direct evidence of the consumption of blood proteins by the tissue cells, the question of the possible nutritive value of these abundant blood components remains open to speculation and research. One function, says Mathews,[2] they undoubtedly have: they give to the plasma one of its most important properties, its viscosity. This is the function of the proteins in the other tissues of the body, for it is the proteins that give the structure, the jelly nature to protoplasm; in other words, it is the proteins that determine the viscosity of the protoplasm. Similarly in the blood, which is a living tissue, the proteins contribute to the viscosity, a matter of much importance in determining the peripheral resistance. Mathews also reminds us that the blood proteins can assist in regulating the reaction of the blood, a phenomenon now recognized to be of fundamental importance for physiologic well-being.

We shall probably not go far wrong, Mathews concludes, if we consider the blood plasma as very dilute protoplasm. The processes which occur in it he conceives as "the mirror of the processes which occur in all forms of living matter." From a somewhat similar standpoint, Starling[3] has felt justified in believing that serum protein may be regarded as a complex unit. By simple means, such as dialysis, dilution, or addition of salt, he says, this unit can be broken up with the separation of the various proteins which have been designated as serum albumin, serum globulin, etc. The question naturally suggests itself, he concludes, whether in plasma we have not a similar combination of all its varied colloidal constituents to form "one labile mass of fluid protoplasm."

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[1] Hanson, S., and McQuarrie, I.: The Non-Dependence of the Protein Quotient in the Blood-Serum upon the Rapidity of Metabolism with Special Reference to the Non-Effect of Antipyretics, Sodium Cacodylate and Thyroid Extract, Jour. Pharmacol. and Exper. Therap., 1917, **10**, 261.

[2] Mathews, A. P.: Physiological Chemistry, 1915, p. 551.

[3] Starling, E. H.: Principles of Human Physiology, 1915, p. 867.

## SOCIAL WELFARE INVESTIGATIONS

The much-mooted question as to whether there is a direct connection between feeblemindedness and epilepsy was the subject of a recent investigation by the Bureau of Analysis and Investigation, of the New York State Board of Charities. This study,[1] which was begun among the inmates of Craig Colony, showed that 57 per cent. of the cases of epilepsy developed in stock clearly recognized as feebleminded, and 97 per cent. developed in neuropathic stock. In the study of nineteen epileptic families, it was found that feeblemindedness was about 3.6 times as common among epileptic families as epilepsy itself. Further evidence is presented to show that epilepsy, if it may not be directly inherited, is widely scattered through the ancestry of these institutional defectives. The whole report makes it clear that epilepsy and feeblemindedness must be studied together.

The tendency of disease and crime to run in families is well illustrated in a study of five family histories[2] carried on by bureau investigators. A criminalistic family, with all its branches and ramifications, was traced through four generations, and the good elements were balanced against the bad. Other family histories relate to a pauper family and to one in which chorea was prevalent through five generations. The report also contains an interesting study in heredity, dealing with a child suffering from congenital infantilism, which was completely cured by injections of extracts of the pituitary gland.

The board of charities further undertook to investigate the mental condition of the children in twenty-three New York institutional homes and asylums.[3] Mental examination of 2,142 children revealed the fact that less than 7 per cent. were feebleminded. This means that out of a total of 35,000 children in orphan asylums, the state has 2,100 feebleminded dependent children, most of whom need permanent care. In testing the mentality of normal schoolchildren, the investigators found about 10 per cent. backward and feebleminded. As most of the schools provide for the feebleminded, the greater problem seems to be that of the backward pupils, for whom the bureau recommends the founding of craft schools and vocational school farms.

Another report[4] is devoted to a description of thirteen mental tests used for measuring the intelligence of children in institutions and public schools. The tests described are the Knox cube imitation, three number cancellation, recall of objects, peg design, grouping of objects, story reproduction, syllogisms, four detail drawing, three detail drawing, the balance nickel, the peg board, the tower, and the boat test.

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[1] Nineteen Epileptic Families, Eugenics and Social Welfare Bull. 9, Department of State and Alien Poor, Bureau of Analysis and Investigation, New York State Board of Charities, 1917.

[2] Family Histories, Bull. 12, 1917.

[3] Mental Examinations, Bull. 11, 1917.

[4] Performance Norms for Thirteen Tests, Bull. 8, 1917.

Experiments showed that in tests involving the use of reason and the powers of concentration, the schoolchildren made a better showing than the institutional children, while in the mechanical tests, the two groups attained results more nearly alike.

The methods of the bureau in gathering data for its mental studies are explained in a fifth report on field work.[5] In setting forth the necessary qualifications of the field worker, this report mentions the desirability of full medical training, especially in the knowledge of mental diseases and those having a hereditary or constitutional basis. Another important qualification is the gift of analyzing data, since field workers are constantly confronted with vast social problems. For example, such questions as whether the feebleminded should be allowed to become parents require constructive handling. Field workers must also be familiar with all the sources of data, including the testimony of heads of institutions, poor law officials, and physicians, as well as records of vital statistics and of jails, almshouses, orphan asylums and reformatories. In brief, they must be familiar with every phase of human weakness, physical, mental and spiritual, which makes the abnormal or the subnormal person a problem, if not a burden, to society.

## Current Comment

### THE SIGNIFICANCE OF IMMEDIATE REACTION AFTER VACCINATION

Perhaps the earliest observation on altered reactivity or allergy is that of Jenner on a peculiar reaction to smallpox matter by the skin of persons who had had either smallpox or cowpox. Jenner records that a woman, who had had cowpox thirty-one years before inoculation with variolous matter, presented an early efflorescence of a palish red about the place where the "matter" was inserted, which spread rather extensively, but died away in a few days without producing any symptoms of variola. He comments thus on this phenomenon:

> It is remarkable that variolous matter, when the system is disposed to reject it, should excite inflammation on the part to which it is applied more speedily than when it produces the smallpox. Indeed, it becomes almost a criterion by which we can determine whether the infection will be received or not. . . . It is remarkable, too, that whether this change has been effected by the smallpox or the cowpox, the disposition to sudden cuticular inflammation is the same on the application of variolous matter.[6]

That vaccination may leave behind a disposition to "sudden cuticular inflammation" on the reapplication of vaccine, that is to say, produce a changed reactivity or allergy, is an established fact; but the knowledge of this fact does not seem to be so widespread as it should be, and the significance of the immediate reaction after revaccination does not seem to be understood generally at all. In fact, practically no attention seems to have been given to it. Revaccination, even many years after successful primary vaccination, frequently fails to produce typical vaccinia, but may be followed by a well marked immediate reaction or by accelerated reaction. In cases of immediate reaction, we may assume that the vaccine material, deposited in the skin, is acted on at once by the antibodies still present in consequence of the primary vaccination, and there results within twenty-four hours after the revaccination a redness, an areola, which fades rapidly without forming a vesicle. In the cases of accelerated reaction, antibodies may no longer be present in sufficient numbers to give rise to an immediate reaction; but the cells are still able to produce them more quickly than the cells in the previously unvaccinated organism; and consequently the growth of the vaccine virus is arrested and destroyed earlier than in typical vaccinia, and there develops about the fifth day a large areola and a small vesicle (the so-called secondary vaccinia or vaccinoid). These reactions, which are reactions of immunity, should be regarded as successful vaccinations, because, as recently pointed out by Force and Stevens,[7] the act of calling out antibodies to produce the reaction brings immunity up to a higher level. They liken the production in this way of increased immunity to the winding of an eight day clock that has been running only two or three days or so since the previous winding. At present practically no attention is paid to the possible occurrence of immediate reaction after revaccination; most vaccinators do not know whether it occurs or does not occur in a given case, and most cases in which it does occur probably are returned as failures of the revaccination to take. This clearly is a misleading practice, which should be given up in favor of one which will set forth more accurately the true facts in each case.

### MILK PRODUCTION IN ANIMALS OF OLD AGE

Prevailing circumstances seem to direct attention again and again to the physiology of dairy cattle as a part of the important problem of the milk supply. At the present moment the question of the comparative value of different breeds is quite overshadowed by the pressing necessity of securing milk of any sort whatever. Among the many aspects of its production which have been discussed in The Journal, that of the age of the lactating animal has not been taken into consideration. Yet this cannot be without moment when decisions as to the disposal of animals of the herd are to be made, particularly at a period of heightened demand for meat products. Several years ago, Hills[8] of the Vermont Experiment Station, made the statement that heifers practically "strike their gait," so far as the quality of the milk flow is concerned, in their first lactation; and whatever the effect of advancing years on milk quality may be, it is not profound enough to be of importance until old age becomes imminent. Recently, Eckles and Palmer,[9] of the Missouri Agricultural Experiment Station, have supplied the evidence regarding the possible influence of exceptionally old age in dairy cattle on the composition of the milk. According to this, neither the percentage composition of the milk nor the physical and chemical constant of the milk fat of aged cows shows any abnormalities attributable to old age. Butter made from the milk of a cow 19 years old and in her thirteenth lactation period was pronounced to be of excellent quality. We know of no comparable data in the literature of milk and its products.

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[5] Field Work Manual, Bull. 10, 1917.

[6] Jenner, Edward: An Inquiry into the Causes and Effects of Variolae Vaccinae, a Disease Discovered in Some of the Western Counties of England, Particularly Gloucestershire, and Known by the Name of Cow Pox, 1798, p. 13, Case 4.

[7] Force, J. N., and Stevens, Ida M.: The Responsibility of the Vaccinator in Overcoming the Rational Objections to Smallpox Vaccination, Jour. Lab. and Clin. Med., 1918, 3, 220.

[8] Hills, J. L.: The Effect of Age on the Yield and Quality of Milk, Nineteenth Ann. Rep., Vermont Agric. Expt. Sta., 1905-1906, p. 339.

## THE ABSORPTION AND EXCRETION OF MERCURY

The increasing occurrence of human intoxication by mercury compounds has raised anew the question of the modes of absorption and excretion of this element. It may be regarded as clearly established now that, in addition to the kidneys, the stomach may participate in this eliminatory function quite as well as the other portions of the alimentary tract.[10] This knowledge is of the highest importance for accurate therapeusis; for, since mercury poisoning quite commonly brings with it anatomic lesions of the kidneys resulting in functional incapacity,[11] the encouragement of elimination of the poison through other channels must be attempted. Accordingly, in the now well known procedures advised by Lambert and Patterson,[12] strenuous efforts are made to get rid of the mercury by all possible paths, including colonic irrigation and gastric lavage. The facts regarding the avenues of absorption are not accepted beyond dispute. Regarding the possibility of entrance of the poison by way of the mouth and gastro-enteric tract there can, of course, be no question. The occurrence of severe intoxications through the use of mercuric chlorid in vaginal douches is likewise recognized.[11] The debate, however, has centered around the possibility of absorption through the sound skin. Mercurial inunctions have, it is true, a long and honorable history in therapeutics. But the contention has been made that the mercury thus applied is actually volatilized and absorbed through the lungs in greater part if not entirely. Some recent crucial experiments devised in the dermatologic laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine by Schamberg, Kolmer, Raiziss and Gavron[13] leave little doubt, so far as one can judge from tests on animals, that the skin is an important, perhaps the most important, path of absorption of mercury applied by inunction. Rabbits may be fatally poisoned by mercurial inunctions, even when no opportunity for absorption through the lungs exists. The investigators have noted that metallic mercury in the form of the official mercurial ointment is more volatile and is much more liable to be absorbed by the lungs than are calomel ointments of equal strength; yet the latter are "fully as well absorbed through the skin as is the ordinary blue ointment." If we agree with the further contention that inunction affords the safest method of introducing large amounts of mercury into the system, it seems worth while to give serious consideration to the Philadelphia dermatologists' recommendation that calomel inunctions should "supplant the unclean blue ointment rubbings which have been so long in use."

## AMERICAN JOURNAL OF OPHTHALMOLOGY

The first issue of the *American Journal of Ophthalmology* has just appeared. This publication incorporates the *American Journal of Ophthalmology, Annals of Ophthalmology*, the *Ophthalmic Record, Anales de oftalmología, Ophthalmology,* and the *Ophthalmic Year Book and Literature*. It is edited by a staff consisting of Drs. Adolf Alt, M. Uribe-Troncoso, Meyer Wiener, Casey A. Wood, Harry V. Würdemann, Edward Jackson and Clarence Loeb, and a large number of collaborators from various parts of the world. The first issue is excellently printed, and is divided into sections on original papers, abstracts, society proceedings, editorials, book notices, news items, an index of ophthalmic literature, and a digest of literature. It is stated editorially that the advertising pages of the journal will conform to the requirements of the Council on Pharmacy and Chemistry of the American Medical Association so far as drugs are concerned, and in other matters will be as carefully controlled as are the editorial pages of the new publication. This first number is excellent in every respect; if the same high standard is maintained in future issues, the journal will be a credit not only to those directly responsible for it, but also to American ophthalmology and to American ophthalmologists.

## THE BLUE SLIP

We are again trying to save the expense of sending out bills for the annual dues and subscription by inserting a slip in this issue of The Journal. A good percentage have already responded to our former requests for remittance without waiting for a personal statement, and these will, of course, disregard the slip.

**Defining Disease.**—In truth, both disease and health are incapable of precise definition because they are not scientific terms. They are descriptive, popular and subjective. "Disease" is "discomfort." Whatever causes bodily uneasiness, or whatever by experience will sooner or later cause it, whatever interferes with our bodily functions, whatever tends to death, is disease.—Fagge and Pye-Smith, Textbook of Principles and Practice of Medicine.

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[9] Eckles, C. H., and Palmer, L. S.: Influence of the Age of the Cow on the Composition and Properties of Milk and Milk Fat, Jour. Agric. Research, 1917, **11**, 645.

[10] Lieb, C. C., and Goodwin, G. M.: The Excretion of Mercury by the Gastric Mucous Membrane, The Journal A. M. A., June 19, 1915, p. 2041. The Excretion of Mercury, Current Comment, Aug. 14, 1915, p. 628.

[11] Campbell, W. R.: Observations on Acute Mercuric Chlorid Nephrosis, with a Report of Two Cases, Arch. Int. Med., December, 1917, p. 919.

[12] Lambert, L. W., and Patterson, H. S.: Poisoning by Mercuric Chorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

[13] Schamberg, J. F.; Kolmer, J. A.; Raiziss, G. W., and Gavron, J. L.: Experimental Studies of the Mode of Absorption of Mercury When Applied by Inunction, The Journal A. M. A., Jan. 19, 1918, p. 142.

# Medical Mobilization and the War

## Strength of the Medical Corps and Medical Reserve Corps of the Army

On February 1 the Medical Corps had a total strength of 773 officers, 1 major-general, 66 colonels, 111 lieutenant-colonels, 215 majors, 2 captains and 378 lieutenants.

There have been recommended for appointment in the Medical Reserve Corps 21,300, the total number in the corps on that date being 16,637: 919 majors, 3,595 captains and 12,123 lieutenants. There were on active duty 13,097 officers of the Medical Reserve Corps, including 808 majors, 2,968 captains and 9,321 lieutenants.

The Medical Corps of the National Guard in the federal service totaled 1,178, including 7 lieutenant-colonels, 250 majors, 147 captains and 774 lieutenants.

The Medical Corps of the National Army includes 4 brigadier-generals, 3 colonels, 3 lieutenant-colonels and 2 majors.

There are in all 18,600 commissioned medical officers, of whom 15,060 are on active duty. This does not include the Dental Corps, the Dental Reserve Corps or the Dental Corps of the National Guard, which contain 211, 4,749 and 260 officers, respectively. In addition to these departments, the Veterinary Corps, the Veterinary Reserve Corps, the Veterinary Corps of the National Guard and the National Army contain 25, 1,338, 57 and 283 officers, respectively; the Sanitary Corps, 722 officers, and the ambulance service, 135 officers.

## Preparation of Sailors for Naval Surgeons' Aids

The University of Minnesota Medical Department is offering an opportunity to sailors attached to the Minneapolis Training Detachment, who are to go to sea rated as pharmacists' mates, to secure special medical instruction in preparation for their future work. In the first class there were 100 sailors. The first month was occupied with drill in the rudimentary points of medicine. The sailors were then divided into sections of five members each for individual instruction. In the selection of men for this work special consideration is given to those who have had high school or college education. Lectures and practical training are given in physiology, materia medica and therapeutics, physiologic chemistry and laboratory diagnosis, minor surgery and first aid, anatomy, pathology and pharmacology. Illustrative of the way the lecture and the practical work are combined, a lecture on mercury will be given in the course on pharmacology and will be followed by a visit to the hospital in which the surgeons' aids learn how to inject mercuric salicylate and how to administer salvarsan. In the same way practical lessons in nursing are given, including the care of the beds, bed linen and bed appurtenances, baths, administration of drugs, preparation and application of compresses, poultices, etc., lavage, gavage, irrigation of the eye, ear, nose and throat, enemas and all the other minor procedures which these assistants will be called on to undertake in their work. A squad of these trained hospital apprentices was recently called to active service aboard ship and sent to the naval hospital ships *Comfort* and *Mercy*. Very complimentary reports of their attainments have been returned to the training school.

## Navy's Call for Binoculars, Spy Glasses and Telescopes, "The Eyes of the Navy"

Mr. Franklin D. Roosevelt, assistant secretary of the Navy, announces that the Navy is still in urgent need of binoculars, spy glasses and telescopes. The use of the submarine has so changed naval warfare that more "eyes" are needed on every ship, in order that a constant and efficient lookout may be maintained. Sextants and chronometers are also urgently required.

Heretofore, the United States has been obliged to rely almost entirely on foreign countries for its supply of such articles. These channels of supply are now closed, and as no stock is on hand in this country to meet the present emergency, it has become necessary to appeal to the patriotism of private owners to furnish "eyes for the Navy."

Several weeks ago, an appeal was made through the daily press, resulting in the receipt of over 3,000 glasses of various kinds, the great majority of which have proved satisfactory for naval use. *This number, however, is wholly insufficient, and the Navy needs many thousands more.*

He, therefore, asks that subscribers give special attention to this call:

> All articles should be securely tagged, giving the name and address of the donor, and forwarded by mail or express to the Honorable Franklin D. Roosevelt, Assistant Secretary of the Navy, care of Naval Observatory, Washington, D. C., so that they may be acknowledged by him.
>
> Articles not suitable for naval use will be returned to the sender. Those accepted will be keyed, so that the name and address of the donor will be permanently recorded at the Navy Department, and every effort will be made to return them, with added historical interest, at the termination of the war. It is, of course, impossible to guarantee them against damage or loss.
>
> As the government cannot, under the law, accept services or material without making some payment therefor, one dollar will be paid for each article accepted, which sum will constitute the rental price, or in the event of loss, the purchase price, of such article.

Toward the end of January, it is proposed to distribute posters throughout the country making an appeal to fill this want of the Navy.

## NEWS OF THE CANTONMENTS

### Thirty-First Division, Camp Wheeler, Macon, Ga.

Feb. 1, 1918.

#### TREATMENT OF CARRIERS

Interesting experiments are now being made by treating carriers with chlorin gas in the gas house. The experiments were begun with meningitis carriers only. At present the chlorin has proved more effective than dichloramin-T. It seems reasonable that a gas which penetrates all the nasal passages, the larynx, trachea and bronchi should be more efficacious than a spray or swab, which can reach only a limited portion of the passages. Cultures are taken after two, three and more treatments.

It is now intended to treat also all pneumonia contacts with the gas in the hope of aiding in ridding the camp of its most dangerous disease. Pneumonia will be handled in much the same way as meningitis.

A few days' severe weather is followed by an increase in pneumonia; and fine weather by a decrease, or no cases at all. The Florida men still suffer most, having nearly half of all the cases in the camp. The cases occurring now are independent of measles, as a rule, a few cases following measles, but several weeks afterward.

The chlorin gas has an effect on the mucous membrane of the respiratory tract somewhat like the effect of mild silver nitrate solution on the conjunctiva. There is at first an irritation and an increase in the number of *Meningococcus catarrhalis*, followed by a decrease in this germ, and an improvement in the ordinary cough or cold.

#### DRAINING SWAMPS

The work of draining the swamps and nearby streams about Camp Wheeler is going on steadily under the supervision of Sanitary Inspector Major R. C. Turck. It is desired that all this work be completed before the advent of the mosquito, which, according to the statements of the inhabitants, takes place in May.

#### MUMPS

A large number of patients convalescing from mumps are now being treated in the regimental infirmaries. Mumps patients cannot be sent to duty with safety within two weeks, and not in that length of time in the artillery or mounted organizations.

#### PERSONAL

Lieutenant Valentine, chief dental surgeon of the division, has been promoted to the rank of major in the Dental Corps, and took advantage of this fact, by getting married. The bride was Miss Belle Ross, daughter of Dr. Ross of Macon. ——Some changes in duties of medical officers have taken place recently. Major Stickney has been transferred from the base hospital to the division, and assigned to the One Hundred and Sixth Engineers Regiment. Major Livingstone has been relieved from the engineers regiment and assigned to duty at division headquarters. Captain Padgett has been assigned to the One Hundred and Twenty-Third Infantry and Lieutenant McKeever to the sanitary train.——Major Keenan visited the Twenty-Eighth Division at Augusta during the week, especially observing the sanitary train. Major Holton accompanied the detachment sent to Washington, D. C.——Captain Tucker of the Sanitary Corps has investigated the camp water supplies. He pronounced the main supply (from Macon) to be quite satisfactory, and recommended some slight improvements in the plant of the auxiliary supply. No trouble has been caused from the water supply, except the inconvenience of temporary shutoffs when the wooden pipes gave away.——Lieutenant Beasley, who has just returned from overseas service, gave two most interesting and instructive lectures on overseas service with the American and British armies. The lectures were welcome, officers who can talk of field service from actual experience being extremely rare. It has been impossible to secure any such lecturers from the War Department thus far.

### BASE HOSPITAL NOTES

A laboratory for the routine examination of urine, sputum and feces is being installed in each ward, the necessary microscopes having just been received. This will not only be a great convenience to the ward surgeons, but will lift a heavy load of routine work from the general laboratory, which will thereby be enabled to devote much more time to the special work for which it was primarily established.

The eye, ear, nose and throat staff is happy in the realization of its hopes of being installed in its new building by the end of the coming week, thus greatly facilitating the work.

It is exceedingly interesting as well as instructive to watch the setting up and reconstruction exercises being given regularly to the convalescent meningitis patients.

The General Disability Board is visiting each regimental infirmary for the purpose of eliminating all physically or mentally unfit men from the service. This plan seems to work better than having the board meet at a central point, as heretofore.

### NOTES OF ONE HUNDRED AND SIXTH SANITARY TRAIN

Lieutenant DeLaney of Ambulance Company No. 121 has been ordered to the inactive list for the period of six months.—— Lieutenant Levett reported for duty this week, and will be assigned to the vacancy created by Lieutenant DeLaney's release.——Lieut. J. Todd Banks, adjutant of the field hospital section, is still at the base hospital, although progressing satisfactorily toward recovery.——Major Cornelius F. Holton, commanding Field Hospital Company No. 123, departed for Washington, Wednesday afternoon, as medical officer accompanying troops detached for duty at that point.——Major George F. Keenan accompanied the detachment of troops transferred to the motor-mechanic regiment at Camp Hancock, Augusta, Ga. An opportunity was provided to study the development of the sanitary train of that division.

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## Thirty-Third Division, Camp Logan, Houston, Texas

Jan. 28, 1918.

Although we have suffered little from cold as compared with those cantonments in the Northern States, we have had for three weeks perhaps the coldest weather known in Texas for many years. The thermometer fell to 11 F., with the result of killing all the young vegetation. It evidently is not a common thing here, for the circumstantial evidence that water pipes and automobile radiators were frozen up on every hand is conclusive as to the unusual character of the season.

### DISEASE INCIDENCE

Although we are averaging about 900 patients in the base hospital, we have comparatively little severe illness. In several cases of infection by the Type I pneumococcus, the serum has acted promptly. We shall report later as to the studies of pneumonia by the Rockefeller Institute methods.

### PREVENTION OF CONTAGION

By stretching wires across the contagious disease wards and pinning up sheets between the adjacent beds, we have in effect established the cubicle method of isolation. We have had so few cases of direct contagion, so far as we know, that we notice no direct effect; but it certainly appears to be a proper precaution to take.

### PERSONAL

Lieut. Tom R. Knowles, our brain surgeon, has gone to Philadelphia for a course of instruction in his specialty, and Lieut. Warren C. Calvin to St. Louis for a course in dermatology. Capt. George McBride is ordered to New Orleans for a study of war-wound surgery.

### CARDIOVASCULAR EXAMINATION

Lieut. James H. Brown, our cardiovascular examiner, presents the following summary of his experience in the work here. His conclusions follow closely those mentioned in our last article as embodying the experience of the Surgeon's Certificate of Disability Board:

The soldiers suffering from defects of the heart and vessels have appeared for examination in a certain order which has varied but little. First to show signs of deficiency were the ones with aortic insufficiency, which condition, as we know, is one that is apt to produce symptoms on the first unusual exertion. Second were the cases of mitral insufficiency with cardiac hypertrophy which called attention to the afflicted ones, principally by the forceful action of the heart during exercises. Third were the cases with long standing goiter, which condition had produced little trouble during the ordinary work of an individual; but when extra exertion, both in degree and nature is undertaken, symptoms of respiratory embarrassment and rapid fatigue are produced. Fourth are cases of mitral stenosis, which condition had existed prior to enlistment in a degree which, unless carefully examined for, could be very easily overlooked; but after strenuous work in training the condition has rapidly manifested itself by unmistakable symptoms. These cases have been found in numbers out of all proportion to their existence with other heart diseases. There would be fewer of these cases if applicants for the Army should be examined immediately after vigorous exercise. In the beginning of mitral stenosis, symptoms may be lacking and examination may reveal but little. For this reason also applicants for the Army have been accepted with stenosis in a stage in which it could be readily overlooked. Next were cases of incipient tuberculosis which were referred to us for reason of general lassitude, poor endurance, dyspnea and tachycardia on continued exertion. Examination revealed only a simple tachycardia caused by the beginning tuberculosis. The symptoms of this trouble after continued exertion became more manifest. The cases to be found only after several weeks of training were in those suffering from a set of symptoms very much like those of a rather acute hyperthyroidism, namely, choking at night, fainting spells and giddiness, dyspnea and marked tachycardia on continued exertion, and endurance considerably below the normal. There is in nearly every case a noticeable thyroid enlargement of a soft, spongy nature; also other signs of hyperthyroidism, as fine tremor of the extended fingers, occasional eye symptoms, sluggish peripheral circulation, profuse sweating, and either tachycardia or a marked hyperirritability of the heart. The past history of these cases has revealed a marked neurosis and hypersensitive nervous system which, with the burden of Army life, has upset the cardiac equilibrium.

### EAR, NOSE AND THROAT DEPARTMENT

The personnel of the otolaryngologic staff includes Major T. E. Oertel, M. R. C.; Capt. E. F. Howard, M. R. C.; Lieut. J. F. Strauss, M. R. C., Lieut. George Griot, M. R. C. A clinic is held daily for both hospital and outside patients. Many pass through the clinic en route to the Surgeon's Certificate of Disability Board by reason of severe chronic conditions of the ear. Nearly all patients with suppurative middle ear give a history of this condition's having existed since childhood, following an attack of the exanthems. Many of them occur in men from the lower walks of life whose habits are none too cleanly even under military rule, and who come from the field with pus pouring from one or both ears. On being questioned, they usually say the condition was the same prior to and at the time of enlistment. Examination reveals an open middle ear. Such men must be eliminated from the service so that they may not become a burden at a future time.

The most amazing fact relative to these men is that they are in the service at all. That any examiner should pass an applicant who has a suppurative otitis media betokens either an inexcusable defect in method of examination or an asinine stupidity that is appalling. But whatever has been the reason for the admission of such defective men, their enlistment has been the cause of much confusion, expense and hardship on those most concerned and needless wastage of the public funds. Means should be taken to prevent a like occurrence in the examination of future drafts. We have observed a notable number of infections of the throat by Vincent's organism. The site of infection is usually the tonsil of one or both sides, with often an extension to the pillars and rarely to the pharynx. The type of infection is quite mild; many of the patients have little ulceration and only slight rise of temperature, with no enlargement of cervical glands. They promptly recover after application of silver nitrate, 15 per cent., and are able to return to duty within two or three days. No severe infections by this organism have been seen, though several have been complicated by the Klebs-Löffler bacillus. Hypertrophic tonsils and a mild form of acute follicular tonsillitis are frequent. There are remarkably few cases of sinusitis, either chronic or acute, and we have been able to control most of the cases of mastoid inflammation without the necessity of operation other than a free paracentesis of the tympanum. It is our rule to do this under general anesthesia and a strict aseptic technic.

### Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Feb. 4, 1918.

#### NEW SANITARY RULES

Rules directing the sanitary measures that are to be taken immediately on the appearance of any communicable disease in any organization have been published and delivered to all unit commanders. They include airing and sunning of bedding and clothing, scrubbing with lye solution, disinfection of barracks, and thorough daily ventilation.

This will be done under direct supervision of the senior medical officers of the organization. Much attention is given to the ventilation of barracks at night. During the cold weather some of the soldiers have shown a disposition to keep the windows closed. Sanitary inspectors are making rounds of barracks after taps to see that all sleeping quarters are properly ventilated. In performing this mission the sanitary inspectors frequently remain out until daybreak.

The division staff is tightening up on the officers of the division. One order recently issued requires all officers to salute and return the salute when in or out of camp, and those officers who do not salute properly must take lessons until they learn how. Another order is that every one much get up at reveille every morning, at 5:45 o'clock.

#### COURT MARTIAL

A general court martial has sentenced a private in the Three Hundred and Thirty-Sixth Infantry to three months in the guard house, forfeiture of his pay, and dishonorable discharge for putting some irritating substance in his eyes to evade military service.

#### MEDICAL OFFICERS EXAMINED

Many medical officers at Camp Zachary Taylor were examined following the close of schools which have been conducted for some weeks past. The examinations were under the direction of Major Luther Poust, division sanitary inspector, and there was keen competition between various medical units such as the field hospitals and ambulance companies. It is believed the results of these examinations will be a large determining factor in the promotions which are likely to be made shortly.

#### MUMPS

Mumps patients on the 1st numbered 100. They are isolated in building A 11, in the area of the One Hundred and Fifty-Ninth Depot Brigade, which has been fitted out about a week. This building is inadequate to house them all.

#### OFFICIAL SANCTION OF CAMP SITE

That the site of Camp Zachary Taylor was selected after a more rigorous investigation than any other Army camp site in the country and approved by the best sanitary men and Army officers was borne out in the recent testimony of Secretary of War Baker before the Senate Committee during a quizzing that brought in all phases of the making of the National Army.

#### PERSONALS

First Lieut. Edgar A. Doll, S. C., base hospital, has been ordered to proceed to Fort Oglethorpe, reporting to the medical officers' training camp for instruction.——First Lieut. Owen P. McPherson has been assigned to the base hospital.——Contract Surgeons Edward C. Davis and E. R. Vanderslice have been relieved from their duties at Camp Zachary Taylor proceeding to their respective homes.——Capt. Edwin T. Bruce, M. R. C., has been honorably discharged from the Army and has returned to Louisville from Chicago, where he had been assigned.

### Eighty-Ninth Division, Camp Funston, Fort Riley, Kan.

Jan. 28, 1918.

#### DISEASE INCIDENCE

The spell of good weather was broken this week by a sudden drop in temperature and a light fall of snow. Disease conditions in this camp are now on a normal plane with the exception of mumps, which has reached its highest curve, and is now on the decline. The highest number of mumps admissions to date in any one day was eighty-three. The number of admissions far exceeds all cases in any of the other diseases, including measles. Measles, meningitis and pneumonia have reached the stage at which only an occasional case is "picked up" during the week. The month of January is nearly finished, and only seven positive cases of meningitis were reported for the month. This in itself, is a source of great relief, and no one here will ever forget the vigorous campaign carried on to combat three of the most dangerous disease epidemics to any army command. The path of an army surgeon is far from being rosy, from the chief camp surgeon down to the last assistant unit surgeon, and when we look back on the battle waged against the meningitis and measles epidemics, when surgeons worked all day and all night, we doubt if ever a city surgeon or weary country practitioner ever led a more strenuous life.

#### ISOLATION CAMP

The division surgeon announces that the second isolation camp, situated on the Republican flats, will be completed this week. Isolation Camp No. 2 will be used for the quarantine of new draft men, and has a capacity of 2,500 beds. Having passed through the quarantine camp, the soldier will be assigned to an organization. The purpose of such a camp is readily seen, and will greatly reduce the number of noneffectives. The medical personnel of this camp will be furnished by Field Hospital No. 354.

#### PERSONAL

The Eighty-Ninth Division has been host to a number of inspectors from Washington, sent out from the inspector general's office. As regards the Medical Department, we are unable to report at this time. Lieut. George C. Miller, M. R. C., Three Hundred and Fifty-Fourth Infantry, has been appointed a captain. Capt. Albert G. Bower, M. R. C., division training officer, is in Chicago on a ten day leave of absence. Captain Bower was a former instructor at Rush Medical College.

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Jan. 25, 1918

1. Annual admission rate per 1,000 (disease only):

| | |
|---|---|
| All Troops | 1,750.7 |
| National Guard Camps | 1,527.9 |
| National Army Camps | 2,059.2 |
| Regulars—Divisions and Departments | 1,556.3 |

2. Noneffective rate per 1,000 on day of report:

| | |
|---|---|
| All Troops | 49.6 |
| National Guard Camps | 50.4 |
| National Army Camps | 53.9 |
| Regulars—Divisions and Departments | 40 |

3. Camps and Departments showing admission rates for disease higher than average—

National Guard: Camps Wheeler, Bowie, Sevier, Beauregard, Doniphan, Kearny and Shelby.

National Army: Camps Travis, Pike, Lee, Funston, Jackson and Dix.

Regulars—Divisions and Departments:

| | |
|---|---|
| Southeastern Department | 1,653.5 |
| Central Department | 1,582.8 |

4. Camps and Departments showing noneffective rates higher than average:

National Guard: Camps Wheeler, Beauregard, Bowie, Shelby, Kearny and Doniphan.

National Army: Camps Travis, Dodge, Funston, Pike, Lee, Jackson and Zachary Taylor.

Regulars:

| | |
|---|---|
| Southeastern Department | 57.2 |
| Southern Department | 45.1 |
| Central Department | 43.7 |

5. Venereal Diseases:

Annual admission rate per 1,000—

| | |
|---|---|
| National Guard Camps | 65.8 |
| National Army Camps | 70.4 |
| Regulars—Divisions and Departments | 69.4 |

Camps and Departments having rate above average: National Guard: Camps Hancock and McClellan.

National Army: Camps Pike, Jackson, Dix, Lee and Zachary Taylor.

Departments:

| | |
|---|---|
| Southern | 119.7 |
| Central | 97.6 |
| Eastern | 79.5 |

| | |
|---|---|
| 6. Number of cases of pneumonia | 799 |
| Highest number in any one camp (Travis) | 79 |
| Number of cases of meningitis | 117 |
| Highest number in any one camp (Jackson) | 23 |

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING JAN 25, 1918

| Camps | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffective per 1,000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 11 | ... | ... | 23 | .. | .. | 1 | 2 | .. | 6 | 28.8 |
| Hancock | 10 | ... | ... | 112 | .. | .. | 10 | 2 | .. | 1 | 30.7 |
| McClellan | 5 | ... | ... | 30 | .. | .. | 15 | 5 | 7 | 3 | 38.7 |
| Sevier | 27 | ... | ... | 26 | 1 | .. | 6 | 1 | 2 | 12 | 50.4 |
| Wheeler | 31 | 2 | 1 | 21 | .. | .. | ... | 4 | .. | 6 | 89.4 |
| Logan | 11 | ... | ... | 84 | .. | .. | 57 | .. | .. | 2 | 35.8 |
| Cody | 25 | ... | ... | 13 | .. | .. | 4 | .. | .. | 9 | 46.2 |
| Doniphan | 38 | ... | 2 | 31 | .. | .. | 26 | 4 | 2 | 15 | 52.7 |
| Bowie | 24 | ... | ... | 23 | .. | .. | 1 | .. | .. | 2 | 72.7 |
| Sheridan | 15 | ... | ... | 14 | .. | .. | 32 | .. | .. | 4 | 33.8 |
| Shelby | 12 | ... | 1 | 19 | .. | .. | 4 | .. | 2 | 1 | 59.8 |
| Beauregard | 26 | ... | 6 | 22 | .. | .. | ... | 9 | .. | 15 | 81.2 |
| Kearny | 16 | ... | ... | 8 | .. | .. | 26 | 1 | 13 | 4 | 56.6 |
| Devens | 9 | ... | ... | 14 | .. | .. | 82 | .. | 1 | 3 | 36.4 |
| Upton | 15 | ... | ... | 34 | .. | .. | 3 | .. | 2 | 3 | 31.5 |
| Dix | 6 | ... | 1 | 44 | .. | 1 | 60 | .. | .. | 1 | 49.5 |
| Meade | 21 | ... | ... | 8 | .. | .. | 29 | 5 | 3 | 2 | 33.3 |
| Lee | 47 | 1 | ... | 58 | .. | .. | 116 | 2 | .. | 11 | 68.2 |
| Jackson | 9 | ... | ... | 56 | .. | .. | 19 | 23 | .. | 8 | 66.6 |
| Gordon | 28 | ... | ... | 17 | .. | .. | 73 | 6 | .. | 16 | 34.5 |
| Sherman | 2 | 1 | ... | 22 | .. | .. | 102 | 1 | 7 | 4 | 43.6 |
| Taylor | 24 | ... | ... | 43 | .. | .. | 41 | 2 | 2 | 5 | 65.8 |
| Custer | 7 | ... | ... | 15 | .. | .. | 35 | 7 | 4 | 2 | 44.9 |
| Grant | 9 | ... | ... | 11 | .. | .. | 74 | 1 | 10 | 2 | 35.7 |
| Pike | 40 | ... | 1 | 198 | .. | .. | 28 | 2 | 23 | 20 | 71.2 |
| Dodge | 8 | ... | ... | 15 | .. | .. | 57 | .. | 10 | 6 | 76.8 |
| Funston | 5 | ... | ... | 9 | .. | .. | 22 | 5 | 1 | 5 | 74.6 |
| Travis | 79 | ... | 1 | 30 | .. | .. | 3 | 5 | 1 | 13 | 101.1 |
| Lewis | 5 | ... | ... | 18 | .. | .. | 11 | 1 | 33 | 2 | 49.7 |

In the report for week ending Jan 11, 1918, Camp Lewis, measles 78 should be erased, as these were German measles.

ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

| | Regulars, U. S. Army, in U. S. only, 1916* | Regulars in U. S., Week Ending Jan. 25, 1918 | National Guard, All Camps, Week Ending Jan. 25, 1918 | National Army, All Camps, Week Ending Jan. 25, 1918 |
|---|---|---|---|---|
| Pneumonia | 2.59 | 34.8 | 38.7 | 37.6 |
| Dysentery | 3.97 | 0.4 | 0.3 | 0.3 |
| Malaria | 12.52 | 0.8 | 1.5 | 0.3 |
| Venereal | 91.23 | 69.4 | 65.8 | 70.4 |
| Paratyphoid | 0.31 | 0.0 | 0.1 | 0.0 |
| Typhoid | 0.21 | 0.1 | 0.0 | 0.1 |
| Measles | 20.28 | 142.1 | 28.1 | 89.9 |
| Meningitis | 0.29 | 4.1 | 4.3 | 7.4 |
| Scarlet fever | 0.59 | 11.8 | 4.0 | 11.5 |

* Enlisted men only, both white and colored.

## CORRECTION

Under "Orders to Officers of the Medical Reserve Corps":

Issue of January 19: *To Fort Riley*, for instruction, Lieut. DAVID M. NATANSON, New York City, instead of Lieut. DAVID M. HATANSON.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Fort Oglethorpe, Ga.*, on business for the Medical Dept., and on completion *to his proper station*, Brig. General HENRY P. BIRMINGHAM.

*To Newport News, Hampton, Norfolk, Va.*, to inspect conditions and *to Camp Lee*, Petersburg, Va., to make sanitary inspection and on completion *to his proper station*, Col. PERCY M. ASHBURN.

*To Cincinnati, Ohio*, to inspect and report on the suitability of property offered to the Medical Dept., for hospital purposes, and on completion *to his proper station*, Col. CHARLES WILCOX.

*To Camp Greene*, Charlotte, N. C., as camp surgeon, in addition to his other duties, Lieut.-Col. WILLIAM R. EASTMAN.

*To Camp Greene*, Charlotte, N. C., *Camp Jackson*, Columbia, S. C., *Fort Oglethorpe, Ga., Camp Logan*, Houston, Texas, *Camp Travis*, Fort Sam Houston, Texas, *Fort Riley, Kansas, Camp Dodge*, Des Moines, Iowa, to inspect the surgical equipment and on completion *to his proper station*, Lieut.-Col. WILLIAM H. MONCRIEF.

*To Camp Joseph E. Johnston*, Jacksonville, Fla., to make a sanitary inspection, and on completion *to his proper station*, Lieut.-Col. FRANK W. WEED.

*To Hoboken, N. J.*, for duty, Lieut.-Col. CRAIG R. SNYDER.

*To Hoboken, N. J.*, Major HARRY N. KERNS.

*To Camp McClellan*, Anniston, Ala., for temporary duty, Major GUSTAVUS I. HOGUE.

*To Camp Greene*, Charlotte, N. C., as sanitary inspector, Major ERNEST A. GATES.

*To Asheville, N. C.*, for duty in connection with the Medical Dept., and on completion *to his proper station*, Major EARL H. BRUNS.

*To Camp A. A. Humphreys*, Accotink, Va., for duty as camp surgeon, Major CHARLES E. DOERR.

*To Camp Greene*, Charlotte, N. C., for duty, Lieut. JAMES A. SIMPSON.

*To Camp McClellan*, Anniston, Ala., for duty, Lieut. WILLIAM PATTERSON.

*To Camp Greene*, Charlotte, N. C., for duty, Lieut. JOSEPH J. HILTON.

*To Fort Sheridan, Ill.*, for temporary duty as orthopedic surgeon and as consultant in such orthopedic cases as may be referred to him by the proper authorities, Lieut. OTTO R. BROWN.

*To Camp Greene*, Charlotte, N. C., for duty, Lieut. PRESCOTT S. TUCKER.

*To Camp Greene*, Charlotte, N. C., for duty, Lieut. JAMES A. BETHEA.

*To New Orleans, La.*, Charity Hospital, for instruction, and on completion *to their proper stations*, Lieuts. CHARLES F. AUSTIN, JAMES H. DAMERON, WILLIAM E. LUCEY, JOHN E. MRAZ, EDWARD WHITE.

*To Chicago, Ill.*, Presbyterian Hospital, for instruction, and on completion *to his proper station*, Lieut. PAUL K. SAUER.

*To Camp Hancock*, Augusta, Ga., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. CORNELIUS A. DENEHY.

*To Camp McClellan*, Anniston, Ala., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HENRY C. DOOLING.

*To his home* and honorably discharged from the Medical Corps, National Guard, on account of physical disability which existed prior to his entrance into the service, Capt. ELMER N. ECKARD, Lieut. ALBERT B. HERRICK, Jr.

## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Camp Dodge*, Des Moines, Iowa, for duty, from Fort Riley, Capt. ROBERT D. BROWN, Mobile.

*To Camp Greene*, Charlotte, N. C., for duty, Lieut. HOMER W. ALLGOOD, Blocton.

*To Fort Oglethorpe*, for instruction, from Richmond, Lieut. HARRY M. SIMPSON, Birmingham.

*To New Orleans, La.*, Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Sheridan, Lieut. HARTSFORD L. ISON, Gadsden.

*To Washington, D. C.*, Camp American University, for duty, from Fort Oglethorpe, Lieut. JOHN C. GODBOLD, Whatley.

### Arizona

*To New York City*, Cornell Medical College, as assistant instructor in roentgenology, from New York City, Lieut. RALPH E. HERNADEEN Bisbee.

### Arkansas

*To Cleveland, Ohio*, for instruction, and on completion *to his proper station*, from Camp Shelby, Capt. JOHN J. JOHNSON, West Fork.

*To Fort Riley*, for instruction, Lieut. R. NEWMAN BROWN, McGehee.

*To New Orleans, La.*, for instruction, and on completion *to his proper station*, from Camp Bowie, Lieut. WILLIAM HIBBETTS, Texarkana.

*To New York City*, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Bowie, Lieut. WILLIAM HIBBETTS, Texarkana.

*To South San Antonio, Texas*, Kelly Field, Aviation Sec., S. C., for duty, Lieut. WILLIAM H. MORELAND, Hickory Ridge.

### California

*To Berkeley, Calif.*, University of California, for duty, Lieut. ALBERT S. GOUGH, Los Angeles.

*To Boston, Mass.*, for instruction, from Allentown, Pa., Capt. ALBERT M. MEADS, Berkeley.

*To Camp Kearny*, Linda Vista, Calif., as Divisional Psychiatrist, from Camp Kearny, Capt. CHARLES E. SISSON, Norwalk. For duty, Capt. WILLIAM R. SEVERSON, Los Angeles. As orthopedic surgeon in the camp, Lieut. GUY L. KAY, Wilmington.

*To Camp Lewis*, American Lake, Wash., as orthopedic surgeon, Capt. MAYNARD C. HARDING, San Diego; Lieuts. HARRY J. PRUETT, Fresno; JOHN P. DEGNAN, HAROLD K. FABER, San Francisco.

*To Chicago, Ill.*, Presbyterian Hospital, for instruction, and on completion *to his proper station*, from Camp Lewis, Lieut. RAYMOND A. BABCOCK, Willits.

*To Dallas, Texas*, State Fair Grounds, for duty, Lieut. RICHARD C. DIENST, Santa Rosa.

*To Fort Riley* for duty, from Fort Riley, Major BERTRAM F. ALDEN, San Francisco. For instruction, Capt. RALPH HAGAN, Los Angeles.

*To New Orleans, La.*, Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Kearny, Lieuts. PERCY E. SWIFT, Los Angeles; WILLIAM D. ROLPH, Riverside.

*To New York City*, Bellevue Hospital, for instruction, and on completion *to Fort Jay, New York*, for temporary duty, Capt. HARRY C. LOOS, San Diego.

*To San Diego, Calif.*, Signal Corps, Aviation School, Rockwell Field, for duty, Lieuts. GEORGE M. BUMGARNER, Bakersfield; FRANK M. CONNER, Pasadena.

*To San Francisco, Calif.*, for duty, Lieut. FRANK R. HART, Pacific Grove.

*To South San Antonio, Texas*, Kelly Field, for temporary duty, and on completion *to his proper station*, from Fort Sam Houston, Capt. JAMES CUMMINGS, Berkeley.

*To Washington, D. C.*, for duty in the Surgeon-General's Office, Capt. WILBUR A. SAWYER, Sacramento.

*To Western Dept.*, for assignment to duty, Capt. FRANK M. TROUT, San Francisco.

*To their homes* and honorably discharged, Major HERBERT C. MOFFITT, San Francisco; Capt. JAMES M. FISHER, Gilroy; on account of physical disability which existed prior to entrance into the service, Lieut. CLIFFORD A. SMALLEY, Los Angeles.

### Colorado

*To Camp Doniphan*, Fort Sill, Okla., for duty, from New York City, Lieut. ARTHUR W. STAHL, Denver.

*To Cleveland, Ohio*, for instruction, and on completion *to Camp Sherman*, for duty, from Fort Oglethorpe, Lieut. GEORGE L. SHARP, Colorado Springs.

*To Dallas, Texas*, State Fair Grounds, for duty, Lieut. MORROW D. BROWN, Craig.

*To New York City*, for instruction, and on completion *to Camp Dix* for duty, from Camp Merritt, Lieut. PHILLIPS M. CHASE, Denver.

*To his home* and honorably discharged, Lieut. ARTHUR J. HOLNQUIST, Denver.

### Connecticut

*To Augusta, Ga.*, Department Laboratory, from New York City, Lieut. JACQUES H. GREEN, Waterbury.

*To Camp Meade*, Annapolis Junction, Md., Aviation Section, S. C., as junior member of Physical Examining Unit, Medical Member of Examining Board, and recruiting officer, Capt. WILLIAM T. OWENS, Hartford.

*To Curtis Bay, Md.*, for duty, from Fort Ethan Allen, Lieut. MATTHEW H. GRISWOLD, Kensington.

*To Fort Totten, N. Y.*, to examine the command for tuberculosis, and on completion *to Fort Hamilton, N. Y.*, for the same duty, and on completion to Fort Hancock, N. J., for the same duty, from Camp Devens, Lieut. LEONARD J. LOEWE, Hegganum.

*To his home* and to the inactive list, Lieut. LAWRENCE H. FROST, Plainville.

### Delaware

*To Fort Monroe, Va.*, for duty, from Fort Oglethorpe, Lieut. JOHN B. RUTHERFORD, Wilmington.

### District of Columbia

*To Rockefeller Institute, N. Y.*, for instruction, and on completion to Camp Wheeler for duty, from Fort Oglethorpe, Lieut. ALBERT E. PAGAN, Washington.

*To Walter Reed General Hospital*, Takoma Park, D. C., for temporary duty, Lieut. SAMUEL A. ALEXANDER, Washington.

*To his home* and honorably discharged, Lieut. SILAS S. THOMPSON, Washington.

### Florida

*To Fort Oglethorpe*, for instruction, Lieut. ALBERT H. WILKINSON, Jacksonville.

### Georgia

*To Atlanta, Ga.*, for duty, Lieut. JAMES M. J. LUKE, Fitzgerald.

*To Boston, Mass.*, General Hospital, for instruction, and on completion *to his proper station*, from Fort McPherson, Capt. JOHN F. DENTON, Atlanta.

*To Camp American University*, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. CARL W. LUPE, Vienna.

*To Camp Lee*, Petersburg, Va., for duty, from Fort Riley, Lieut. CHAPMAN Q. DYKES, Cochran.

*To Fort Oglethorpe*, for instruction, from Camp Gordon, Lieut. STEPHEN I. BROWN, Atlanta.

*To Newport News, Va.*, for duty, from Fort Oglethorpe, Lieuts. WILLIAM A. GIBSON, Jr., Agricola; JAMES J. CRUMBLEY, Sylvester.

*To New York City*, Bellevue Hospital, for instruction, and upon completion *to Camp Jackson* for duty, from Fort Oglethorpe, Lieut. JAMES A. McALLISTER, Atlanta; upon completion *to his proper station*, from Fort Oglethorpe, Lieut. HAROLD R. LIPSCOMB, East Point.

*To Pittsburgh, Pa.*, for instruction, and on completion *to his proper station*, from Fort Thomas, Lieut. GEORGE L. FUQUAY, Savannah.

*To Rockefeller Institute, N. Y.*, for instruction, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. EARL T. NEWSON, Camilla.

### Idaho

*To Camp Sherman*, Chillicothe, Ohio, for temporary duty from Fort D. A. Russell, Capt. EDWARD E. MAXEY, Boise.

### Illinois

*To Allentown, Pa.*, to assist in the nutritional survey of the camp from Army Medical School, Lieut. THOMAS A. WAYLAND, Dallas City.

*To Boston, Mass., General Hospital*, for instruction, and on completion *to his proper station*, from Fort McPherson, Capt. WILLIAM A. N. DORLAND, Chicago; upon completion *to Camp Devens*, from Fort Oglethorpe, Lieut. LOUIS H. HAYES, Alton; *Boston City Hospital*, and on completion *to his proper station*, from Camp Upton, Lieut. CLYDE F. BACCUS, Woodstock.

*To Camp Bowie*, Fort Worth, Texas, for duty, from Eagle Pass, Lieut. THOMAS C. PAULSEN, Chicago.

*To Camp Dodge*, Des Moines, Iowa, for duty, from Fort Riley, Lieut. FRED H. BELL, Sycamore.

*To Camp Doniphan*, Fort Sill, Okla., as divisional psychiatrist, from Camp Doniphan, Capt. HARRY R. HOFFMAN, Chicago.

*To Camp Greene*, Charlotte, N. C.; *Camp Jackson*, Columbia, S. C.; *Fort Oglethorpe, Ga.*; *Camp Pike*, Little Rock, Ark.; *Camp Doniphan*, Fort Sill, Okla.; *Fort Riley, Kan.*; *Camp Cody*, Deming, N. M.; *San Francisco, Calif.*; *Camp Kearny*, Linda Vista, Calif.; *Camp Lewis*, American Lake, Wash.; *Camp Grant*, Rockford, Ill.; *Camp Custer*, Battle Creek, Mich., to inspect the surgical equipment, and on completion *to his proper station*, Major ALLEN B. KANAVEL, Chicago.

*To Camp Hancock*, Augusta, Ga., as junior member of physical examining unit, medical member of examining board, and recruiting officer, from Camp Dix, Lieut. ALEXANDER A. DRILL, Chicago.

*To Camp Logan*, Houston, Texas, for duty, Lieut. OSWALD F. SCHIFFLI, Chicago.

*To Camp MacArthur*, Waco, Texas, for temporary duty, Lieut. MAX LAMPERT, Chicago.

*To Camp Pike*, Little Rock, Ark., and *Fort Logan H. Root, Ark.*, to inspect and report on conditions, and on completion *to his proper station*, Major JOHN A. HORNSBY, Chicago.

*To Chicago, Ill.*, Presbyterian Hospital, for instruction, and on completion *to Fort Oglethorpe*, for instruction, Capt. ROBERT S. GREGG. For instruction in orthopedic surgery, Capt. ALBERT B. McQUILLAN, East St. Louis; Lieut. ELMER M. THOMAS, Aurora; GEORGE W. STABEN, Springfield; from Camp Grant, Lieut. ALFORD E. BUDDE, *North Chicago Presbyterian Hospital*, for instruction, and on completion *to his proper station*, from Camp Lewis, Lieut. WILLIAM P. RICE, Chicago.

*To Fort McPherson, Ga.*, for duty, from Camp Cody, Major BASIL C. M. HARVEY, Chicago.

*To Fort Oglethorpe*, for instruction, Lieuts. RUSSELL B. MAIN, Chicago; RELZA N. SHERMAN, Fairmont.

*To Fort Riley*, to make an examination of the command, from Fort Riley, Capt. WILLIAM W. EICHELBERGER, Rockford; Lieut. JAMES K. POLLOCK, Elgin. For instruction, Lieuts. FRANK LACKNER, Aurora; LUTHER L. TURNER, Chicago; JAMES T. BREAKAY, Mason; from Ann Arbor, Mich., Lieut. ISAAC J. FRISCH, Chicago.

*To New Orleans, La.*, Charity Hospital, for instruction, and upon completion *to his proper station*, from Camp Bowie, Lieut. WILLIAM H. HOWARD, Chicago.

*To New York City*, for duty in connection with the Division of Physical Reconstruction, and on completion *to their proper station*, Majors HARRY E. MOCK, CASEY A. WOOD, Chicago. *Cornell Medical College* for instruction in military roentgenology, from Camp Devens, Capt. WINFIELD G. McDEED, Monticello. *Bellevue Hospital*, for instruction, and upon completion to *Camp Lee*, for duty, Lieut. WILLIAM J. SIEGLER, Chicago. *Neurological Institute* for intensive training, and on completion *to his proper station*, from Camp Grant, Lieut. OTTIS LIKE, Chicago. *Orthopedic Hospital*, for instruction, from Brooklyn, Lieut. MARCUS H. HOBART, Chicago.

*To Philadelphia, Pa.*, for instruction, and on completion *to Camp Sherman*, for duty, Capt. JAMES F. PRESNELL, Chicago. *University Hospital* for instruction, and on completion *to Camp Meade*, Capt. ROY R. FERGUSON, Chicago.

*To Pittsburgh, Pa.*, for instruction, and on completion *to Camp Hancock* for duty, from Camp Dodge, Lieut. WILLIAM H. BYFORD, Chicago; upon completion *to his proper station*, from Fort Riley, Lieut. FRANK W. MERRITT, Chicago.

*To Rantoul, Ill., Aviation School*, Chanute Field, for duty, Lieuts. ROSS D. WRIGHT, Chicago; JOSEPH T. WOODWARD, Elkhart; EDWIN K. ALLIS, New Douglas; JAY T. WOOD, Springfield.

*To St. Louis, Mo.*, Washington University Medical School, for instruction, Lieut. FRED W. FIEDLER, Bachtown.

*Honorably discharged* on account of being physically disqualified for active service, Capt. WILLIAM T. WINTER, Chicago.

*To their homes and honorably discharged*, Capt. CHARLES K. BARCLAY, New Lenox; Capt. ARTHUR N. McCORD, Streator; on account of physical disability which existed prior to entrance into the service, Capt. WILLIAM S. BROWN, Elgin.

### Indiana

*To Chicago, Ill.*, Presbyterian Hospital, for instruction, and on completion, *to his proper station*, from Fort Riley, Major GEORGE W. NEWELL, Peru. For instruction in orthopedic surgery, Lieut. THOMAS P. GOODWYN, South Bend.

*To Fort Oglethorpe*, for duty, from Fort Oglethorpe, Liept. IRVINGHAM H. WILLETT, Gary.

*To Fort Riley*, for instruction, Lieut. JOHN W. THOMSON, Garrett; from Fort Riley, Lieut. RAYMOND EVANS, Clinton.

*To New York City*, Bellevue Hospital, for instruction, and upon completion *to Camp Dix*, from Fort Oglethorpe, Lieut. JOHN W. BALLARD, Logansport. *Cornell Medical College* for instruction in military roentgenology, from Ft. Benjamin Harrison, Lieut. FREDERICK M. WHEELER, Wabash.

*Honorably discharged*, Capt. FRANCIS E. HYPES, Indianapolis.

### Iowa

*To Ann Arbor, Mich.*, Psychopathic Hospital, for intensive training, Lieut. LOVE E. PENNINGTON, Cherokee.

*To Camp Grant*, Rockford, Ill., for duty, from Fort Riley, Lieut. MILLARD F. SMITH, Little Rock.

*To Chicago, Ill.*, for instruction in orthopedic surgery, Lieut. RAY R. KULP, Davenport.

*To Cleveland, Ohio*, for instruction, and on completion *to Camp Sherman* for duty, from Fort Riley, Capt. BENJAMIN G. DYER, Ames.

*To Dallas, Texas,* State Fair Grounds, Lieut. JAMES T. McBRIDE, Des Moines.

*To Fort McPherson, Ga.,* for duty, from Camp MacArthur, Capt. BEN S. WALKER, Corydon.

*To Fort Omaha, Neb.,* U. S. Army Balloon School, for duty, Lieuts. JOSEPH W. TYRRELL, Des Moines; GEORGE A. BEMIS, Garner.

*To Fort Riley,* for instruction, Lieut. WILLIAM F. CARVER, Fort Dodge.

*To Fort Snelling, Minn.,* for duty, Lieut. ELMER A. BARE, Pleasantville.

*To New Orleans, La.,* Charity Hospital, for instruction, and on completion *to his proper station,* from Camp Bowie, Lieut. WILLIAM FRANK BROWN, Keokuk.

*To Philadelphia, Pa.,* Univ. Hospital, for instruction, and on completion to Camp Meade, Lieut. ROBERT G. HINRICHS, Palmer.

*To their homes and honorably discharged,* Lieut. EDWIN C. ROGERS, Wapello; on account of physical disability which existed prior to their entrance into the service, Lieuts. JOHN F. SCHWERTLEY, Earling; WILLIAM W. WEBER, Hartford; JOSEPH C. BARRAGY, Mason City.

## Kansas

*To Boston, Mass., General Hospital,* for instruction in urology and dermatology, from Fort Oglethorpe, Capt. FRANKLIN T. JOHNSON, Jr., Elmdale.

*To Camp Beauregard,* Alexandria, La., for duty, from New York City, Lieut. RICHARD C. HENDERSON, Pittsburgh.

*To Camp Dodge,* Des Moines, Iowa, for duty, from Fort Riley, Lieuts. JOHN W. COMBS, Brownell; JAMES B. UNGLES, Langdon.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to his proper station,* from Fort Riley, Capt. EDGAR C. DUNCAN, Fredonia.

*To Fort Riley,* for instruction, Lieut. CLARENCE W. HALL, Hutchinson.

*To Newport News, Va.,* for duty from New York City, Lieut. GEORGE E. KNAPPENBERGER, Mankato.

*To Pittsburgh, Pa.,* for instruction, and on completion *to his proper station,* from Camp Hancock, Lieut. HARRY W. KING, Kansas City.

*To Camp Travis,* Fort Sam Houston, for duty, from Fort Riley, Lieut. LEWIS G. ALLEN, Lenexa.

*To their homes and honorably discharged* on account of physical disability which existed prior to their entrance into the service, Lieuts. WILLIAM K. FAST, Atchison; CHARLES S. ADAMS, St. John.

## Kentucky

*To Camp MacArthur,* Waco, Texas, Aviation Section Signal Corps, for duty, Capt. ROBERT L. GLASCOCK, Coneyville.

*To Camp Taylor,* Louisville, Ky., for temporary duty, Major SIDNEY J. MEYERS, Louisville.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Fort Riley, Capt. FRANK T. FORD, Louisville.

*To Cleveland, Ohio* for instruction, and on completion *to his proper station,* from Camp Taylor, Lieut. CLAUDE WILSON, Greenville.

*To Fort Oglethorpe* for instruction, Capts. CLAYTON W. SHAW, Alexandria; SAMUEL R. HAROVER, Maysville; Lieut. WILLIAM B. GODDARD, Harrodsburg.

*To Philadelphia, Pa.,* University Hospital, for instruction, and on completion *to Camp Lee,* Petersburg, Va., for temporary duty, from Fort Oglethorpe, Lieut. CLIFFORD N. HEISEL, Covington.

*To Rockefeller Institute, N. Y.,* for instruction, and on completion to *Fort McPherson, Ga.,* for duty, from Fort Riley, Capt. JOHN L. FARMER, Allensville.

*To Washington, D. C.,* Aviation Section, Signal Corps, for duty, from Camp Hancock, Capt. SAMUEL C. SMITH, Greenup.

*To their homes and honorably discharged,* JESSE B. SORY, Crayne; on account of physical disability which existed prior to entrance into the service, Capt. JAMES R. LEE, Columbus.

## Louisiana

*To Fort Oglethorpe* for duty, from Camp Beauregard, Capt. ERASMUS FENNER, New Orleans; from Cornell Medical College, Lieuts. PAUL K. RAND, Alexandria; ELEAZOR R. BOWIE, New Orleans; from Williamsbridge, N. Y., Major JOHN T. HALSEY, New Orleans.

*To Oklahoma City, Okla.,* for instruction in orthopedic surgery, Lieut FRANK CHETTA, New Orleans; from Camp Beauregard, Lieut. THOMAS B. CRACROFT, Kelly.

*To San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Lieuts. NEELY McC. PALMER, Leesville; KIRBY A. ROY, Mansura; WILLIAM W. PUGH, Napoleonville; JESSE R. WALTRIP, New Orleans; POPE W. ODEN, Shreveport.

## Maine

*To Camp Sevier,* Greenville, S. C., for duty, from Camp Sevier, Major WARREN B. KERSCHNER, Bath.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Hancock,* from Fort Oglethorpe, Lieut. JOHN G. POTTER, Houlton.

## Maryland

*To Camp Hancock,* Augusta, Ga., Motor Mechanics Regiment, from Washington, D. C., Capt. COMPTON WILSON, Friendship.

*To Camp Meade,* Annapolis Junction, Md.; *Camp Jackson,* Columbia, S. C.; *Camp Wheeler,* Macon, Ga.; *Camp Beauregard,* Alexandria, La., for duty with the medical department, and on completion *to return to Baltimore,* Major WILLIAM S. THAYER, Baltimore.

*To Fort Des Moines, Iowa,* for duty, from Des Moines, Major Frank MARTIN, Baltimore.

*To Fort Myer, Va.,* for temporary duty, from Walter Reed General Hospital, Capt. ALEXANDER D. McCONACHIE, Baltimore.

*To Fort Oglethorpe,* for instruction, Lieuts. DORSEY P. ETZLER, COEN L. LUCKETT, JAMES S. SPEED, Baltimore; RAYMOND K. FOXWELL, Leonardtown.

*To Fort Sam Houston, Texas,* for assignment to duty, Lieuts. THOMAS M. RIVERS, WILLIAM C. VON GLAHN, Baltimore.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Major NATHAN WINSLOW, Baltimore.

*To Pittsburgh, Pa.,* for instruction, and on completion *to his proper station,* from Camp Lee, Lieut. WILLIAM D. D. CAWLEY, Elkton.

*Honorably discharged,* Lieut. JAMES A. O'DONNELL, Baltimore; on account of physical disability which existed prior to his entrance into the service, Lieut. LESLIE G. TAYLOR, Perryville.

## Massachusetts

*To Boston, Mass.,* for instruction, and on completion *to Fort Oglethorpe,* for further instruction, Lieut. ALBERT J. TREICHLER, Springfield; on completion *to Camp Devens,* from Fort Oglethorpe, Lieut. WILLIAM J. DILLON, Chicopee Falls.

*To Camp Devens,* Ayer, Mass., as divisional psyciatrist, from Camp Devens, Major LLOYD V. BRIGGS, Boston. For temporary duty, Capt. JOSEPH W. SCHIRMER, Needham Aviation Section, Signal Corps, as junior member of the physical examining unit, medical member of the examining board and recruiting officer, Lieut. ALFRED J. BONNEVILLE, Hatfield.

*To Camp Lee,* Petersburg, Va., for temporary duty, Lieut. HORACE M. BAKER, Boston.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Camp Cody, Major EDWARD B. BIGELOW, Worcester.

*To Danville, N. Y.,* for duty in connection with Medical Department, Major ARTHUR H. CROSBIE, Boston.

*To Fort Monroe, Va.,* for duty from Camp Meade, Major GEORGE C. PARCHER, Saugus Center. For duty, Lieut. ALBERT A. SHAPIRA, Boston.

*To Fort Oglethorpe,* to consult with the commandant regarding the establishment of courses in military orthopedic surgery, and on completion *to his proper station,* Major ALEXANDER S. BEGG, Cambridge. For instruction, Capt. JOHN A. McLEAN, West Somerville; Lieut. FRANK W. HODGDON, Jr., Arlington; ARTHUR M. JACKSON, Everett; CLARENCE H. HYMAN, Salem.

*To Fort Sam Houston, Texas,* for assignment to duty, from Camp Wheeler, Lieut. FRANKLIN A. STEVENS, Boston.

*To New York City* for intensive training in his specialty, Lieut. WINFRED OVERHOLSER, Wellesley Hills, *Bellevue Hospital,* for instruction, and upon completion *to Camp Custer,* for duty, from Fort Oglethorpe, Lieut. WILLIAM T. McMAHON, Pittsfield. *Neurological Institute,* for intensive training, Lieut. HERBERT R. FIEGE, Waverly.

*To Rockefeller Institute, N. Y.,* for instruction, and on completion *to his proper station,* from Camp Devens, Capt. EUGENE A. DARLING, Cambridge; on completion to Hoboken, N. J., for temporary duty, from Fort Oglethorpe, Lieut. NICHOLAS A. GALLAGHER, Malden. For instruction in serum of therapy of pneumonia, Lieut. JOHN H. TAYLOR, Cambridge.

*To Washington, D. C.,* for duty in the Surgeon-General's Office, Major SAMUEL J. MIXTER, Boston.

*To his home and honorably discharged* on account of physical disability which existed prior to his entrance into the service, Capt. ROBERT C. RIND, Springfield.

## New Mexico

*To New Orleans, La.,* Charity Hospital, for instruction, and on completion *to his proper station,* from Camp Cody, Lieut. CHARLES C. COOKE, Vera Cruz.

## Michigan

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to his proper station,* from Camp Gordon, Lieut. ABRAHAM W. HUDSON, Detroit.

*To Camp Beauregard,* Alexandria, La., as divisional psychiatrist, from Camp Beauregard, Capt. JOHN T. SAMPLE, Saginaw.

*To Camp Sevier,* Greenville, S. C., for duty, from Fort Riley, Lieut. HARRY W. REED, Detroit.

*To Chicago, Ill.,* for instruction in orthopedic surgery, Lieuts. CARROLL S. THOMSON, Clinton; WILLIAM G. HOEBEKE, Kalamazoo.

*To Fort Oglethorpe,* for instruction, Capt. ROBERT B. HARKNESS, Houghton; Lieuts. ELMER D. OSMON, Allegan; RICHARD F. BOONSTRA, Detroit.

*To Fort Riley,* to make an examination of the command of that division, from Fort Riley, Major FREDERICK H. NEWBERRY, Detroit.

*To New Orleans, La.,* for instruction, and on completion *to Camp McClellan,* for duty, from Fort Oglethorpe, Lieut. MORRELL M. JONES, Detroit.

*To their homes and honorably discharged* on account of physical disability which existed prior to their entrance into the service, from Fort Riley, Capts. WILLIAM B. LUNN, Marquette; WALTER R. T. SHARPE, Romeo.

## Minnesota

*To Army Medical School,* Washington, D. C., for duty, from New York City, Lieut. PERCY A. WARD, Minneapolis.

*To Boston, Mass., General Hospital,* for instruction, in urology and dermatology, Lieut. CHARLES K. HOLMES, St. Paul.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Major PAUL B. COOK, St. Paul; Capt. RUDOLPH H. WALD, Hastings; Lieut. BRET V. BATES, Wharton; from Camp Logan, Lieut. VIRGIL H. MOATS, Minneapolis.

*To Chicago, Ill.,* for instruction in orthopedic surgery, Capt. JAMES A. McLAUGHLIN, Minneapolis.

*To Fort Omaha, Neb.*, U. S. Army Balloon School, for duty, Lieut. RICHARD L. LEAVENWORTH, Glencoe; KARL DEDOLPH, St. Paul.

*To Fort Oglethorpe,* for instruction, Capt. WILLIAM M. CHOWNING, Minneapolis.

*To Fort Riley*, for instruction, Lieuts. JOSEPH MOSES, Adams; GEORGE W. DEWEY, Farimont.

*To Houston, Texas,* Ellington Field, Aviation School, for duty, from Camp Beauregard, Lieut. FLOYD W. BURNS, St. Paul.

*To Rockefeller Institute, N. Y.,* for instruction, and on completion *to his proper station,* from Minneapolis, Major JAMES F. CORBETT, Minneapolis.

*To Washington, D. C.,* for duty in the Surgeon-General's Office, Major LOUIS B. WILSON, Rochester.

*To West Point, N. Y.,* for duty from Fort Riley, Major DANIEL M. SHEWBROOKS, Minneapolis.

## Mississippi

*To Camp Dix,* Wrightstown, N. J., for duty, from Camp Dix, Lieut. EMILE Q. WITHER, Michigan City.

*To Fort Oglethorpe,* for instruction, from Richmond, Va., Lieut. JAMES T. BOX, Columbus.

*To South San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Lieuts. WILLIAM T. WATSON, Banner; CHARLES A. McWILLIAMS, Biloxi; THOMPSON F. WORTHINGTON, Glen Allen; FRANK C. SMITH, Gloster; EMBRY P. WILSON, Houston; ROBERT M. WEBB, Nexapater; JULIUS M. REYNOLDS, Shubuta.

## Missouri

*To Army Medical School,* Washington, D. C., for duty, Lieut. BERNARD J. MAHON, St. Louis.

*To Camp Dodge,* Des Moines, Iowa, for duty, from Fort Riley, Lieut. JOHN A. CARN, Amoret.

*To Camp Grant,* Rockford, Ill., for duty, from Fort Riley, Capt. ABRAHAM C. LEGGAT, St. Louis.

*To Camp Stuart,* Newport News, Va., to examine the command for mental and nervous diseases, Capt. MARC. R. HUGHES, St. Louis.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to his proper station,* from Fort Riley, Capts. LEE E. TONEY, Piedmont; WALTON F. FRY, St. Louis; Lieut. ERNEST W. CAVANAESS, Kansas City.

*To Cleveland, Ohio,* for instruction, and on completion *to his proper station,* from Camp Travis, Capt. MINFORD A. HANNA, Kansas City.

*To Dallas, Texas,* State Fair Grounds, Capt. ARTHUR L. LUDWICK, Kansas City; Lieuts. LEWIS CARTHERS, Jr., Cordor; CLAUDE McRAVEN, Marston; LANSFORD M. SPALDING, Olean; ISAAC N. PARISH, Palo; CHARLES D. MENEFEE, Perry; ELIJAH A. COLLEY, St. Joseph; CHARLES C. COATS, Winston.

*To Fort Oglethorpe,* for instruction, Lieut. WILLIAM D. DAVIS, St. Louis.

*To Fort Riley,* for instruction, Capt. LEVI M. ASBURY, Merceline; Lieuts. JAMES H. MARTIN, Pilot Knob; LINUS M. RYAN, St. Louis; from Fort Riley, Lieut. ALFRED W. HARRISON, Warrensburg.

*To Kansas City, Mo.,* Aviation Section, Signal Corps, for duty, Lieut. CLINTON K. SMITH, Kansas City.

*To Kirksville, Lancaster, Rockland, Lebanon, Marshfield, Springfield, Columbia, Jefferson City, Sedalia, Joplin, St. Joseph and Kansas City, Mo.,* and return, for duty in connection with Medical Department of the Army, from St. Louis, Major WILLIAM H. LUEDDE, St. Louis.

*To Philadelphia, Pa.,* University Hospital, for instruction, and on completion *to Camp Taylor,* from Fort Oglethorpe, Lieut. GEORGE D. WELLS, Strafford.

*To Rockefeller Institute, N. Y.,* for instruction, and upon completion *to Camp Stuart,* for duty, from Camp Travis, Major HARRY M. MOORE, St. Louis.

*To South San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Lieuts. DILLON B. HAWORTH, Kansas City; CECIL S. CAMPBELL, THOMAS E. COOPER, ALBERT A. GEBHARDT, St. Louis; JOHN L. McALISTER, Whiteoak.

*To West Point, N. Y.,* for duty, from Fort Riley, Lieut. ROY F. MILLS, Odessa.

*To his home and honorably discharged* on account of physical disability which existed prior to his entrance into the service, Lieuts. ROMUS ARNOLD, Carthage; JOHN ROSS MARTIN, Norwin.

## Montana

*To Army Medical School,* Washington, D. C., for duty, Lieut. CARL O. RINDER, Deer Lodge.

*To Cleveland, Ohio,* for instruction, and on completion *to his proper station,* from Camp Grant, Capt. ALBERT F. LONGEWAY, Great Falls.

*To Fort Riley*, for instruction, Lieut. EARL S. PORTER, Moore.

## Nebraska

*To Army Medical School,* for instruction, from Fort Riley, Lieut. MARTIN R. BROMAN, Axtell.

*To Atlanta, Ga.,* for duty, from Camp Hancock, Lieut. IRVIN C. MUNGER, Lincoln.

*To Camp Jackson,* Columbia, S. C., for duty, from Fort Riley, Lieut. HAYES H. CULBERTSON, Fairbury.

*To Camp Travis,* Fort Sam Houston, for duty, from Fort Riley, Lieut. JOSEPH ANTONY, Omaha.

*To Cleveland, Ohio,* for instruction, and on completion *to Camp Hancock,* for duty, Lieut. CLINTON D. HEINE, Hooper.

*To Fort Omaha, Neb.,* Aviation Section, Signal Corps, U. S. Army Balloon School, for duty, Lieuts. WILLIAM R. CORNELIUS, Cody; JAMES B. KILE, Eddyville; HIRAM H. AVERY, Florence; GUY B. IRA, Lynch; BERT F. GLEASON, Randolph. Aviation Section, Signal Corps, as medical member of examining board and recruiting officer and to render medical attention, when required, to the civilian employees of the United States, from Fort Omaha, Lieut. FRANK W. SCOTT, Lodge Pole. For duty, Lieut. ROY CROOK, Winnetoon. U. S. Army Balloon School, for duty, Lieut. WILLIAM E. MOGAN, Petersburg.

*To Fort Riley,* for instruction, Lieut. CLARENCE K. HYLAND, Omaha.

*To Philadelphia, Pa.,* Univ. Hospital, for instruction, and on completion *to Camp Beauregard,* from Fort Oglethorpe, Capt. FREDERICK J. WURTELE, North Platte.

*To South San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Capts. WILLIAM J. PINKERTON, Bostwick; CLARENCE MINNICK, Curtis; WILLIAM J. LEARY, Omaha; Lieuts. CLAUDE R. LAIRD, Blue Hill; WILLIAM H. PHILLIPS, Carroll; FRANK H. MORROW, Columbus; McDONALD RYAN, Danbury; JAMES G. MUIR, Milford; J. JAY McCARL, Rosalie; J. IRWIN LIMBURG, Walthill; VICTOR L. SIMAN, Winside.

## New Hampshire

*To Camp Douglas, Ariz.,* for duty, from Camp Cody, Capt. JOHN J. OSTERHOUT, Keene.

*To New York City,* Neurological Institute, for instruction, from University of Vermont, Capt. LEE C. STILLING, Alstead.

## New Jersey

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion to Hoboken, for temporary duty, from Fort Oglethorpe, Lieut. FRANK L. RONAYNE, Orange. Massachusetts General Hospital, for instruction, and on completion *to Camp Sheridan,* from Fort Oglethorpe, Lieut. JOHN L. LUND, Perth Amboy. Northeastern Department, for duty in coast defenses of Boston, from New York City, Lieut. ROBERT D. SCHIMMELPFENNIG, Mont Clair.

*To Camp Bowie,* Fort Worth, Texas, for temporary duty, Capt. HENRY B. ORTON, Newark.

*To Camp Greene,* Charlotte, N. C., for duty, Lieut. ARTHUR E. LEE, Belleville.

*To Camp Meigs,* Washington, D. C., for duty, from Camp Meigs, Lieut. HERMAN BALDAUF, Trenton.

*To Fort Monroe, Va.,* for duty, Lieut Paul O'BRIEN, East Rutherford.

*To Fort Oglethorpe,* for instruction, Capt. JAMES BRESLIN, Gloucester City; Lieut. WILLIAM E. RINK, Burlington.

*To Fort Totten, N. Y.,* to examine the command for tuberculosis, and on completion *to Fort Hamilton, N. Y.,* for the same duty, and on completion *to Fort Hancock, N. J.,* for the same duty, from Camp Devens, Lieut. GRANT THORBURN, Newark.

*To Hoboken, N. J.,* for duty, Lieut. ADFUR E. MAINES, Jersey City.

*To New Orleans, La.,* for instruction, and on completion *to Camp Hancock,* for duty, from Camp Shelby, Lieut. FRANK H. PINCKNEY, Morristown.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Williamsbridge,* for duty, from Fort Oglethorpe, Lieut. SAMUEL I. DAY, Jr., Port Morris. Governors Island, Eastern Dept., for assignment to duty, Lieut. WARFORD L. NIXON, Raritan.

*To his home* and honorably discharged, Lieut. HORACE R. LIVENGOOD.

## New Mexico

*To Dallas, Texas,* State Fair Grounds, for duty, Lieut. GEORGE L. WYCKOFF, Dulce.

*To Philadelphia, Pa.,,* for instruction, and on completion *to his proper station,* from Camp Greene, Lieut. JOHN L. REID, Portales.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. JAMES A. STEEL, Las Cruces.

## New York

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to his proper station,* from Camp Devens, Lieut. THOMAS A. D. SOMERS, New York City; from Camp Upton, Lieut. JOHN SMITH, Jr., New York City. Massachusetts General Hospital, for instruction, and on completion *to Camp Devens,* Lieut. JOSEPH W. GARDAM, New York City.

*To Camp Beauregard,* Alexandria, La., for duty, from New York City, Lieut. WILLIAM GOLDSTEIN, New York City.

*To Camp Dodge,* Des Moines, Iowa, for temporary duty, from Fort Oglethorpe, Lieut. ALOYSIUS M. MULHOLLAND, New York City.

*To Camp Greene,* Charlotte, N. C., for duty, Lieuts. JOHN B. D'ALBORA, Brooklyn; CHARLES F. SHARRY, New York City.

*To Camp Sherman,* Chillicothe, Ohio, for temporary duty, from New York City, Lieut. HOWELL E. BABCOCK, Brooklyn.

*To Cleveland, Ohio,* for instruction, and on completion to Camp Custer, for duty, from Fort Oglethorpe, Capt. WILLIAM B. REID, Rome.

*To Fort Logan H. Roots, Ark.,* for duty, Lieut. HENRY L. WENNER, Jr., New York City.

*To Fort McPherson, Ga.,* for duty, from New York City, Lieut. WALTER S. BENNETT, Glen Falls.

*To Fort Monroe, Va.,* for duty, Lieut. PATRICK J. McKENZIE, New York City.

*To Fort Oglethorpe,* for instruction, Capt. FREDERICK TERWILLIGER, Spencer; Lieuts. MOSES M. FEINBERG, Bronx; DAVID NATUS, Brooklyn; PATRICK H. J. BUCKLEY, Buffalo; LLOYD L. HELLENBECK, Catskill; PHILLIP L. TURNER, Elmhurst, L. I.; WILLIAM C. BRONS, Jamaica; WILLIAM E. CARROLL, OTIS P. CHAPMAN, HERMAN LEVISON, MICHAEL J. LYNCH, CHARLES T. OLCOTT, New York City; DAVID M. HALLOCK, Southampton; from Camp Meade, Lieut. LEE A. HADLEY, Syracuse; from Camp

Pike, Lieut. CLARENCE L. SICARD, Amsterdam; from Portland Ranch, Lieut. RAE W. WHIDDEN, New York City. To conduct a nutritional survey of that camp, from Army Medical School, Lieut. ROY W. BURY, Philadelphia.

*To Fort Sam Houston, Texas,* for assignment to temporary duty, Capt. ALPHONSE R. DECKER, New York City. For duty in the Dept. Laboratory, from New York City, Lieut. RALPH E. ROBINSON, Belmont.

*To Fort Totten, N. Y.,* to examine the command for tuberculosis, and on completion *to Fort Hamilton, N. Y.,* for the same duty, and on completion *to Fort Hancock, N. J.,* for the same duty, from Camp Devens, Lieut. EDWARD P. EGLEE, Flushing, L. I.

*To Fort Wayne, Mich.,* for duty, from Camp Grant, Major HENRY L. SCHELLING, Brooklyn.

*To Garden City, L. I.,* N. Y., Aviation Section, Signal Corps, for duty, Lieut. ROBERT A. MACTAGGART, Schenectady.

*To Hoboken, N. J.,* for duty, Lieut. ROBERT A. CHRISTMAN, New York City; to examine the command at Camp Merritt, N. J., for nervous and mental diseases, from New York City, Lieut. EUGENE N. BOUDREAU, Auburn.

*To Lakewood, N. J.,* for duty, from Fort Oglethorpe, Capt. JEREMIAH A. ALLIS, New York City.

*To New York City,* for duty, in reference to drug addiction, Major PEARCE BAILEY, New York City. Bellevue Hospital as Military Director of the course in fractures and war surgery, Major JOHN A. HARTWELL, New York City; on completion *to Camp Hancock,* Lieut. NELSON R. FRASIER, Glen Falls; on completion *to Camp Lee,* from Fort Oglethorpe, Lieut. VINCENT J. T. O'NEILL, Staten Island; on completion *to Fort McHenry,* from Fort Oglethorpe, Lieut. SAMUEL PALEG, New York City; on completion *to Williamsbridge,* for duty, from Fort Oglethorpe, Lieut. THOMAS J. RYAN, New York City. Neurological Institute, for intensive training, Lieut. JOHN P. McNEILL, Central Islip, L. I. Surgical school, for intensive training in his specialty, Lieut. IRVING H. PARDEE, New York City.

*To Philadelphia,* University Hospital, for instruction, and on completion to Camp Gordon, from Fort Oglethorpe, Lieut. JOHN H. WATSON, Buffalo.

*To Pittsburgh, Pa.,* for instruction, and on completion *to his proper station,* from Camp Sheridan, Major GEORGE P. COOPERNAIL, Bedford.

*To Rantoul, Ill.,* Signal Corps, Aviation School, Chanute Field, for duty, Lieut. LINN V. H. REED, Garden City, L. I.

*To Rockefeller Institute,* N. Y., for instruction, and on completion *to Camp Jackson* for duty, from Fort Oglethorpe, Major HARRY LIPES, Albany; on completion *to his proper station,* from Fort Wadsworth, Capt, ARTHUR S. DRISCOLL, Staten Island; on completion *to his proper station,* Lieut. THOMAS E. LAVELLE, Williamsbridge; from Camp Gordon, Lieut. HARRY GOLDMAN, Long Island City; from Camp Upton, Lieuts. GEORGE G. McELVARE, New York City; EDWIN C. FOSTER, Penn Yan; on completion *to Camp Grant,* for duty, from Fort Wayne, Lieut. JOSEPH H. BEATTIE, Dobbs Ferry.

*To San Antonio, Texas,* Green Memorial Hospital, for duty, from San Antonio, Capt. JOHN D. GULICK, Schenectady.

*To Washington, D. C.,* for duty in the Surgeon-General's Office, from Fort Oglethorpe, Major RICHARD H. HUTCHINGS, Ogdensburg.

*Honorably discharged,* Lieut. ADOLPH J. NEWMAN, New York City.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, from Camp Grant, Lieut. PERCY H. FINCH, Broadalbin.

### North Carolina

*To Belvoir, Va.,* for duty, from Surgeon-General's Office, Lieut. GLENN LONG, Catawba.

*To Camp Hancock,* Augusta, Ga., for duty, from Camp Meade, Lieut. JOSEPH W. HOOPER, Wilmington.

*To Camp Sevier,* Greenville, S. C., for duty, from New York City, Lieut. MILTON T. EDGERTON, Greenville.

*To Fort Oglethorpe,* for instruction, Lieuts. HERBERT F. MUNT, Boardman; SAM W. HURDLE, Spray; from Richmond, Lieut. ALVIN C. McCALL, Rocky Mount.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to his proper station,* from Fort Oglethorpe, Lieut. JAMES F. ROBERTSON, Jr., Wilmington.

*To San Antonio, Texas,* Green Memorial Hospital, for duty, from San Antonio, Lieut. JOHN B. POWERS, Wake Forest.

### North Dakota

*To Fort Riley,* for instruction, Capt. GEORGE A. CARPENTER, Fargo.

*To his home* and honorably discharged, Lieut. CARL L. BRIMI, Cooperstown.

### Ohio

*To Berkeley, Calif.,* University of California, for duty, from San Francisco, Lieut. JESSE C. EDWARDS, Columbus.

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to his proper station,* from Fort Oglethorpe, Capt. JOHN G. MARTIN, New Concord; on completion *to Camp Wadsworth,* from Fort Oglethorpe, Lieut. GEORGE A. HAVEMANN, New Bremen.

*To Camp Custer,* Battle Creek, Mich., as Divisional Psychiatrist, from Camp Custer, Capt. FRANK D. FERNEAU, Toledo.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Capt. PAUL G. WOOLLEY, Cincinnati.

*To Camp Hancock,* Augusta, Ga., for temporary duty, from Columbus Barracks, Capt. EDWARD C. LUDWIG, Columbus Barracks.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from New York City, Lieut. RICHARD E. STIFEL, Cleveland.

*To Camp Stuart,* Newport News, Va., to examine the command, and on completion *to his proper station,* Lieut. CARROLL L. STORY, Oberlin.

*To Central Dept.,* for assignment to duty, Lieut. PAUL MORRISON, Tiltonville.

*To Chicago, Ill.,* for instruction in orthopedic surgery, Capt. JOHN V. HARTMAN, Findlay; Lieut. LEONARD E. STUTSMAN, Dayton.

*To Fort Leavenworth,* Kansas, for duty, Capt. JAMES F. ELKER, Youngstown.

*To Fort Monroe, Va.,* for examination to determine his fitness to perform the duties of his office and on completion to his proper station, from Morrison, Lieut. HENRY A. LICHTIG, Cleveland.

*To Fort Oglethorpe,* for instruction, Lieut. ROBERT C. AUSTIN, Dayton.

*To Fort Riley,* for instruction, Capt. LEE R. FAST, Paulding.

*To Fort Sam Houston, Texas,* for assignment to duty, from New York City, Lieut. HENRY J. JOHN, Salem.

*To Rockefeller Institute* for instruction, and on completion *to his proper station,* from Camp Lee, Lieut. HAROLD K. MOUSER, Marion.

*To West Point, N. Y.,* for duty, from Fort Oglethorpe, Capt. PAUL G. WOOLLEY, Cincinnati.

*Honorably discharged,* Lieut. JOHN R. CUM, Forest; on account of physical disability which existed prior to his entrance into the service, Lieuts. FRANK R. MAKENSON, Bellefontaine; GEORGE E. CALHOUN, Uhrichsville; RALPH W. FAUS, Wellington.

### Oklahoma

*To Army Medical School,* as assistant roentgenologist, from New York City, Lieut. JOHN E. HEATLEY, Carmen.

*To Camp Bowie,* Fort Worth, Texas, for duty, from Oklahoma City, Capt. REX C. BOLEND, Oklahoma.

*To Camp Doniphan,* Fort Sill, Okla., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, from Camp Meade, Lieut. JESSE B. HOLLIS, Hobart.

*To Camp MacArthur,* Waco, Texas, Aviation Section, Signal Corps, for duty, Lieut. TIMOTHY J. BUTLER, Weatherford.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. CLARENCE L. WELLMAN, Coalton.

*To Fort Leavenworth, Kan.,* for duty, Lieut. JOSEPH H. SANFORD, Muskogee.

*To Fort Oglethorpe,* for instruction, Lieut. GEORGE E. KERR, Chattanooga.

*To Fort Riley,* for instruction, Lieut. LOUIS BAGBY, Vinita.

*To New Orleans, La., Charity Hospital,* for instruction, and upon completion *to his proper station,* from Fort Sam Houston, Lieut. MARVIN E. STOUT, Oklahoma City.

*To San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Capts. JAMES M. BONHAM, Hobart; ABRAHAM L. HAZEN, Newkirk; Lieuts. GEORGE B. COKER, Cyril; LOGAN I. EVANS, Drumright; GEORGE S. BARBER, Lawton; ROY K. GOODARD, Mounds; GARDNER H. APPLEWHITE, Shawnee.

### Oregon

*To Camp Grant,* Rockford, Ill., for duty, from Fort Riley, Lieut. EDWIN E. STRAW, Marshfield.

*To Camp Lewis,* American Lake, Wash., for duty, Capt. JOSEPH F. WOOD, Portland.

*To Camp Sheridan,* Montgomery, Ala., for temporary duty, from Fort Oglethorpe, Lieut. HARRY M. BOUVY, La Grande.

*To Chicago, Ill.,* for instruction in orthopedic surgery, from Camp Dodge, Capt. EDGAR H. BROWN, McMinville. Presbyterian Hospital, for instruction, and on completion *to his proper station,* from Camp Lewis, Lieut. ERNEST H. STREIT, Portland.

### Pennsylvania

*To Aberdeen, Md.,* for duty, Lieut. WILLIAM C. REESE, Wilkes-Barre.

*To Camp American University,* for duty, from Fort Oglethorpe, Lieut. GARNETT P. MORISON, Latrobe.

*To Camp Dodge,* Des Moines, Iowa, for duty, from Fort Riley, Lieut. ARTHUR J. ZIMLICK, Philadelphia.

*To Camp Greene,* Charlotte, N. C., for duty, Lieut. FRED H. HARRISON, Pittsburgh.

*To Camp MacArthur,* Waco, Texas, for duty, from Army Medical School, Lieut. OTTO C. HIRSCH, Philadelphia.

*To Cleveland, Ohio,* for instruction, and on completion *to his proper station,* from Camp Sevier, Capt. CLARK McE. LUMAN, Uniontown; on completion *to Camp McClellan,* for duty, from Fort Oglethorpe, Lieut. FRANCIS E. DONNELLY, Wilkes-Barre.

*To Fort Benjamin Harrison,* for duty, from Fort Sheridan, Major GEORGE C. KIEFFER, Philadelphia.

*To Fort McPherson, Ga.,* for duty, from Camp Lee, Lieut. GEORGE R. MOFFITT, Harrisburg.

*To Fort Oglethorpe,* for instruction, from Camp Dix, Capt. ALEXANDER H. DAVISSON, Philadelphia; Lieuts. ROBERT McR. BIDDLE, Ashland; JOHN M. STEWART, Marion Center; SAMUEL ITSCOITZ, McKeesport; GEORGE M. ASTLEY, JOHN J. NEAL, Philadelphia; CHARLES F. BUTLER, JOHN P. DUGGAN, JOHN M. LIPSCOMB, MAXIMILIAN H. WEINBERG, Pittsburgh; WILLIAM L. ESTES, Jr., South Bethlehem; from Camp Pike, THOMAS McS. BARRETT, Emsworth.

*To Fort Strong, Mass.,* for duty, from New York City, Lieut. WALTER L. LYNN, Wilkes-Barre.

*To Edgewood, Md.,* U. S. Filling Station, for duty, Lieuts. FRANKLIN P. PHILLIPS, Clarion; BERNARD J. McCORMICK, Pittsburgh.

*To Hoboken, N. J.,* to examine the command at Camp Merritt, for nervous and mental diseases, from New York City, Lieut. MATTHEW C. BAINES, Philadelphia.

*To Lakewood, N. J.,* for duty, from Camp Meade, Lieut. DAVIS S. GRIM, Reading.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Fort Oglethorpe,* for instruction, Lieut ROBERT W. RICHARDS, Shingle House; on completion *to his proper station,* from Camp Dix, Lieut. SNOWDEN K. HALL, Sharpsburg. For instruction in therapy of pneumonia, Lieut. ALLEN W. SIVYER, Philadelphia.

*To Philadelphia,* as instructor, Capt. CLEMENT R. BOWEN, Philadelphia. For instruction, Lieut. JOHN H. ARNETT, Philadelphia; and on completion *to his proper station,* from Camp Jackson, Lieut. WILLIAM D. GATES, Indiana.

*To Pittsburgh, Pa.,* Aviation Section, Signal Corps, for duty, Lieut. CHARLES R. BRENNER, Pittsburgh.

*To Rockefeller Institute, N. Y.,* for instruction, and on completion *to his proper station,* from Camp Wadsworth, Capt. STILLWELL C. BURNS, Philadelphia.

*To South San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Lieut. WILLIAM C. SEALE, Philadelphia.

*To Washington, D. C.,* for instruction, from Camp Dix, Lieut. CHARLES C. GANS, Chambersburg.

*Honorably discharged* on account of physical disability which existed prior to his entrance into the service, Lieut. GEORGE B. KUNKEL, Harrisburg; THOMAS A. BOOTH, Boothwyn; *to his home and to the inactive list of the Medical Reserve Corps,* Lieut. JOSEPH H. WYATT, Mahanoy City.

### Porto Rico

*To Porto Rico,* U. S. Troops, for duty, Lieut. ALBERTO G. DE QUEVEDO, Cidra.

### Rhode Island

*To Camp Doniphan,* Fort Sill, Okla., for temporary duty, Capt. HOWARD E. BLANCHARD, Providence.

*To Northeastern Department,* for assignment to duty, Capt. CHARLES F. PERRY, Block Island.

*To his home and honorably discharged* on account of physical disability which existed prior to his entrance into the service, from Camp Sherman, Lieut. FRANCIS E. CROGHAN, Providence.

### South Carolina

*To Boston, Mass., General Hospital,* for instruction in urology and dermatology, from Camp Lee, Lieut. RALPH H. McFADDEN, Chester.

*To Charleston, S. C.,* Roper Hospital, as medical member of examining board and recruiting officer, Lieut. CLAUDIUS F. BALLOCK, Nichols.

*To Fort Oglethorpe,* for instruction, Lieut. OLIN D. BUSBEE, Springfield.

*To New Orleans, La.,* Charity Hospital, for instruction, and on completion *to his proper station,* from Camp McClellan, Lieut. WALKER H. POWE, Greenville.

*To Rockefeller Institute, N. Y.,* for instruction, and on completion to Williamsbridge, for duty, from Fort Oglethorpe, Capt. MORGAN P. MOORER, Georgetown.

*To his home and honorably discharged,* Lieut. JOHN H. PRATT, Ninety-Six.

### South Dakota

*To Philadelphia, Pa.,* for instruction, and on completion *to his proper station,* from Camp Doniphan, Capt. THOMAS W. MOFFITT, Deadwood.

*To his home and honorably discharged* on account of physical disability which existed prior to his entrance into the service, Lieuts. FRANK A. SWEZEY, Wakonda; HERSCHEL G. HARRIS, Wilmot.

### Tennessee

*To Boston, Mass., General Hospital,* for instruction, and on completion *to Camp Green,* for duty, Lieut. DABNEY MINOR, Cleveland.

*To Camp American University,* Washington, D. C., for duty, from Fort Oglethorpe, Lieut. DANIEL C. HAGGARD, Unionville.

*To Camp MacArthur,* Waco, Texas, Aviation Section, Signal Corps, for duty, Major VERNON K. DARTHMAN, Murfreesboro.

*To Central Department,* for assignment to duty, Capt. JAMES D. HENDERSON, Knoxville.

*To Fort Oglethorpe* for instruction, Lieuts. STARNES K. WALKER, Bradford; IRA J. TATUM, Gleason; from Richmond, Lieut. WILLIAM E. TROXLER, Lewisburg.

*To Pittsburgh, Pa.,* for instruction, and on completion *to his proper station,* from Camp Gordon, Capt. LEON L. MEYER, Memphis.

*To West Point, N. Y.,* for duty, from Fort Oglethorpe, Capt. JOHN M. LEE, Nashville.

### Texas

*To Camp Beauregard, La.,* for duty, from Camp Stanley, Lieut. EDGAR R. BOREN, Dallas.

*To Camp Bowie,* Fort Worth, Texas, for duty, Lieuts. JOHN C. SCHILLING, Cedar Bayou; PAUL DEW. ROBASON, May; RENNIE WRIGHT, New Braunfels.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. JAMES P. McANULTY, San Angelo.

*To Camp John Wise,* San Antonio, Texas, Army Balloon Camp, for duty, Lieuts. COLEMAN A. NEWLAND, Lipscomb; JOHN G. GUENTHER, Moulton; LLEWELLYN E. McADON, San Antonio.

*To Camp MacArthur,* Waco, Texas, for duty, Capt. HARRY V. JACKSON, El Paso. Aviation Section, Signal Corps, for duty, Lieuts. FRANCIS W. CARRUTHERS, Blooming Grover; WILLIAM P. LOWRY, Decatur; ANTHONY E. LANKFORD, Stephenville.

*To Dallas, Texas,* State Fair Grounds, for duty, Lieut. PYLE G. THORNTON, Westpoint.

*To Fort Monroe* for examination to determine his fitness to perform the duties of his office and on completion *to his proper station,* from Morrison, Lieut. HENRY E. LUEHRS, Mathis.

*To Fort Oglethorpe,* for instruction, from Richmond, Capt. WILLIAM R. FICKESSEN, San Antonio. For instruction, Lieuts. JAMES S. MARSHALL, Blossom; JOSHUA P. WOOD, Flynn; ISAAC D. JACKSON, San Antonio.

*To Fort Riley,* for instruction, Major IRVY L. McGLASSON, Waco.

*To Houston, Texas,* Signal Corps, Aviation School, Ellington Field, for duty, Capts. THOMAS F. RYAN, Dublin; ARTHUR H. BUTLER, El Paso; Lieuts. HOWARD C. CURTIS, McKinney; DEWITT C. BURKES, San Antonio; CHARLES E. CHANDLER, Shive; HOMER T. ELKINS, Sinton.

*To New Orleans, La.,* Charity Hospital, for instruction, and on completion *to his proper station,* from Camp Logan, Capt. GEORGE A. McBRIDE, Harlingen.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Williamsbridge, L. I.,* for duty, Lieut. J. FRANK CLARK, Iowa Park.

*To Oklahoma City, Okla.,* for instruction in orthopedic surgery, Lieut. WILLIAM A. LEE, Denison.

*To San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Capt. WILLIAM R. JAMIESON, El Paso; Lieuts. JESSE H. HERNDON, Atlanta; HENRY F. PHILIPS, Big Springs; WILLIAM J. McLEAN, Caldwell; WILLIS G. YOUENS, Columbus; JAMES H. HAMILTON, Jonesboro; JOHN W. ELLIS, Killeen; JAMES W. SHADDIX, Marietta; HOWE K. RIDDLE, Rockdale; EMILE C. SCHULZE, Shiner; WILLIAM R. JOHNSON, Snyder; WILLIAM F. P'POOL, Sweetwater; WILLIAM E. McKINNEY, Temple; ARTEMUS H. MARTINDALE, Teneha; ROBERT M. MILNER, Yoakum. Kelly Field, for duty, Lieut. ALBERT J. POLLAND, Alvin.

*To South San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty as a private at Camp Travis, Lieut. WILLIAM M. BARRON, Blanco.

*To St. Louis, Mo.,* Washington University, for instruction, Capt. IRA PRITCHETT, Houston.

*To their homes and honorably discharged* on account of physical disability which existed prior to entrance into the service, Lieuts. CALVIN G. STRICKLIN, Clarendon; HARRY H. HENDRICKS, Dallas.

### Utah

*To Rockefeller Institute, N. Y.,* for instruction, and on completion *to Washington, D. C.,* for duty in the Surgeon-General's Office, Major SAMUEL C. BALDWIN, Salt Lake City.

*To Western Department,* for assignment to duty, Capt. FREDERICK DUNN, Springville.

### Vermont

*To San Antonio, Texas,* Green Memorial Hospital, from San Antonio, Lieut. ARTHUL L. LARNER, Burlington.

### Virginia

*To Camp Lee,* Petersburg, Va., for duty, from Newport News, Lieut. SAMUEL DOWNING, Wicomica Church.

*To Chicago, Ill.,* for instruction in orthopedic surgery, from Ft. Snelling, Major RHODRIC W. BROWN, Norfolk.

*To Fort Monroe, Va.,* Aviation Section, Signal Corps, for duty, Lieut. SAMUEL M. FORD, Lebanon.

*To Fort Oglethorpe* for instruction, Lieuts. WESLEY R. PUTNAY, Norwood; JAMES O. MUNDY, JR., Raccoon Ford; from Richmond, Lieuts. JAMES N. WILLIAMS, Clifton Forge; JOHN L. TABB, JR., Midlothian; SAMUEL A. RHYNE, Norfolk; FREDERICK P. FLETCHER, JR., LAWTHER J. WHITEHEAD, Richmond; PATRICK M. CARROLL, Rico Vista; CLYDE L. BAILEY, Sutherlin.

*To Newport News, Va.,* for duty, from Camp Lee, Lieut. OTIS T. AMORY, Newport News; from Richmond, Lieut. FAYETTE A. SINCLAIR, Richmond.

*To Pittsburgh, Pa.,* for instruction, and on completion *to his proper station,* from Camp Lee, Lieut. ISAAC H. GOLDMAN, Richmond.

*To West Point, N. Y.,* for duty, from Fort Oglethorpe, Major THOMAS R. MARSHALL, Ware Neck.

### Washington

*To Camp Cody,* Deming, N. M.: *Camp Doniphan,* Fort Sill, Okla.; *Camp Bowie,* Fort Worth, Texas; *Camp MacArthur,* Waco, Texas; *Camp Travis,* Fort Sam Houston, Texas; *Camp Logan,* Houston, Texas; *Camp Beauregard,* Alexandria, La.; *Camp Pike,* Little Rock, Ark., for inspection, and on completion of this duty at Camp Pike, to proceed *to Camp Cody,* to await further instruction, from Camp Lewis, Capt. EDWARD A. RICH, Tacoma.

*To Camp Dodge,* Des Moines Iowa, for duty, from Fort Riley, Lieut. WILLIAM H. BOONE. North Yakima.

*To Camp Travis,* Fort Sam Houston, for duty, from Fort Riley, Lieut. ROY C. BAUMGARTEN, Seattle.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and upon completion *to his proper station,* from Camp Lewis, Capt. JOHN W. HUNT, Seattle.

*To New York City,* for instruction, and on completion *to Camp Wheeler,* from Fort Worden, Capt. RICHARD C. HILL, Fort Worden.

*To Western Dept.* for assignment to duty, Lieuts. WILHO A. GROENLUND, Seattle; PAUL C. RIDPATH, Spokane.

*To his home* and honorably discharged, Capt. JOHN W. EDWARDS, Port Townsend.

### West Virginia

*To Camp Devens,* Ayer, Mass., for duty, from Camp Devens, Capt. JOHN W. MOORE, Charleston.

*To Columbus, Ohio,* Aviation Section, Signal Corps, for duty, Lieut. JAMES V. WOOFTER, Curtin.

*To Fort Oglethorpe,* for instruction, Lieut. HARRY L. BEARD, Lewisburg.

*To Fort Totten, N. Y.,* to examine the command for tuberculosis, and on completion *to Fort Hamilton, N. Y.,* for the same duty, and on completion *to Fort Hancock, N. J.,* for the same duty, from Camp Devens, Capt. GEORGE H. BARKSDALE, Charleston.

### Wisconsin

*To Camp Pike,* Little Rock, Ark., for temporary duty, Lieut. WILLIAM W. GILLESPIE, Milwaukee.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to his proper station,* from Fort Riley, Capt. FREDERICK C. HUFF, Sturgeon Bay. For instruction in orthopedic surgery, Lieut. GEORGE H. SCHLESSELMAN, Fond du Lac.

*To Fort Oglethorpe,* for instruction, Lieut. JOSEPH J. FRANCE, Milwaukee. For duty, from New York City, Lieut. HERMAN A. HEISE, Madison.

*To Fort Riley,* for instruction, Lieut. SHERMAN M. KYES, Owen.

*To Milwaukee, Wis.,* for duty, from Fort Riley, Lieut. JOHN W. SMITH, Milwaukee.

*To Mineola,* L. I., N. Y., Hazelhurst Field, Aviation School, from Mineola, Capt. EDWIN G. FESTERLING, Reedsville.

*To New Orleans, La.,* Charity Hospital, for instruction, and on completion *to his proper station,* from Camp Bowie, Lieut. HERBERT T. BARNES, Pewaukee.

*To West Point, N. Y.,* for duty, from Fort Riley, Lieut. ARTHUR D. SMITH, Gilmanton.

*Honorably discharged* from the Medical Reserve Corps, Lieut. WILLIAM C. McCORMICK, Tomahawk.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. WILLIAM T. LOCHEMES, Milwaukee.

## FIRST LIEUTENANTS OF THE MEDICAL RESERVE CORPS RECOMMENDED FOR PROMOTION AS CAPTAINS, JAN. 31, 1918

MERIWETHER LEWIS ANDERSON, Richmond, Va.; HUGH BAILY BARCLAY, Greensburg, Pa.; HOMER BEALL, Malden, Mo.; FRANK PHILIP BRENDEL, San Francisco, Calif.; WILLIAM THOMAS CALLERY, Weehawken, N. J.; DONALD SMYTHE CHILDS, New York City; LEO WESLEY CHILTON, Canyon City, Ore.; PRENTISS BOWDEN CLEAVES, Cherokee, Iowa; JOHN HENRY EVANS, Chicago; HART ELLIS FISHER, Chicago; FREDERICK GROSVENOR GOODRIDGE, Ponfret Center, Conn.; THOMAS WRAY GRAYSON, Pittsburgh, Pa.; JOHN HOWARD HALL, Atlanta, Ga.; DREW R. HANDLEY, Raiford, Fla.; JOHN LINCOLN HERTZ, Lititz, Pa.; RAY HOLLY HUMPHREY, Union, N. Y.; ARTHUR PERCY JANES, Boston, Mass.; WILLIAM LEROY KENNEY, St. Joseph, Mo.; JOSEPH CARL KIMBALL, Joliet, Ill.; THOMAS JOSEPH KIRWIN, New York City; HENRY WILLIAM LANG, Gonzales, La.; GEORGE B. LESUEUR, Gonzales, La.; MINOR CARSON LILE, University, Va.; GEORGE MORRISON LOGAN, Akron, Ohio; MARCUS WARD LYON, Jr., Washington, D. C.; CHARLES PERCY MAJOR, Philadelphia, Pa.; PHILIP BENJAMIN MATZ, Leavenworth, Kan.; ALEXIS MERRITT MELVIN, Royersford, Pa.; CARL MULKY, Warrensville, Ohio; NORMAN OSCAR NELSON, Madison, Wis.; ROSCOE MAX NICHOLSON, Chicago; GROVER CLEVELAND ROBERSON, Hurricane, W. Va.; EDWARD BANCROFT ROGERS, Collingwood, N. J.; JOHN ADOLPH ROLLINGS, Roda, Va.; LAMBERT WILLIAM ROSENBAUM, Chicago; ERIK THEOPHILE SANDBERG, Cardinal, Va,; RANDOLPH SNIDER, St. Francisville, Ill.; CARROLL LAWRENCE STOREY, Oberlin, Ohio: ROBERT YOUNG SULLIVAN, Washington, D. C.; DELAMAR TURNER, Savannah, Ga.; EDGAR SHARON TURNER, La Follette, Tenn.; ROBERT EMMET WALSH, New York City; JAMES CARLISLE WALTON, Isabel, S. Dak.; CHARLES HENRY WEINTZ, Cincinnati, Ohio; WALTER JOHN WHITEHOUSE, Marcus Hook, Pa.; EDWARD AUGUSTUS WILLIS, Indianapolis, Ind.; CONSTANT PERKINS WILSON, Jr., Fort Smith, Ark.; EUGENE PIERSON WRIGHT, Chicago; ROBERT FRANCIS ZIMMERMAN, Elmhurst, New York.

**Report of Cremation Society.**—The Report of the Council of the Cremation Society of England for the year ending December 31, 1916, shows that the number of cremations at Woking was 125 as compared with 153 for the preceding year. At Golders Green, the cremations numbered 633 as against 730 for the previous year. The total number of cremations for Great Britain was 1,366 in 1916 and 1,410 for the previous year. The two principal crematories in England are located at Woking and Golders Green, London. Propaganda in the interest of the cremation movement has been retarded on account of the war, though many inquiries on the subject have reached the headquarters of the society and considerable literature has been distributed. The society was made the beneficiary of a legacy of $50,000 from the late Mr. George Patrickson of Ulverston, who died in 1915. Sir Charles Cameron is president of the society and the secretary is George A. Noble. The offices are at 324 Regent Street, W., London.

# Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

## GEORGIA

**Legacy for Health Laboratory.**—The physicians of Augusta and Richmond counties have sent a signed statement to the J. B. White legacy committee urging the committee to set aside $200,000 from the J. B. White bequest to Augusta, to build and equip a public health laboratory.

**Personal.**—Dr. Lorick T. Pattillo, director of the state laboratory, Atlanta, has resigned and the selection of his successor has been delegated by the state board of health to its secretary, Dr. J. C. Abercrombie.——Dr. William L. Gilbert, Atlanta, has been elected chairman of the board of county commissioners of Fulton County.

**State Board Appointments.**—The following appointments to membership on the state board of health were announced by the governor, January 1: Dr. John W. Daniel, Savannah, six years; Dr. Arthur D. H. Little, Thomasville, six years; Dr. Millard S. Brown, Fort Valley, six years; Dr. Arthur C. Shamblin, Rome, to fill the unexpired term of Dr. William L. Funkhouser, resigned, whose term expires, Jan. 1, 1920.

**New Officers.**—Ware County Medical Society at Waycross, December 20: president, Dr. Henry J. Carswell; vice president, Dr. Daniel M. Bradley, and secretary-treasurer, Dr. Wilbur C. Hafford, Fort Meade, Fla.——Laurens County Medical Society, at Dublin, December 19: president, Dr. William E. Williams, Rockledge; vice president, Dr. John J. Barton, Dublin, and secretary-treasurer, Dr. Jason H. Moore, Dublin.——Georgia Medical Society, at Savannah, December 11: president, Dr. James O. Baker; vice president, Dr. Walter A. Norton, and secretary-treasurer, Dr. William H. Myers (reelected). Resolutions were adopted on the death of Dr. William W. Owens, a former president of the society.

## IDAHO

**New Board Officers.**—At a recent meeting of the Idaho State Board of Medical Examiners, Dr. G. T. Parkinson, Rexburg, was elected president; Dr. G. W. States, Preston, vice president, and Dr. Ray H. Fisher, Rigby, secretary.

## ILLINOIS

### Chicago

**Major Kellogg Speed in Convalescent Hospital.**—Major Kellogg Speed, M. R. C., U. S. Army, accidentally cut his hand on November 8 while performing an amputation. In fourteen hours he had developed a gas bacillus and streptococcus infection of the left hand and had been operated on. Secondary troubles developed affecting principally the left knee and thigh, and he has been for some time in No. 8 (Michelham) Home for Convalescent British Officers, care of A. P. O., S. 7., B. E. F., France.

**Tuberculosis Institute Meets.**—The annual meeting of the Chicago Tuberculosis Institute was held, January 31, and the following officers were elected: president, Dr. Robert H. Babcock (reelected); vice presidents, Drs. Ethan A. Gray and Edwin W. Ryerson; secretary, Mr. George W. Perkins; treasurer, Mr. David R. Forgan; executive committee, Drs. Ethan A. Gray, Robert H. Babcock, William A. Evans, Orvin W. McMichael, Stephen R. Pietrowicz, Edwin M. Ryerson, Mrs. James L. Houghteling, Mr. George W. Perkins, Mr. Horace K. Tenney, and board of directors, Drs. George W. Babcock, William A. Pusey, Max Biesenthal and Stephen R. Pietrowicz, and Mrs. E. C. Dudley, Miss Anna Fitzgerald, Mrs. James L. Houghteling and Messrs. G. A. Ranney, Horace K. Tenney and Matthew Woll. The receipts for the year were $120,879, and the disbursements, $105,532.

## MARYLAND

**School of Hygiene and Public Health.**—In October, 1918, the Johns Hopkins University will open a school of hygiene and public health, as announced in a university circular, January, 1918, to supply the "need of larger and better opportunities for training and investigation in the science and art of hygiene and public health." This has been made possible by the cooperation of the Rockefeller Foundation. Dr. William H. Welch has been made director and Dr. William H. Howell has been named to assist in the organization. New buildings and laboratories will be erected at once, and it is hoped to have one of the main buildings of the school ready for use at the opening in October. The laboratories will for the present be provided for elsewhere in the university. The preliminary announcement of entrance requirements, courses, etc., is contained in the circular New Series, 1918, No. 1. The degree of Doctor of Public Health will be granted.

**Personal.**—Drs. A. C. Tiemeyer and James J. Edwards of the University Hospital visiting staff were injured when their automobile went over an embankment and turned turtle, pinning both physicians beneath the car. Dr. Tiemeyer sustained a fractured arm and lacerations about the body, while Dr. Edwards suffered a broken left leg. The accident occurred when the physicians were responding to an urgent call to Fallston.——Dr. William S. Thayer, major in the Medical Reserve Corps, who recently returned to Baltimore after several months' spent with the Red Cross Commission in Russia, expects to leave for France the middle of the month, where he will serve with the Medical Corps of the U. S. Army.——Dr. Winford H. Smith, superintendent of the Johns Hopkins Hospital, who has completely recovered from a recent illness, has resumed his duties in Washington, where he is serving in the Surgeon-General's Office.

## MASSACHUSETTS

**Speech Clinic Opened.**—The formal opening of the Kindergarten Speech Clinic by the Public School Speech Teachers' Association was held at the clinic, 100 Riverway, Boston, January 18.

**Personal.**—Dr. George F. Hart, Webster, has been placed at the head of the senate committee on public health.——Dr. Thomas R. Healy has been reelected vice chairman of the school board of Newburyport and Dr. T. B. McGurn, city physician.——Dr. Thomas F. Burns has been designated as attending physician to the contagious disease hospital of Fall River.——Dr. James Marsh Jackson, Boston, on whom an abdominal section was performed at the Massachusetts General Hospital, December 24, is reported to be securely convalescent.

**Hospital Items.**—The board of health of Holyoke has voted to name the new isolation hospital, which is now nearing completion, the Carpenter Hospital for Contagious Diseases, in memory of the late Dr. Charles O. Carpenter.——The Massachusetts Committee on Public Safety has established the Massachusetts State Guard Hospital in the new Commonwealth Armory, Boston. The hospital will consist of twenty-two wards of twenty beds each, and will be under the direction of Lieut.-Col. William A. Brooks, acting chief surgeon of the state guard.——One of the buildings of the west department of the Boston City Hospital has been given over exclusively to the care of whooping cough cases, and another building to the care of diphtheria cases.

## MISSOURI

**State Board Election.**—At the annual meeting of the state board of health held in Jefferson City, January 8, the following officers were elected: Dr. Wilson J. Ferguson, Sedalia, president (reelected); Dr. William A. Clark, Jefferson City, vice president, and Dr. George H. Jones, Kansas City, secretary (reelected).

**Shaffer Tours Cantonments.**—Dean Philip A. Shaffer of Washington University, and Major in the food division of the Surgeon-General's Office, Washington, D. C., is making a tour of the cantonments, before leaving for France to take charge of the food division with the expeditionary forces. Dr. A. Candy Robinson will serve as acting dean of the school during Dr. Shaffer's absence.

**Smallpox.**—W. H. Coon, health director of Kansas City, has reorganized the contagious disease commission; Dr. Ellsworth H. Trowbridge, Kansas City, is at the head of the department, and Dr. D. H. Miller is appointed field physician.——The east wing of the Leed's Tuberculosis Hospital has been opened to accomodate smallpox cases, of which from twenty-five to thirty are being reported every day.

## NEBRASKA

**New Officers.**—At the annual meeting of the Elkhorn Valley Medical Association held at Fremont, the following officers were elected: president, Dr. John D. Reid, Pilger; vice presidents, Drs. Hamilton N. Morrow and Hardy A. Skelton, Spencer; secretary, Dr. Anders P. Overgaard, Omaha, and treasurer, Dr. Sylvester A. Preston, Fremont.

**Personal.**—Dr. William F. Wild, formerly epidemiologist of the state department of health, has been appointed chief health officer of the state, and Dr. William H. Wilson, Lincoln, has been appointed state epidemiologist.——Dr. Warren Perry, Fairbury, fell in his house, January 17, fracturing his leg.——Dr. Elmer S. Tenney, Lincoln, chief health officer of Nebraska, has resigned to accept war service.——Dr. James A. Burford, Wilcox, has succeeded Dr. E. R. Lawrence, Fall City, as assistant physician to the state institute for the feebleminded.——Dr. Edwin C. Henry, Omaha, who was operated on for appendicitis, December 24, at Lord Lister Hospital, Omaha, is reported convalescent.——The residence of Dr. Albert P. Condon, Omaha, was destroyed by fire, December 14.——Dr. Noah Hayes, Lincoln, has been appointed assistant physician at the Hastings State Hospital.——Dr. Lawrence F. Sidwell, Ingleside, first assistant physician at the Hastings State Hospital, has been transferred to a similar position at the Lincoln State Hospital.

## NEW YORK

**Personal.**—The appointment of Dr. George S. Staniland as a member of the Municipal Hospital Commission of Buffalo has been confirmed.

### New York

**Veterinarians Urge Use of Horse Meat as Food.**—At a conference of the veterinarian surgeons of Connecticut, Massachusetts, New York and New Jersey, held in the Veterinary College in New York, January 26, resolutions were adopted calling on Congress for an immediate appropriation of $100,000 to provide for the government inspection of horse meat. The veterinarians hold that if government inspection were established, great numbers of horses in the western ranges would be made available for food.

**Instruction in Contagious Diseases.**—The New York City Health Department announces that a course of instruction in contagious diseases has been arranged to be given at the Kingston Avenue Hospital, Brooklyn. The course is similar to that given in 1917 at the Willard Parker Hospital in New York, which proved a success. It will be conducted Tuesdays, Wednesdays, Thursdays and Fridays at 3 o'clock by experienced men; one class began Tuesday, February 5, to continue for eight lessons, and another will begin March 5. Classes are limited to ten members each. The courses at the Willard Parker will be repeated about the first of March and the register is now open.

## PENNSYLVANIA

**Dues Remitted.**—The following county medical societies have voted to remit the dues for 1918 of members who are actually in the service of the United States or her allies: Adams, Allegheny, Beaver, Bedford, Berks, Blair, Bradford, Clinton, Crawford, Cumberland, Fayette, Lancaster, Lycoming, Mercer, Northampton, Northumberland, Somerset, Wayne, Wyoming and York.

**Personal.**—Dr. Thomas Coleman, Pittsburgh, suffered severe injuries to the right knee when he fell on a sidewalk, January 24.——Dr. Roger R. Rupp, Lehighton, has succeeded Dr. John W. Luther, deceased, as chief surgeon of the Palmerton Hospital.——Dr. Roy Deck, Hollidaysburg, was recently wounded while serving with the English army on the western front.——Dr. Fulton R. Stotler, Wilkinsburg, has resigned as a director of the board of education of that place, after a service of twenty-eight years.——Lieut. G. Franklin Bell, M. R. C., U. S. Army, Williamsport, who has been ill at the cantonment camp, Greenville, S. C., is reported to be convalescent.——Major William Knowles Evans, Chester, is now assistant director of the School of Military Hygiene, Camp Greenleaf, Fort Oglethorpe, Ga., of which school Major Alexander C. Abbott is director.

### Philadelphia

**Penn Medical School and Polyclinic Join.**—The filing of a petition for the merger of the Philadelphia Polyclinic and College for Graduates in Medicine with the University of Pennsylvania Medical School is another step taken in the movement to make Pennsylvania a great national, and perhaps international, center for postgraduate medical education in America. The buildings required properly to conduct this work must necessarily await the return of normal conditions, although the university authorities will begin construction work at the very earliest opportunity.

**Conference on Infant Conservation.**—The Babies' Welfare Association of Philadelphia held a conference on Infant Conservation at the Chamber of Commerce, Widner Building, January 31. Dr. William Duffield Robinson was the presiding officer. The chief topics of discussion were as follows: "The Most Efficient Means for Preventing Infant Mortality," by Mrs. William Lowell Putnam, Boston; "Maternity Insurance," by Dr. Lee K. Frankel, Metropolitan Life Insurance Company; "The Municipal Nurse—the City's Best Investment," by Miss Mary L. Gardner, Washington, D. C.; "Prevention of War Injuries to the Coming Generation," by Mrs. Max West, Washington, D. C.; "Babies and the Rising Cost of Milk," by Prof. Clyde L. King, Pennsylvania, and "What the Babies' Welfare Association Should Mean to Philadelphia," Miss Mary Arnold, New York City.

**Officers Elected.**—Philadelphia Genito-Urinary Society, January 28: president, Dr. Benjamin A. Thomas; vice president, Dr. Thomas C. Stellwagen, and secretary-treasurer, Dr. William H. Mackinney.——Philadelphia County Medical Society: president, Dr. Frank C. Hammond; vice president, Dr. John W. West; associate vice presidents, North Branch, Dr. Maximilian D. Bloomfield; South Branch, Dr. Edwin S. Cooke; Kensington Branch, Dr. J. Edward Wallis; West Branch, Dr. John W. Croskey; Northeast Branch, Dr. Albert C. Buckley; Southeast Branch, Dr. Charles Mazer; Northwest Branch, Dr. Robert N. Downs; secretary, Dr. William S. Wray; assistant secretary, Dr. Elmer H. Funk; treasurer, Dr. Edward A. Shumway.——Northern Medical Association of Philadelphia: president, Dr. George W. Sholler; vice president, Dr. Irwin S. Meyerhoff; secretary, Dr. Mulford K. Fisher; treasurer, Dr. John W. Millick; corresponding secretary, Dr. Howard D. Geisler.

**Personal.**—Dr. Robert F. Ridpath has been elected otologist to the Jewish Hospital to succeed Dr. Eli L. Klopp, deceased.——Major W. Wayne Babcock is now chief surgeon and director of the base hospital at Fort McPherson, Ga.——Lieut. James R. Martin has been transferred to the orthopedic service under the direction of Majors Elliott G. Brackett, Boston, and David Silver.——Major Joseph Sailer has been appointed permanent chief of the medical staff at the base hospital at Camp Wheeler, Macon, Ga., succeeding Major Richard Weil, New York, recently deceased.——Drs. Marie K. Formad, Mary Getty and Laura Hunt were the guests of honor at a dinner given by the Woman's Medical College of Philadelphia, just prior to their sailing for France.——Dr. Alice W. Tallant is the representative of fifteen Smith College alumni, who, with a party of American college women, are working in a section of France, comprising fourteen towns.——Dr. Lida Stewart Cogill has charge of the daily clinic at the Woman's College Hospital, where instruction to mothers in the care of their babies is given.

## RHODE ISLAND

**New Building for Preventorium.**—There are at present twenty-nine children in the state preventorium, Hoxsie, and plans are being made for a new building to be used especially for winter work.

**Barred from Practice.**—Drs. Charles O'Leary, Jr., and William T. Knoop are said to have been found guilty of unprofessional conduct and their licenses to practice medicine in Rhode Island have been revoked by the state board of health.

**Personal.**—Dr. Joseph M. Bennett, Providence, has been nominated as a member of the state board of health for three years, succeeding Dr. William L. Harris, Providence.——Dr. Eugene P. King, deputy superintendent of the health department of Providence, is ill in the Rhode Island Hospital.

**Elections.**—Washington County Medical Society at Westerly, January 10: president, Dr. Alexander B. Briggs, Ashaway; vice presidents, Drs. Patrick J. Manning, Wickford, and Henry L. Johnson, Westerly, and secretary-treasurer, Dr. William A. Hillard, Westerly.——Kent County Medical Society at West Greenwich, December 13: president, Dr. H. Barton Bryer, Natick; vice presidents, Dr. Louis J. A. Legris, Phenix; secretary, Dr. James M. Bodwell, Phenix, and treasurer, Dr. Frank B. Smith, Washington.

## GENERAL

**Information Wanted on Xerostomia.**—Dr. Herman Prinz of the Evans Institute of the University of Pennsylvania, wishes to enter into communication with physicians who have had cases of xerostomia (dry mouth) under observation. He may be addressed in care of the Thomas W. Evans Dental Institute, University of Pennsylvania, Philadelphia.

**Roentgenologists Meet.**—The semiannual meeting of the Western Roentgen Society was held in Chicago, January 24 to 26, and the following officers were elected: president, Dr. Benjamin H. Orndoff, Chicago; vice presidents, Drs. Nelson H. Lowry, Chicago, and Joseph F. Wallace, Woodman, Colo., and secretary-treasurer, Dr. Bundy Allen, Iowa City, Iowa.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Mount Sinai Hospital, New York, $100,000; Montefiore Home and United Hebrew Charities, each $25,000; Polyclinic, German, Lebanon, Beth Israel, National Jewish, New York Skin and Cancer, and St. Luke's hospitals, New York Eye and Ear Infirmary, Hebrew Orphan Asylum, Home for the Aged and Infirm Hebrews, and New York Institute for the Blind, each $10,000; Sydenham Hospital and Hospital for Deformities and Joint Diseases, each $5,000, by the will of Emil Wolff.

Ossining, N. Y., Hospital, a donation of $25,000 in liberty bonds, from William Rockefeller, to endow a Mr. and Mrs. Rockefeller Fund for the institution.

**Rockefeller Fund Budget.**—The first budget of the Rockefeller Fund to be expended this year has been announced. The largest appropriation is $150,000, to be used in welfare work in the military camps. The National Committee for Mental Hygiene is allotted $37,000 for "a survey of public care of mental diseases and study in psychopathology of crime." The State Charities Aid Association is given an appropriation of $65,000 "for public clinics in New York in after-care of infantile paralysis cases." The China Medical Board receives $11,430 to be used within five years in the maintenance of the two hospitals on the Island of Kulangsu, in the harbor of Amoy, China.

**National Social Unit Organization.**—This organization held its annual meeting in New York at the Hotel McAlpin, January 28. A number of papers were read on social welfare and social organization in furtherance of the "unit plan" of organization, which is described as "a national experiment in democracy." The plan is being carried out practically, it is said, in a district in Cincinnati comprising 15,000 people. In the carrying out of the purposes of the organization, it is said that advice and aid will be furnished by local, city-wide and national groups of physicians, nurses, social workers, public officials, etc. Their aim will be to develop, among groups of seventy-five to 100 families, a democratic block organization, through which the people may study their social needs in the way of medical care, good housing, recreation, and employment, and above all, their health needs, especially those of mothers and babies, together with all other essentials to wholesome living. The officials and advisers of the organization include many well known and distinguished people throughout the United States, who have been interested in sociologic questions and general welfare.

## FOREIGN

**Clothes Fasteners for the Use of Men Who Have Lost One or Both Arms.**—The *Nederlandsch Tijdschrift* says that at Prague there is a button museum which gives a historical oversight of the methods used for fastening the clothing from the earliest times to date. The institution recently advertised that it would give forty-three prizes, ranging from 50 to 1,000 crowns—to a total of 5,000 crowns or about $1,000—for suggestions as to means of closing and fastening the clothing that will be convenient for persons with only one arm or no arms. The museum has also recently distributed a pamphlet illustrating how men thus crippled have succeeded in fastening their clothing. The prize competition is said to be open to persons of all nationalities but the time limit is about complete now. The address is Knopf-Museum Heinrich Waldes, Prag-Wrschowitz.

## CORRECTIONS

In the article by L. H. Smith, "The Blood of Workers in Trinitrotoluene," The Journal, Jan. 26, 1918, page 231, the figures under the heading "For Large Mononuclears and Small Mononuclears" in the table giving the blood findings should be reversed.

In The Journal, Jan. 26, 1918, page 266, second column, eighteenth line from top, I am reported as saying: "Cesarean section, which I advocated more than fifteen years ago, is now recognized as the proper procedure." What I did say was: "Cesarean section *for placenta previa,* which I advocated more than fifteen years ago, is now the proper procedure in some of these cases." I never endorsed cesarean section for the relief of puerperal eclampsia.—E. Gustav Zinke, M.D., Cincinnati.

## PARIS LETTER

Paris, Jan. 3, 1918.

### Treatment of Loose Bodies in the Knee Joint by Arthrotomy

At a recent meeting of the Paris Société de chirurgie, Drs. Willems and de Caestecker of the Belgian army reported five cases of loose bodies in the knee joint removed by arthrotomy, the patients walking immediately after the operation. This method was advocated by Dr. Willems before the war for effusions in joints, after puncture. The technic is very simple: The incision is made on the inner or outer side, according to the location of the loose body. This body is removed and the wound is closed in three layers—the synovial membrane, capsule and skin. A small loose dressing is then applied so as not to hinder the use of the joint. Active mobilization is begun at once. The patient raises the extended leg and alternately flexes and extends it to the extreme limits. The following day, or in some cases on the same day, the patient gets up out of bed and walks without any support. At first the patient is timid and hesitant; therefore, he does not flex the knee while walking; but when he finds that he can walk, and that no pain is caused by walking, he bears down his weight on the leg, and bends the knee. little by little, until in a few days he walks almost normally. The cure is a permanent one. The joint function is restored to the normal and remains so. The muscles are in perfect condition. At no time during the treatment is there any trace of muscle atrophy. The functional cure is so perfect that many of these patients have returned to service in the trenches.

### Resection of the Hip for War Wound of the Joint

Dr. Le Für, surgeon of the St. Luke's clinic, reported to the Paris Société des Chirurgiens two cases of resection of the hip for an articular wound, causing a fracture of the neck of the femur and lesions of the head of the bone. In the first case, a bullet entered the thigh and passed through the joint. A purulent arthritis of the hip, of slow development, had put the patient in a very bad general state, suggesting tuberculosis. The resection of the hip terminated the cachexia at once and for all time. In the second case a bullet had passed through the pelvis from left to right, fracturing the neck of the right femur. Considerable suppuration was present, and a sinus had established itself between the intestine and the infection focus. The resection in this case did not cause a disappearance of the bone lesions; therefore the hip was disarticulated, resulting in a speedy and complete cure.

Dr. Le Für recommended the posterior route of approach to the hip in all cases of luxation of the femoral head into the iliac fossa. Continuous extension should be employed to prevent the femur from being pulled upward toward the iliac fossa. This also permits of immobilization in a large plaster cast in such manner that the physiotherapeutic measures needed to insure a sufficiently movable neo-arthrosis may be applied. Resection of the hip is indicated in cases of wounding of the joint when an arthrotomy will not check the infection, and especially when the head and neck of the femur have been severely injured with comminuted fracture plus infection. Dr. Roulland called attention to the fact that one must distinguish between a secondary arthritis of the hip, the result of a para-articular or juxta-articular wound, when the infectious process may remain latent for a long time, and wounds of the joint proper, accompanied by lesions in the femur and the iliac bone, which may easily give rise at once to a severe septicemia. In the severe traumatic cases, only resection provides sufficient drainage; in the cases of secondary arthritis, however, one can perform an arthrotomy, resorting to resection later, if necessary.

### The Surgical Congress

The executive committee of the French Association of Surgery has decided that the next annual congress of surgery, which has not been convened since the war began, will be held in Paris, Oct. 7, 1918. The meeting will be devoted to the discussion of war surgery. The subjects listed for discussion are: (1) extraction of intrathoracic projectiles; (2) treatment of and remote results obtained in projectile injuries of nerves, and (3) removal of bone fragments and repair of lost bone tissue. One session will be given over to the demonstration of apparatus. Members desiring to read papers must send the title of such communication to Dr. J. L. Faure, secretary-general, 10 rue de Seine, Paris (VI-e), before July 31, 1918.

### Personal

Dr. Tuffier, associate professor in the Faculty of Medicine of Paris, and surgeon to the hospitals, has been made commander of the Legion of Honor, with the following citation: "Surgeon of very high distinction. He has rendered the most eminent services as an instructor and as consulting surgeon to the armies, and has contributed by his untiring activity and his science to the progress of surgery since the beginning of hostilities."

#### DEATH OF PROFESSOR RENAUT

Dr. J. Renaut, professor of general anatomy and histology in the Faculty of Medicine of Lyons, and physician to the hospitals of Lyons, is dead. He was born in La Haye-Descartes (department of the Indre and Loire) in 1844. He studied medicine in Paris, and was an intern there in 1869. He received his doctorate degree in 1874, publishing a most valuable thesis on the anatomy and clinical history of erysipelas and the edemas of the skin. He was made chief of the medical clinic, then director of the clinical laboratory of the Charité in 1875. In 1877 he accepted the chair of general anatomy and histology at the University of Lyons, and in 1883 he was appointed physician to the hospitals. He has been an associate member of the Academy of Medicine since 1896. Professor Renaut was one of the most noted histologists of the day. In 1888 he published a treatise on practical histology which was an authority on that subject. In 1882, in collaboration with Dr. Chanteluse, he published the works of the Laboratory of General Anatomy and Histology.

#### DEATH OF DR. DENOIX

Dr. Arnaud Denoix, senator of the department of the Dordogne, is dead, at the age of 69.

### War Bread

At a recent meeting of the Academy of Sciences, Dr. Balland presented a communication on this subject. He investigated the cause of the moldiness of bread occurring during the past summer in bread only three or four months old, made from a good flour, well raised and stripped of dark products. The changes are not due to the bolting, which has been maintained at 70 per cent. for the flour used for war bread. War bread should at the time of packing contain from 10 to 12 per cent. of moisture. As a rule, it contains much more, as much as 18 per cent. To avoid this moldiness, Balland recommends that the bread be made up smaller, weighing from 7 to 8 gm., 5 cm. long, 3 cm. wide and 15 mm. thick. These biscuits, about 2 inches by 1 inch in size, when taken out of the oven, should contain only 3 or 4 per cent. of moisture. They will slowly take up moisture, up to 12 or 13 per cent., but only after being stored for a long time.

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# Association News

## THE CHICAGO SESSION

### Advisory Committee on Scientific Exhibit

With the purpose of securing desirable material from various sources for the Scientific Exhibit at the coming meeting, an Advisory Committee on Scientific Exhibit has been appointed consisting of Dr. Harlow Brooks, New York; Dr. A. S. Warthin, Ann Arbor, Mich.; Dr. George L. Dock, St. Louis; Dr. L. B. Wilson, Rochester, Minn.; Dr. E. R. LeCount, Chicago; Dr. Oskar Klotz, Pittsburgh; Dr. F. P. Gay, Berkeley, Calif.; Dr. C. C. Bass, New Orleans, La.; Dr. W. M. L. Coplin, Philadelphia; Dr. Joseph C. Bloodgood, Baltimore, and Dr. Walter B. Cannon, Boston.

The Scientific Exhibit will occupy the mezzanine of the Hotel Sherman, which will also be the general headquarters of the Chicago Session. The available space seems ample for all purposes, but in order that it may be arranged to the best advantage and that exhibitors may be given the best facilities for making their demonstrations, it is desirable that the Director of the Scientific Exhibit know early what to expect. Applications should be made as early as possible. Assignment of space will be made Tuesday, April 2, 1918, and all applications must be received before that date.

Application blanks and further details may be secured by addressing Dr. George H. Weaver, Director of Scientific Exhibit, 637 South Wood Street, Chicago.

# Deaths

**James Wilson Walk, M.D.,** Philadelphia; University of Pennsylvania, Philadelphia, 1878; aged 64; a member of the Medical Society of the State of Pennsylvania, and the American Academy of Medicine; general secretary of the Philadelphia Society for Organizing Charity from 1882 to 1899; a member of the Pennsylvania House of Representatives from 1887 to 1891; director of the Philadelphia City Charities and Collection from 1892 to 1897, and director of health of the city from 1897 to 1899; prominent in charity work and publisher of a monthly journal as exponent of organized charity; died at his home, January 19.

**Edmund Burke Thompson, M.D.,** New York City; New York University, New York City, 1882; aged 58; a Fellow of the American Medical Association; a specialist in mental disease; assistant superintendent of the Northern Hospital for the Insane, Winnebago, Wis., in 1886 and 1887; assistant superintendent of the State Hospital, Independence, Iowa, 1887 to 1890, and of the Topeka (Kan.) State Hospital from 1894 to 1896; for several years attending physician to Bloomingdale Hospital, and assistant physician to Sanford Hall, Flushing; died at his home, January 22.

**Lieut.-Col. John D. McCrae, C. A. M. C.;** Montreal, Que.; University of Toronto, Ont., 1898; aged 45; lecturer in pathology and internal medicine in McGill University; professor of general and special pathology in the University of Vermont, Burlington; a member of the staff of the Royal Victoria and Alexandria hospitals, Montreal; a veteran of the Boer War, and decorated for gallantry; chief medical officer of Brigadier-General Morrison's command in France; died in France from pneumonia, January 28.

Died in the Service.
Capt. Edward M. Sheehan, M. C., N. G., U. S., 1879-1918
*(See The Journal, last week, p. 336)*

**John Alexander Gordon, M.D.,** Quincy, Mass.; Harvard Medical School, 1871; aged 74; a Fellow of the American Medical Association; consulting physician, trustee and chairman of the executive committee of the Quincy City Hospital; from 1872 to 1877 town physician of Quincy, and from 1884 to 1889 chairman of the local board of health; a member of the school board from 1884 to 1894, and for several years president of the Quincy Water Company; died at his home, recently.

**Charles Henry Castle, M.D.,** Avondale, Cincinnati; Miami Medical College, Cincinnati, 1885; aged 57; a Fellow of the American Medical Association; a member of the American Academy of Ophthalmology and Oto-Laryngology, and Cincinnati Academy of Medicine; a specialist on diseases of the eye, ear, nose and throat; at one time editor of the *Cincinnati Lancet-Clinic;* died in the Cincinnati General Hospital, January 21, from asthma.

**Albert Kohn, M.D.,** New York City; College of Physicians and Surgeons in the City of New York, 1891; aged 48; a Fellow of the American Medical Association, and the New York Academy of Medicine, and a member of the New York Pathological Society; formerly adjunct professor of internal medicine in the New York Polyclinic Hospital; a member of the attending staff of Mount Sinai Hospital; died at his home, January 21.

**Michael Andrew Bartley, M.D.,** Columbus, Ohio; Medical College of Ohio, Cincinnati, 1880; aged 62; formerly a Fellow of the American Medical Association; for eleven years a member of the staff of the Columbus State Hospital; for four years physician at the Workhouse, and for eight years city physician; died in Mount Carmel Hospital, Columbus, January 20, a week after an operation for disease of the stomach.

**William Nelson Hammond, M.D.,** Philadelphia; Southern Homeopathic Medical College, Baltimore, 1896; Hahnemann Medical College, Philadelphia, 1904; aged 44; associate professor of surgery in Hahnemann Medical College, and head of the department of orthopedics; chief surgeon of the Merchants Marine Ship Building Company, Bristol, Pa.; died at his home, January 22, from pneumonia.

**Francis Willard Nagle, M.D.,** Montreal, Que.; McGill University, Montreal, 1908; aged 38; president of the American Association of Anesthetists, and anesthetist to the Royal Victoria Hospital, Montreal, and the Montreal Maternity Hospital; died from asphyxiation by gas while working under his automobile, outside of his garage, January 24.

**Charles Leonard Wilson, M.D.,** Indianapolis; Western Reserve University, Cleveland, 1854; aged 86; a specialist in orthopedic surgery; surgeon of the Seventy-Fifth and later of the One Hundred and Forty-First Ohio Volunteer Infantry during the Civil War; died at the home of his sister-in-law in Parkersburg, W. Va., January 18.

**John Francis Mohan, M.D.,** Pittsburgh; Cornell University, New York City, 1903; aged 37; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; president of the Pittsburgh Society of School Medical Inspectors; died in Mercy Hospital, Pittsburgh, January 22.

**J. B. Peacock, M.D.,** Cochran, Ga.; Baltimore Medical College, 1895; for several years president and director of the First National Bank of Cochran, and later a director of the Cochran Banking Company; first mayor of Cochran; died in Hawkinsville, Ga., January 13, from cerebral hemorrhage.

**John W. Fay, M.D.,** Detroit; Castleton (Vt.) Medical College, 1846; aged 94; assistant surgeon of the Seventy-Seventh New York Volunteer Heavy Artillery and Seventh New York Infantry during the Civil War, and for nine months a prisoner in Andersonville; died at his home, January 20.

**Ezra G. Cristman, M.D.,** Spring Green, Wis.; Philadelphia University of Medicine and Surgery, 1867; aged 78; major and surgeon of volunteers during the Civil War; for twenty years local surgeon of the Chicago, Milwaukee and St. Paul Railway; died at his home, January 16.

**Levi H. Surber, M.D.,** Indianola, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 67; a member of the Iowa State Medical Society; postmaster of Indianola, under President McKinley; died suddenly, January 21, while making a professional call.

**James Lloyd Nickelson, M.D.,** Richland, N. C.; New York University, New York City, 1875; aged 65; a Fellow of the American Medical Association; for many years a member of the State Board of Medical Examiners; died at his home, about January 21.

**Edwin Lawson Farr, M.D.,** Brookline, Mass.; New York University, New York City, 1873; aged 72; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home, January 24.

**Samuel Boyd Little, M.D.,** Colbert, Ga.; Southern Medical College, Atlanta, Ga., 1898; aged 47; local surgeon of the Seaboard Air Line Railway; also a druggist; died at his home, January 9, from pneumonia.

**John Calvin Albright, M.D.,** South Amboy, N. J.; New York University, New York City, 1887; aged 59; a Fellow of the American Medical Association; died at his home, January 4.

**Harry A. Sellhausen, M.D.,** Washington, D. C.; George Washington University, Washington, D. C., 1899; aged 43; died at the home of his father-in-law in Brooklyn, January 17.

**Napoleon B. Ferguson, M.D.,** Huntington, W. Va.; American Eclectic Medical College, Cincinnati, 1882; whose license was revoked in 1897; aged 65; died at his home, January 4.

**George W. Wesselius, M.D.,** Grand Rapids, Mich.; Detroit College of Medicine and Surgery, 1882; aged 70; was found dead in his apartments, January 8, from heart disease.

**Edward B. Bayliss, M.D.,** Miamisburg, Ohio; Medical College of Ohio, Cincinnati, 1885; aged 54; an optometrist; died at his home, January 23, from carcinoma of the stomach.

**Eugene C. Story, M.D.,** Olympia, Wash.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1879; aged 62; also a druggist; died at his home, January 8.

**Millard F. Welsh, M.D.,** Columbus, Ohio; Medical College of Ohio; Cincinnati, 1880; aged 63; died in the Protestant Hospital, Columbus, January 12, from heart disease.

**Stephen A. Mayfield, M.D.,** Fornfelt, Mo.; St. Louis College of Physicians and Surgeons, 1901; aged 60; died at his home, December 27, from cerebral hemorrhage.

**James T. Van Horne, M.D.,** Monroe, Ga.; Atlanta (Ga.) Medical College, 1880; aged 66; also a druggist; died at his home, October 7, from cerebral hemorrhage.

**Dale Otto Chaloupka, M.D.,** Lincoln, Neb.; John A. Creighton Medical College, Omaha, 1916; died in Boulder, Colo., October 5, from miliary tuberculosis.

**Harry C. Kious, M.D.,** Columbus, Ohio; Long Island College Hospital, Brooklyn, 1882; aged 62; died at his home, January 10, from cerebral hemorrhage.

**Rachel Anna Bryson, M.D.,** Indianapolis; Physio-Medical College of Indiana, Indianapolis, 1889; aged 65; died at her home, January 14, from heart disease.

**Charles H. Johnston, M.D.,** Chesterton, Ind.; Northwestern University Medical School, Chicago, 1892; aged 50; died in a hospital in Chicago, January 8.

**Patrick Henry McKinnie, M.D.,** Memphis, Tenn.; University of Louisville, Ky., 1880; aged 73; a Confederate veteran; died at his home, January 6.

**William J. R. Holmes, M.D.,** Goderich, Ont.; University of Nashville, Tenn., 1864; aged 75; died at his home, October 14, from cirrhosis of the liver.

**Charles More Benham, M.D.,** Phoenixville, Pa.; Hahnemann Medical College, Philadelphia, 1891; aged 52; died at his home, January 10.

**James I. Groover, M.D.,** Grooverville, Quitman, Ga.; New York University, New York City, 1860; aged 83; died at his home, January 13.

**Frederick A. Davis, M.D.,** New York City; United States Medical College, New York City, 1881; aged 80; died at his home, January 14.

**Burton Harry Proctor, M.D.,** Boston; College of Physicians and Surgeons, Boston, 1915; aged 39; died in Cambridge, Mass., January 14.

**John T. Simpson,** Tullahoma, Tenn. (license, Tennessee, 1889); aged 61; died at his home, December 24, from cerebral hemorrhage.

**Benjamin F. Page, M.D.,** Littleton, N. H.; University of Vermont, Burlington, 1867; aged 74; died at his home, September 23.

## Marriages

Lieut. Samuel Thomas Forsythe, M. R. C., U. S. Army, Minneapolis, on duty at Camp Funston, Kan., to Miss Evelyn Sarah Mills of Minneapolis, at Chicago, December 22.

Capt. Ernest M. Kersten, M. R. C., U. S. Army, Two Rivers, Wis., on duty at Fort Oglethorpe, Ga., to Miss Anna Blessington Kinzie, at Palestine, Texas, December 28.

Howard Crosby Voorhees, M.D., New Brunswick, N. J., to Miss Florence M. Ward of Newark, N. J., at Princeton, N. J., January 19.

Pharmacist Claude C. Cannon, U. S. P. H. S., Washington, D. C., to Miss Conne Johnston, at Columbia, S. C., December 28.

Lieut. Samuel McCoy Sproat, M. R. C., U. S. Army, Portola, Calif., to Miss Marjorie Story of Chillicothe, Ohio, November 22.

Joseph Aloysius Donovan, M.D., Houlton, Maine, to Miss Mary Alice O'Hare of Milton, Mass., in Dorchester, Boston, January 15.

Raymond Lovejoy Johnson, M.D., Waycross, Ga., to Miss Martha Maxwell King of Atlanta, Ga., December 12.

Berman Dunham, M.D., Charlevoix, Mich., to Miss Agnes Burgo of Calumet, Mich., December 27.

# The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## THE NOSTRUM EVIL IN CANADA

### What a Toronto Paper Thinks of It

Toronto *Saturday Night* is a virile weekly that has taken a bold stand on many matters of public interest. It has frequently exposed financial fraud. It espoused the cause of the public recently in connection with a case of profiteering at a time when many newspapers were accepting large advertisements from the concern that was under investigation by a royal commission. In its issue of January 26, its editorial leader was entitled "Away with Quacks and Promoters," which read, in part:

> "It is quite probable that the coming session of Parliament will see some radical 'Blue Sky' legislation. It is long over due. If properly framed laws to protect the public against the townsiter and shoe string promoter had been placed on the Statute Books a dozen years ago, and had they been properly enforced, sufficient money would have been saved to the public to have easily taken care of one, if not two, of Sir Thomas White's war loans. Next possibly to the patent medicine faker, who it is to be noted is still going strong, and who certainly should receive due attention in the way of restrictive legislation as a matter of internal economy as well as health, the toy promoter who starts in with a snow ball in the way of capital and ends up with a fortune made up of other people's money, is deserving of the most drastic action on the part of our law givers. . . .
>
> "As to the patent medicine business, why should these people—purveyors of all sorts of 'sure cures'—still be allowed to advertise their trash in the public journals? The False Advertising Bill has pretty well eliminated the cancer 'cure' and the consumption 'cure' from our public journals, but we are still cursed with such things as Nuxated Iron and Tanlac and other 'secret remedies' that the country would be better without. It is not only a case of health saving, but of dollar saving as well. Millions of dollars are expended annually in this country for these cure-alls, and it is not too much to say that every dollar of it is misspent. We have reached a point in our existence when the patent medicine faker is to be eliminated. He has got to go. It is a question of morals, money and health. The nostrum seller is entitled to about as much consideration as an African witch doctor. He lives on the gullibility of the poor, the ignorant, and the sick, and he thrives largely by means of cunningly devised and to a great extent fraudulent advertising. The crepe should shortly be placed on the door of the medical quack, and the sooner the Federal Government takes a hand in his demise the better for the Canadian people."

## BASY BREAD

### Another Obesity Cure

A physician writes: "Enclosed find a clipping sent me by one of my patients. Can you give me any data on this stuff?" The clipping was an advertisement of the latest thing in "obesity cures," "Basy Bread!" This product is made by an Orange, N. J., concern calling itself the "Doctors' Essential Foods Company." The advertisement read in part:

> "Reduce Easily and Naturally. Eat Basy Bread and Grow Thin. 'Three Slices a Day Will Drive the Fat Away.'"
>
> "Basy Bread, the Health Bread, by its chemical action, destroys the fat already accumulated, and drives it out of the body."
>
> "It is unquestionably the safest, sanest, surest most natural and inexpensive method of reducing fat ever conceived."

The Journal has investigated so many obesity cures that, in spite of the fact that only a few inquiries have been received regarding this product, it seemed worth while to learn something about it. The suggestion in the advertisement was followed and a letter was written asking for information regarding Basy Bread and what it would do. The inquiry brought a circular letter and a twelve page booklet, From the letter it seems that a complete "course" of Basy Bread treatment for obesity covers a period of fifteen weeks, includes fifteen loaves of Basy Bread and costs the "ridiculously small" sum of $15. Moreover:

> "At the end of fifteen weeks we advise how to remain at normal weight permanently without cost or trouble!"

In these parlous times, when the high cost of living is a problem of no mean proportions, it is surely worth $15 to learn "how to remain at normal weight permanently without cost." But we suspect that this is hardly what the Doctors' Essential Foods Company means.

The booklet is interesting, if not convincing. One gathers from it that every system of flesh reducing except that of the Basy Bread course is futile and trivial. But:

> "Our method is easiest, simplest, most natural, most hygienic and pleasantest ever devised.

These superlatives are, in themselves, enough to make the obese clamor for Basy Bread, but when we read further that the "method" calls for "no rule of dieting that either deprives one of dishes that are palatable or for enough to eat to fully appease hunger" and further that "it calls for no different mode of living than to which you are accustomed," the urge becomes irresistible.

According to the manufacturers, Basy Bread is made from coarse ground, hard, whole wheat, preserved and sweetened with ground figs and containing vinegar, salt and water. Dr. Harvey W. Wiley writes that Basy Bread has been analyzed in the laboratory of *Good Housekeeping,* while Prof. Lewis B. Allyn has had the same preparation analyzed in the McClure-Westfield Laboratories. The analyses made in the last named institution compare the findings of the composition of Basy Bread with the average composition of graham bread. Here are the figures:

|  | Basy Bread | Average Graham Bread |
|---|---|---|
| Moisture | 37.11% | 34.80% |
| Protein | 11.98% | 8.93% |
| Fat | 1.09% | 2.03% |
| Ash | 2.06% | 1.59% |
| Carbohydrates | 47.72% | 53.40% |
| Acidity | 7.5 | 3.5 |
| Calories | 1166 | 1075 |

The purchaser of Basy Bread finds that, in addition to eating the preparation for which he is paying $1 a loaf, it is also necessary to follow the "Basy Bread Diet." This diet list is, in general, typical of those recommended in the reduction of fat. It calls for a great diminution in the use of most of the common starchy foods (bread, potatoes, etc.), oils and fats and sugars. Here, of course, lies the "joker." It may be remembered that in the trial of the Sargol fraud it was shown that if one followed the diet instructions that came with Sargol and fed the Sargol tablets to the cat, the same results would be attained. So it is with the Basy Bread course.

Dr. Wiley well summed up the case when he wrote: "There is one way in which Basy Bread will reduce, that is, don't eat any of it nor much of any other kind."

### CATCHING THEM YOUNG

#### The Campho-Phenique Concern Seeks the New Fledged Graduate

The secretary of the Harvard University Medical School received from the Campho-Phenique Company of St. Louis a letter that, presumably, has been sent to most of the medical colleges of the country. It read:

> "We wish to supply the senior class of all Medical Colleges with physicians samples of Campho-Phenique Liquid and Campho-Phenique Powder, and Ointment for 1918.
>
> "We will thank you very kindly if you will send us a communication stating the number of students in your graduating class, and if possible, we would like the name of each and every student, that we may send him personally a sample of Campho-Phenique. In this way, we are sure the party receives the sample."

Presumably the Campho-Phenique concern believes in following the old advice: Catch 'em young! In this connection it may be well briefly to call to the attention of fourth-year medical students the results of the investigation of the Council on Pharmacy and Chemistry of Campho-Phenique. The Council's findings on Campho-Phenique Liquid were to the effect that the preparation, which was exploited under a false "formula," was, essentially, a solution of camphor and phenol in liquid petrolatum, substances well known in medicine and none of which under its own name has been credited with possessing any superlative virtues. The Council's verdict on Campho-Phenique Powder was that "for all practical purposes it is essentially a camphorated talcum powder" containing, apparently, sufficient camphor and carbolic acid to give the talcum powder an odor. It was further brought out in the Council's report that the Campho-Phenique Company was in effect one of the numerous trade names adopted by one James F. Ballard of St. Louis. Mr. Ballard seems to market a number of "patent medicines," most of them sold direct to the public, but some, as in the case of Campho-Phenique, exploited to the public via the medical profession. "Herbine," a "marvelous preparation" that "puts the liver in healthy condition"; "Ballard's Snow Liniment" that when applied to wounds performs "a perfect cure that leaves no scar"; "Dr. T. L. Stephens' Chemical Eye Salve" which "acts quickly in all cases" and cures "failing vision," are some of the numerous "patent medicines" made and sold by Ballard. "Collins Ague Remedy," "Swaim's Panacea," "Swayne's Panacea" and "Renne's Pain Killing Oil" are four more of Mr. Ballard's products, for each of which he has pleaded guilty in the federal courts to making false and fraudulent claims knowingly and wantonly.[1]

If medical colleges of the better class were turning out graduates today who could be caught by free samples of such nostrums as Campho-Phenique, then, indeed, would the outlook for the future of scientific medicine be a gloomy one. But they are not. The young man or woman who goes out today from a reputable medical college is imbued with the scientific spirit, has developed habits of straight thinking and will not, we believe, be so uncritical as to accept at their face value claims made for nostrums of the Campho-Phenique type.

## Correspondence

### WAR PROBLEMS AND FOOD

*To the Editor:*—We are now witnessing one of the greatest races in the whole history of humanity, the race of the United States with Destiny. During the course of the war, we have often heard it said that help came too late—England was too late in Serbia, too late in Gallipoli, and the allied powers were too late in support of Italy. Shall we be too late to bring that help to our associates in this war that is necessary to prevent a German victory? I feel that we shall eventually win this war, but we have many ugly facts to face and face squarely.

One hears it said that food will win the war. How many realize that with food and food alone can we successfully fight the German submarine? The woman in her home can now play a more important part than the soldier in training. The German submarine is an attack on the left flank of the French, British and American lines that stretch from the North Sea to Switzerland, and on the Italian line, which is a continuation of that same western front. If the German submarine succeeds in its purpose, we lose the war. If we fail to send the food, the supplies and the soldiers that are required for the support of the western front, and fail to act promptly, we shall lose the war before we are fairly in it. The submarine must be defeated and defeated absolutely, or America cannot play its part in the war. It is no longer a question of helping the Allies. It is a question of maintaining the Allies in the fight until we can gather the necessary force that is required to smash the western front. Large supplies are in various parts of the world, but they might as well be in the moon, so far as the present shipping facilities are concerned.

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[1] See The Journal A. M. A., Feb. 17, 1917, p. 564.

The food of America and of Europe, outside of the Central Empires, has now been pooled in one common pool, on which we must live until the 1918 harvest comes in. And when one realizes that on the 1st of December the last of the surplus wheat was shipped out of this country, and that we can ship from now on only the wheat that we do not actually eat, the gravity of the problem is evident. France has reduced its bread ration; the Italian ration has gone down; England now goes on rations. Russia went down because of food riots and a badly fed army. Italy collapsed in part for the same reason. We cannot run the risk of the same sort of collapse in any more of our allies.

The present fuel situation brings the transportation problem of this country in its relationship to the war clearly to the front. Read what Fuel Administrator Garfield has said: "Ships idle in American ports, quantities of food and supplies absolutely required, in American ships, in American ports that cannot be sent where they are absolutely demanded, because of the fuel shortage." Our whole shipping, small as it is, only 50 to 60 per cent. efficient. What will it profit the American people to pile up manufactured products in the storehouses already full if the western front should crack? The one prime problem before the American people is to hold that western front. We must think of its support in terms of blood and not in terms of money. Our problem now is to send blood or bread. The amount of bread that we send will be a measure of the amount of blood that we must send later.

It is difficult for our American people, with their great surplus of food, to grasp the essential things of starvation. How many American people can understand what starvation is? What it means to the people of Switzerland or Finland or Roumania, to see those about them die because they have no food? That is going on today, and has gone on for many months.

The national government asks of the American people only a few small things, to save wheat, pork products, sugar and fats, and to consume the great abundance of other foods that they have.

No one here would take the bread from the hand of a starving child in northern France or Belgium, and yet the people of California, by the very food they have eaten today, have starved a number of persons to death. Food that has been eaten here cannot be sent abroad. There is only so much food available, and it is not enough. The women of America can fight the submarine by saving the foods that are required to defeat its purpose. Every man, woman and child every day, three times a day, either follows out the program of the national government and fights the kaiser, or by failing to do so definitely contributes to the success of the Central Empires. When we look at the attitude taken by the people of this country on the shortage of sugar, a 30 per cent. shortage of sugar, which affected only one part of our population, we can see how far we are from realizing our responsibility in the war. We are the sugar gluttons of the world, and yet to spare the small amount that would be required to bring the French sugar ration up to a minimum, we find a wave of protest going over the country. If the same thing holds true for wheat and pork products, and continues to be true for sugar, then we shall lose this war, and we shall deserve the humiliation that will come to us.

We must fight the German propaganda, whether it takes the form of an attack on food conservation, or the run on matches or salt, or a sneering reference to drafted men, or a prolonged, fallacious discussion of the terrible situation within the German Empire.

We must realize that we have to win this war with men who are yet in civilian clothes, send them across 3,000 miles of sea in ships that are yet to be built; these ships protected by submarine destroyers that are not yet laid down; armed with guns that are not yet on paper, and manned with crews that are still untrained.

During this whole period while we prepare, we must ask the peoples of France, Italy and England to go on into more years of bloody war. They can continue the task only if they are assured that we will make good.

Talk to the soldier who has been over the top, and you will find that the courage that sends him to his death comes from the sense of support that he feels is back of him. I have talked to such men, and they tell me the thing that made them willing to go forward at a sacrifice, if need be for their country and for their future, was the feeling they had that the hearts of every one of their countrymen beat for them and with them. We have got to make the soldiers of France, of England, of Italy and of our own expeditionary forces feel that the American people are back of them to a man.

Can the morale of these armies be maintained, can they be made to feel that such support is theirs, unless they have the bread and the pork products and the sugar and the fats that they need as a ration? If the American people cannot, out of their great plenty, provide them with these essential foods and get them to the Allied lines in spite of the submarines, they will feel that Germany is right when she states that the American people are bluffers, and that she can win the war before we can prevent it.

The greatest problem before the American people today is to convince the statesmen and peoples of those who fight with us that we mean business, mean to win this war in spite of every obstacle. If they can see and feel us coming, they will hold on, and we can train the men, build the ships and manufacture the guns that are necessary to finally blast the way into Germany.

Ray Lyman Wilbur, M.D., Palo Alto, Calif.
President, Leland Stanford Junior University.

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## A WARNING AGAINST OPERATIONS FOR VARICOCELE ON APPLICANTS FOR ENLISTMENT, REGISTRANTS FOR THE SELECTIVE DRAFT, AND SOLDIERS

*To the Editor:*—Until recently, varicocele disqualified for military service, and many applicants for enlistment in the Army and Navy and for admission to West Point and Annapolis subjected themselves voluntarily to this operation. Now that varicocele does not disqualify, officers and especially enlisted men who complain of discomfort in the groin and testicles during their physical training may be referred to the base hospitals in the various training camps and cantonments, and subjected to an unnecessary operation for varicocele.

The evidence against operation for varicocele, except in selected cases, is based on these facts: The majority of men suffering with this lesion show, after long observation, that the condition as a rule spontaneously disappears. Varicocele is observed most frequently after puberty and before the age of 21, and as a rule it disappears at about the age of 25, and, with few exceptions, before 30.

Those persons who have varicocele and are, in addition, neurasthenics, are rarely relieved of their nervous complaints by the operation for varicocele.

In the excision and ligation of the thin-walled, dilated veins there is always the danger, even when the greatest care is taken, of hemorrhage, which is followed by thrombosis, hematoma and epididymitis. This complication prolongs the period of disability, and in a few cases atrophy of the testicle results.

Even in those cases in which the operation is properly done and when there is little or no swelling of the testicle, or marked thrombosis of the lower stump of veins, a hydrocele may secondarily develop within a few months or years. The resultant hydrocele is much more annoying than the original varicocele.

When the patient has a hernia and varicocele, the danger of epididymitis and atrophy of the testicle and secondary hydrocele is much greater, if the veins are excised when the radical operation for hernia is performed. I am so convinced of this danger that I never excise the veins of the cord in operations for hernia on children, and only in exceptional cases in operations on younger men. I called attention to this in 1899 in a report on 459 cases of operation for hernia and forty-five cases of operation for varicocele (*Johns Hopkins Hospital Reports*, 1899, 7). On a number of occasions since then, I have written to the surgeon-generals of the Army and Navy, giving the evidence against disqualifying applicants for enlistment because of varicocele, and requiring an operation for their acceptance.

In 109 operations for hernia in which the veins were not excised, there was but one case of marked hematoma with atrophy of the testicle. In this case the veins were injured during the operation, and a huge hematoma developed at once. In this group many of the hernias were large, and the sacs adherent to the veins of the cord.

In sixty-one cases of operation for hernia in which the veins were excised by the older method, atrophy of the testicle took place in nine instances, about 15 per cent. In this older method, not only were the veins of the cord completely excised, but the cord was torn from its vascular bed in the inguinal canal.

In the paper already referred to, I described a method of excising the veins in operations for hernia in which the remainder of the cord is uninjured and its vascular attachments to the inguinal canal remain undisturbed; the cord is not transplanted. There are recorded fifty-three such operations without any recorded case of atrophy.

If we group all these cases of hernia in which the veins were excised, there would be 114, with nine atrophies of the testicle, or almost 8 per cent. No hydrocele was observed after operations for hernia in which the veins were not excised, but there were a number of cases of hydrocele, irrespective of the method of excision of the vein.

In sixteen cases of operation for varicocele, the incision was made through the scrotum. The results after this older method were traced in six cases, with the demonstration of one hydrocele and one atrophy of the testicle. When the veins had been excised by the newer method through an incision in the groin, seventeen out of twenty-nine cases were followed with no atrophy of the testicle, but there were five hydroceles —almost 30 per cent. Hydrocele, therefore, may follow the operation for varicocele even after the most approved method in which after operation there is no swelling of the testicle or thrombosis of the vein.

I trust that all surgeons who read this warning will not operate for varicocele, except in cases in which the huge size of the vein disqualifies the applicant or registrant for military service, or disables the soldier from further military service. From my long experience, I am confident that the number of these cases will be very small.

Unfortunately, my observations on hernia and varicocele since my publication in 1899 cannot be given in the same exact figures. I have ceased to excise veins in operations for hernia, except in a few cases in older men, and rarely now operate for varicocele. I doubt if I average two cases a year. I have not observed a single case of atrophy, but I have observed about the same percentage of hydroceles.

John Colt Bloodgood, M.D., Baltimore.

# *Queries and Minor Notes*

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

## ADMINISTRATION OF SODIUM BICARBONATE

*To the Editor:*—1. Our later conception of acidosis and allied conditions has made the free use of sodium bicarbonate an even commoner affair than formerly, and I should like to know some of the more elegant methods of administering this valuable drug. Will you suggest one or two?

2. I often wish to give it with a saline laxative; but there seems to be a reaction when it is added to either a solution of magnesium sulphate or the milk of magnesia. Are there reactions such as to render these combinations unwise or useless?

James A. Rolls, M.D., Santa Fe, N. M.

Answer.—1. The taste of sodium bicarbonate is not at all disagreeable, and few patients will object if the required dose is administered dissolved in a convenient quantity of cold water. If the taste is objected to, it may be disguised by dissolving the sodium bicarbonate in carbonated ("syphon") water, or else in ordinary water to which a little sugar and lemon juice have been added (the lemon juice will convert some of the sodium bicarbonate into sodium citrate, but this in the intestine is again converted to the alkaline salt). Sodium bicarbonate may also be prescribed in the form of compressed 5 grain tablets. Though it is better to direct that these be allowed to dissolve in the mouth, in most cases they are swallowed without causing discomfort.

2. When sodium bicarbonate is added to a fairly concentrated solution of magnesium sulphate, a precipitate of magnesium carbonate will form. When sodium bicarbonate is added to milk of magnesia, it is most probable that a reaction occurs forming an insoluble carbonate. The "incompatibility" probably is due to the fact that the fine suspension of magnesium oxid is destroyed and a precipitate of magnesium carbonate produced. It would be better to prescribe the laxative separately from the sodium bicarbonate, or to depend on a preparation of magnesium oxid, such as milk of magnesia, both for its laxative action and its antacid properties. Regarding the use of magnesium oxid, it is stated in Useful Drugs that magnesium oxid is used mostly as an antacid to neutralize excessive acidity in the gastric juice. It is especially suitable for cases of hyperacidity accompanied by constipation. It is preferable in most cases to the carbonates or bicarbonates, because it yields no gas on being neutralized.

## THE FILLING OF PRESCRIPTIONS CONTAINING ALCOHOL

*To the Editor:*—Will you please tell me if it is legal for a druggist in a local option territory, which is St. Joseph County, Mich., to fill a prescription written by a physician, combining alcohol with some other drug than the eight or nine drugs listed in the drug law to be combined with the alcohol? The druggists in our city refuse to fill the following prescription:

℞ Boric acid .................................. ℥ i
Alcohol .................................. ℥ vi

They say that it does not come under the drug law. I have been in the habit of using this prescription frequently to apply to the nipples in obstetric cases, and am anxious to know whether it is illegal for them to fill it.

David M. Kane, M.D., Sturgis, Mich.

Answer.—As stated in Queries and Minor Notes, The Journal, Jan. 19, 1918, p. 186, bonded druggists are permitted to fill prescriptions containing pure beverage alcohol, if sufficient drugs are added to prevent the prescription from being used for beverage purposes. The law requires that the druggist who fills the prescription determine whether the latter condition is complied with. In the case of a manufactured formula, as a proprietary medicine, the Revenue Department reserves the right to decide as to the nonbeverage character of the preparation. As the boric acid present would not prevent the use of the mixture as a beverage, the druggist is probably within his rights in refusing to fill the prescription.

## AN INCOMPATIBLE PRESCRIPTION

*To the Editor:*—Kindly let me know through Queries and Minor Notes if the following prescription is incompatible:

℞ Calcined magnesia .................................. gr. x
Salol ..................................
Aspirin .................................. āā gr. v

W. J. K., Salina, Kan.

Answer.—Yes. In the presence of moisture, calcined magnesia (magnesium oxid) reacts with acetylsalicylic acid to form magnesium acetylsalicylate. This in the presence of moisture is decomposed by magnesium oxid into magnesium salicylate and magnesium acetate. Salol in the presence of moisture will gradually decompose into magnesium salicylate and phenol (or magnesium phenolate).

**Punctures in Tent Cloth.**—J. L. Guignard, professor of botany at the University of Paris, called attention a while ago to the fact that tent cloth and sail cloth at the time of weaving are liable to contain certain special small molds which lie latent as long as the cloth is dry. Under moist heat they begin to grow and their mycelium and ferments alter the structure of the cloth so that it tears at this point. He never found this combination in cloth from accidental contamination after weaving; the fungus was always in the fibers used in the weaving. Bleaching the cloth destroys these fungi, and he suggests that cloth that is not to be bleached, or the tow before weaving, should be sterilized, preferably with steam. The waterproofing process (soap and copper sulphate) also seems to guarantee against "punctures" in the cloth from this cause.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

Alaska: Juneau, March 5. Sec., Dr. L. P. Dawes.

California: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

Connecticut: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

Connecticut (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

Kansas: Topeka, Feb. 12. Sec., Dr. H. A. Dykes, Lebanon.

Maine: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Missouri: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

Vermont: Burlington, Feb. 12. Sec., Dr. W. Scott Nay, Underhill.

## Closer Relationship Between the University of Cincinnati and the Cincinnati General Hospital

The City of Cincinnati, at an election held Nov. 6, 1917, adopted a new city charter, of which Chapters IV and V deal, respectively, with the University of Cincinnati and the municipal hospitals of Cincinnati. These paragraphs are as follows:

### IV. UNIVERSITY OF CINCINNATI

The mayor who takes office Jan. 1, 1918, shall appoint the successors to the three directors of the University of Cincinnati, whose terms expire next after the adoption of this charter, to serve, one for a term of nine years, one for a term of eight years, and one for a term of seven years from the day of his appointment and until his successor is appointed and qualified, and shall at the same time appoint the other six persons now directors of the university to serve, one for a term of six years, one for a term of five years, one for a term of four years, one for a term of three years, one for a term of two years, and one for a term of one year from the day of his appointment and until his successor is appointed and qualified; and thereafter as the term of each director expires, the mayor shall appoint one director to serve for a term of nine years and until his successor is appointed and qualified, and shall fill all vacancies in the board for the unexpired terms.

### V. HOSPITALS

1. The administrative and executive work of the municipal hospitals shall be controlled and directed by the director of public safety, except as hereinafter stated.
2. The medical work, teaching and nursing in the hospitals shall be controlled and directed by the board of directors of the University of Cincinnati in the manner hereinafter stated.
3. The superintendent of the hospitals shall be appointed by the director of public safety with the approval of the directing medical staff, and shall not be under civil service rules; he shall have authority, with the approval of the director of public safety, to appoint and remove all nonmedical employees, subject at all times to such civil service rules as may apply. He shall be responsible to the director of public safety for the efficient and economical management of the hospitals, and shall be a member of the directing medical staff and secretary of the same.
4. The directing medical staff of the hospitals shall consist of the superintendent, the dean of the medical faculty of the university, and the directors of the service of the several professional departments.
5. The board of directors of the university shall appoint to the directorship of each department of the municipal hospitals a professor from the corresponding department of the university.
6. The appointment of all subordinate members of the medical staff shall be made by the directing medical staff, with the approval of the board of directors of the university.
7. The directing medical staff shall determine the manner in which the medical work and teaching in the hospitals shall be organized and conducted, provided, however, that medical instruction shall be open to the students of any medical college in Cincinnati which is recognized by the State Medical Board of Ohio, or by any licensing authority which shall thereafter be provided by the state of Ohio.
8. There shall be a school of nursing and health under the department of medicine of the University of Cincinnati and a director thereof. The director and faculty of the school of nursing and health shall be appointed by the board of directors of the University of Cincinnati.
9. The director of the school of nursing and health shall be the director of the nursing department of the municipal hospitals, and the other members of the faculty of said school shall be appointed to such supervisory positions in the nursing department of the hospitals as the board of directors of the university shall designate.

# Book Notices

The Thyroid Gland in Health and Disease. By Robert McCarrison, M.D., D.Sc., F.R.C.P., Lauréat de l'Académie de Médecine, Paris. Cloth. Price, $4. Pp. 286, with 82 illustrations. New York: William Wood & Co., 1917.

The author, a British army surgeon, has had a large experience with diseases of the thyroid among the natives of India, in the goitrous regions of India and Europe, and in the leading clinics of Europe. He has done a great amount of research work, both clinical and experimental, on the thyroid gland, and is familiar with the work of others in this field. Appearing, as it does, when the flower of the profession is either in, or about to enter, Army service, the book makes one think of the excellent work of our own Army surgeons, from Beaumont to Gorgas. The present work adds another creditable achievement of the profession. The style is simple, direct and clear. Nowhere does the author present statements for acceptance without adequate scientific support. When opinion is presented, a logical basis for it is given. American investigators are given due credit for the work done in this field. The work of Kendall, Marine and Lenhart, Gaylord, Carlson and others is especially noted, and orientated with the work and opinions of the author.

The book is divided into three parts. The first discusses the anatomy, histology, physiology and life history of the thyroids and parathyroids. It forms a basis for the experimental and clinical work. This enables one not familiar with the foundations to brush up in the easiest way. The second part discusses the factors that determine the departure of the thyroid and parathyroid glands from health. Under the headings of improper food, residence in insanitary surroundings, influence of bacterial and other toxins, infectious diseases, intestinal toxemias, consanguinity and heredity, psychic influences, and the pathology of the glands, the author presents many interesting and varied conditions as causes of thyroid disturbances. Especial emphasis is laid on the probable infectious nature of diseases of the thyroid. The influence of intestinal stasis and putrefactions is shown, and the beneficial result, on the condition of the thyroid, of Sir Arbuthnot Lane's operation for intestinal stasis is indicated as proof that toxins of putrefactive material may be a direct or exciting cause of thyroid disease. The third part deals with the morbid states of the thyroid. It includes not only goiter and cretinism, but also tetany, myxedema and exophthalmic goiter. The diagnosis and treatment in each case are discussed.

In the present state of our knowledge of the thyroid gland and its diseases, we cannot put a final estimate on the author's presentation; but his impartial and able treatment of the subject is convincing. Exophthalmic goiter and hyperthyrodism are sharply differentiated. The work of Carlson, Rooks and McKee on hyperthyroidism is selected as the most painstaking research on the subject with which the author is acquainted. From this work, he selects loss of weight, gastro-enteritis and diarrhea as the chief symptoms of hyperthyroidism, as against tachycardia, nervousness and exophthalmos as the characteristics of exophthalmic goiter. He finds no evidence that exophthalmic goiter is the result of the flooding of the organism with thyroid substance, as stated by Biedl. In the treatment of exophthalmic goiter, operative interference with the thyroid gland effects nothing that hygienic and medical treatment cannot do, and the statistics of leading surgeons does not justify operation. The author also is convinced, from a study of the literature and from his own observations, that many patients are subjected to partial thyroidectomy who do not have exophthalmic goiter. He believes that surgery has a rational place in the removal of some of the causes of exophthalmic goiter, as chronic appendicitis, chronic intestinal stagnation, and other infections. In all cases of exophthalmic goiter he urges the use of every method to locate foci of infection and remove them. An appendix gives references to the author's numerous published papers on goiter, the influence of intestinal antiseptics on simple goiter, and a schedule of the more important epidemiologic and experimental researches carried out by the author. The work as a whole is a definite and stimulating contribution to the study of diseases of the thyroid.

## *Social Medicine, Medical Economics and Miscellany*

### Public Health Administration in Russia

Russia, with about 180,000,000 inhabitants, 85 per cent. of whom live in the rural districts, has developed a combined system of free medical care and health protection for her rural population to a point which is unique and of which we are only beginning to dream. This is the statement of Prof. C.-E. A. Winslow, professor of public health at the Yale Medical School, and member of the Red Cross Mission to Russia in 1917, who, in *Public Health Reports,* Dec. 28, 1917, gives the history and many details of the public health administration in that country which he studied in the past year during the revolution.

Previous to the creation of the zemstvos in 1864 by Alexander II, hospitals had been established and medicine had developed chiefly in the cities. Thirty-two provincial hospitals with 6,200 beds, and 303 district hospitals with 5,100 beds were turned over to the zemstvos, all in poor condition and badly mismanaged, without adequate provisions for isolation or care of communicable diseases. An effort was begun to give medical service free to the rural inhabitants, and by 1870 the zemstvos had arranged a system of fixed medical districts, each provided with a small hospital and a qualified physician. By 1890 there were 1,422 zemstvo medical districts with 1,068 hospitals of 26,571 beds and 414 dispensaries, and the number of their physicians had increased from 756 to 1,805, and the number of nonmedical assistants from 2,794 to 6,788. The tendency has been to make all hospital and dispensary treatment free, the care of the sick being recognized by the zemstvos as a natural duty of society rather than an act of charity. Thus the public care of patients developed first and preventive work developed as an offshoot, both being now closely related.

The province of Moscow is said to have the most highly developed organization for the promotion of zemstvo medicine. It supports a hospital for every 10,000 to 15,000 inhabitants, each with from twenty to sixty beds, an average of two physicians, two medical assistants and four sister nurses. Each of the larger hospitals assigns a certain number of beds for general use, for communicabe diseases and for maternity cases; each has its dispensary, and all medicines, as well as medical care, are given free; home visits are made only in serious cases. Financial aid is often given to women in childbirth and to invalids unable to go to the hospital. Separate provision is made for mental cases.

For prevention, Moscow province is divided into thirteen sanitary districts, with full time medical supervisors, and assistants, and there is a central statistical division, a laboratory and a vaccine institute. There is also a sanitary council for each district and one for the whole province, with district physicians, factory physician and others, all under the control of the provincial and district zemstvo assemblies, working under a sanitary code which was in force before the revolution.

The province of Saratov is given as an example of a more rural district, where, in 1911, the provincial zemstvo maintained a general hospital of 200 beds and a psychiatric hospital of 460 beds for a population of something over 3,000,000. The district zemstvos maintained 123 medical districts with seventy-eight hospitals and 1,106 beds, or one hospital to 2,525 persons. Each district had its own physician, with feldschers and other medical helpers at fifty-five other points. Clinic cases to the number of 525.9 and resident cases numbering 9.1 per thousand of population were treated, and 33.2 per cent. of the provincial and 31.6 per cent. of the district budgets were appropriated for medicinal and sanitary purposes, amounting to 50 copecks per capita. The regular zemstvo physician had sanitary supervision of his district, to combat epidemics, inspect schools and educate the public in health matters; there was also a sanitary supervisor with laboratory equipment for simple chemical and bacteriologic examinations, and a bureau of vital statistics with power to employ emergency workers in epidemics, etc.

Winslow says that not much progress has been made in general milk supervision, though there are infant welfare stations and milk distribution to a certain extent. Infant mortality has not been reduced much, if any, since statistics have been availabe, except in some of the western provinces, the chief reason for this being poverty and ignorance.

The principal developments of Russian public health have been along medical and bacteriologic lines, in the control of the more acute communicable diseases and in the field of vital statistics. The statistical bureaus of the central council of public heath and of the larger cities are better equipped with funds and with highly trained specialists than our own. The bacteriologic and chemical laboratories are also highly developed and in charge of high grade men with leisure and inclination for productive research. Sanitary engineering is somewhat neglected, but when the time comes its development will be fruitful.

The most important future development of public health in Russia, as elsewhere, Winslow believes, must be along educational lines in venereal diseases, tuberculosis and infant mortality, and the largest single task is the last. The great strategic point in the Russian health situation is the remarkable development of social medicine along curative lines and the close connection between curative and preventive work. The opportunity for developing educational preventive work in connection with such a system is practically unlimited.

### The Causation and Prevention of Trinitrotoluene (T. N. T.) Poisoning

A report dealing principally with the work of Dr. Benjamin Moore has recently been published (Special Report Series No. 11, British Medical Research Committee, obtained from T. Fisher Unwin, Ltd., London, W. C., 2). The rapidly increasing use of trinitrotoluene made the question of poisoning arising from it a matter of grave anxiety; and had it not been for the preventive measures, based on previous knowledge and experience of the nearest analogies, which were then promptly advocated by the Home Office, the mortality from this poisoning, which advanced during 1915-1916 until the autumn of 1916, when it reached its greatest height, must have been far higher. In July, 1915, the Home Office had warned the factories that trinitrotoluene might be absorbed through the skin, or by the inhalation of dust and fumes, and had recommended, accordingly, that precautions should be taken against both avenues of entry.

The number of cases of toxic jaundice from trinitrotoluene given in the returns of the Home Office for the months of July and August, 1916, show fifty-three cases, including thirteen deaths, as compared with seventeen cases (seven fatal) in the corresponding months of 1917, though the number of the workers exposed to risk in the present year has been far greater than in 1916.

The immediate and obvious result of trinitrotoluene absorption, whether through the skin or otherwise, is a chemical change in the hemoglobin of the red blood corpuscles and a consequent damage to the oxygen-carrying functions of the blood. This shows itself by a darkening of the blood color and in a pallor or duskiness of the skin with blueness of the lips (cyanosis). These chemical signs are accompanied by symptoms illustrating the deficiency in oxygen transport, and the consequent oxygen famine which is intensified in time of need, as is shown by breathlessness or air hunger on exertion. At least within wide limits, this condition is one from which the body can readily recover. If the fresh entry of poison is prevented, what is present is eliminated and the red blood corpuscles are rapidly restored by reversed chemical change and by fresh production, or both, to the normal, and this process is greatly aided by access to abundant fresh air.

Cyanosis is an abnormal condition, but by itself it does not kill. The fatal results of trinitrotoluene poisoning have been due to two other pathologic conditions. The most common has been a destruction of liver substance, overcoming the efforts of the body toward repair, and the outward sign of this is given by the escape of bile pigments from the liver to the general system. These pigments give the yellow tinge in the skin and other tissues to which the name "toxic jaundice" of this disease has reference. The second and rarer form of fatal ending has been the so-called aplastic anemia, in which the blood-forming organs fail in function and a progressive loss of the blood elements results. At present both toxic jaundice and aplastic anemia are incurable and rapidly fatal diseases when once established. It is of the highest importance, then, to detect the earliest possible indications of their beginnings, with a view to prevention; and the question of early detection, especially of toxic jaundice cases, has been one of the chief practical problems during the past year.

Cyanosis is the inevitable result of trinitrotoluene poisoning in experimental animals, while toxic effects on the liver have been very rarely produced. In dinitrobenzene poisoning, of which there is long industrial experience, while cyanosis is invariably produced, toxic jaundice is practically unknown. In the trinitrotoluene factories, again, while there have been many cases of severe and prolonged cyanosis on which toxic jaundice has not supervened, many of the most serious cases of toxic jaundice have begun apparently without cyanosis, and it has been specially notable that toxic jaundice has occurred in many, if not in most, cases after a very short period of exposure to risk, and therefore after a necessarily short history of cyanosis.

The report contains an account of prophylactic measures designed to combat trinitrotoluene poisoning. The early detection of cyanosis and the removal of affected persons from exposure are indicated. Adequate ventilation of the factories is, of course, essential; but the prevention of skin absorption through the provision of shell-filling machinery, protective clothing and skin varnishes for the hands appears to be of the greatest importance.

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## Medicolegal

### Leaving Skin Needle in Body of Patient

*(Hackler vs. Ingram (Tex), 196 S. W. R. 279)*

The Court of Civil Appeals of Texas, in affirming a judgment for $1,000 in favor of plaintiff Ingram, says that he sued defendant Hackler for damages for alleged negligence in leaving a skin needle sewed up in Mrs. Ingram's side when he performed an operation on her, and in subsequently failing to remove it, the needle being removed by another physician about nine months after the operation. It was insisted that there was error in permitting the plaintiff, while testifying as to his wife's affliction, to call it an abscess. But the statement of facts showed that not only this witness, but also his wife, spoke of the place from which the needle was subsequently taken as an abscess, and this without objection, so that the error, if any, would be harmless. However, the witnesses described the place as being a hard lump, showing inflammation, and stated that it, after the needle was removed, discharged pus for several months, and finally burst. The condition was thoroughly described to the jury, and it made little difference what it was termed, though the word "abscess" appeared to the ordinary mind as being properly descriptive of such condition. Neither was there error in the refusal of the trial court to permit evidence of numerous physicians who offered to testify that they had observed Dr. Hackler in operations, and that he was a skilful, competent and careful surgeon. No testimony of incompetency was offered, and the trial court charged the jury that if it should find that Dr. Hackler, in performing the operation on Mrs. Ingram, left a needle in her person, and permitted it to remain, and and that in so doing he failed to exercise "reasonable skill and ordinary care and diligence," and that as a direct and proximate result of such acts the plaintiff's wife was injured, etc., then to find for the plaintiff. The cause of action and recovery was therefore based, as the court of civil appeals conceives it, on negligence and unskilfulness in the performance of the particular operation and subsequent conduct with reference thereto, and this court does not think evidence of general skill and efficiency was admissible. However careful and competent a person may be generally, such fact is no defense to a specific act of negligence. It was urged that the verdict was excessive; and there was considerable expert testimony that a needle of this kind, if it was sterile, which this needle was supposed to be, embedded in the flesh, ought not to be so very painful, and that the wound would heal as soon as the needle was removed; and the defendant's testimony tended to show that a great deal of Mrs. Ingram's suffering was the result of hysteria. But the presence of the continued discolored and protruding lump in the side near the incision, where an operation had been performed on the vital parts of the body, with no satisfactory explanation for its cause, and as time passed not getting apparently better, but worse, was a natural cause for anxiety and worry, and, notwithstanding the testimony of the experts, Mrs. Ingram and her husband testified that she suffered intense pain during this time. The court cannot say that the verdict was excessive.

### Not Wilful Refusal to Provide for Child

*(Joiner vs. State (Tex.), 196 S. W. R. 525)*

The Court of Criminal Appeals of Texas reverses a judgment of conviction of defendant Joiner of violating the statute making it an offense for any parent wilfully or without justification to neglect or refuse to provide for the support and maintenance of his child under 16 years of age in necessitous circumstances. The court says the only question that needed to be passed on was whether the evidence was sufficient to sustain the conviction. The uncontradicted testimony showed that the defendant's child, 4½ years old, was very sick with pneumonia. The defendant and his family were members of a religious order which believed, and he believed, that medicine should not be administered to a sick person, who instead should be treated by praying to God to heal, by bathing the patient with water and oil, and by doing such other things as may be within their power to make the patient comfortable, to relieve pain, and expedite recovery. The defendant practiced this treatment with his child, and, according to his testimony, which was undisputed, he and his wife were doing all they could and all they knew how to do for it. He himself worked in the daytime, and was with his child and family at night. His wife was in constant attendance on the child. But the county and city health officers and the humane officer learned of the serious illness of the child, and commendably took steps to have the child properly treated from their standpoint. When they saw the child and its serious illness they demanded that the defendant should call in a physician to attend and treat it. The defendant at first refused to do this because he claimed that the treatment they were giving the child and their prayers were all that was necessary, and that the child would be cured. Because he refused to call a physician then the defendant was at once arrested and taken to the jail, but not incarcerated. The officers told him that unless he called a physician they would remove the child to a sanatorium and have the proper attention given to it. The defendant thereupon called a physician, who treated the child, and it soon recovered. Persons might differ as to whether or not the defendant's method of treating the child was a proper one, and, of course, no one can know whether the child would have recovered under that treatment or not; but under any phase of the testimony the court thinks it failed to show or to authorize the jury to find that the defendant wilfully or without justification neglected to provide properly for his child. On the contrary, the court thinks it showed that he did not wilfully or without justification fail to provide for his child in the sense intended by the statute to be made an offense. While he at first refused to call a physician and have his child properly treated, he did so as soon as the county health officers informed him of the serious illness of his child and the necessity for medical attention, and that they would remove the child to a sanatorium, etc. True, even at first when so informed he declined to call a physician, but the testimony showed that he did so very soon, or practically immediately thereafter. The court thinks the evidence excluded the idea of his neglect of his child or failure to provide for it in this respect to such an extent and for such a length of time as would show or justify the jury to find that he did so wilfully.

# Society Proceedings

## SOUTHERN SURGICAL ASSOCIATION

*Thirtieth Annual Meeting, held at St. Augustine, Fla., Dec. 18-20, 1917*

*(Concluded from page 341)*

### Subparietal Rupture of the Intestine from Traumatisms to Reducible Inguinal Hernias

Dr. Randolph Winslow, Baltimore: Subparietal rupture of the intestine is a comparatively rare injury. The symptoms of a subparietal rupture are very similar to those of a penetrating wound or a perforating ulcer of the stomach or intestine. As a subparietal laceration of the small intestine is always fatal, so far as known, when not operated on, it is of the utmost importance that a diagnosis should be made at the earliest possible moment. In any case of doubt it will be safer to open the abdomen and ascertain the extent of the lesions than to wait in the hope that no serious injury has occurred. My attention was directed to the rôle of a hernia in the production of intestinal lacerations by two cases that came under my care. In these cases blows on reducible inguinal hernias were followed by rupture of the intestine.

### Treatment of Certain Forms of Subacute Pancreatitis

Dr. Stephen H. Watts, Charlottesville, Va.: I have operated in three cases in which a diagnosis of gallstones had been made. Gallstones were found in the gallbladder and a cholecystostomy was done, but the pancreas and peripancreatic tissues were not drained. In all of the cases, fat necroses were found in the omental fat or in the fat about the pancreas, and the pancreas itself was somewhat—in fact, in one case markedly—thickened and indurated, but the outlines of the pancreas were fairly well defined. The condition, except for the fat necroses, suggested a chronic pancreatitis; the organ, therefore, was not drained. One of these patients recovered and was in good condition when seen a year after the operation. The other two died, the one nine, the other sixteen days after operation. Necropsies revealed extensive necroses of the head of the pancreas in both cases, and in one there was extensive hemorrhage in the tissues about the pancreas. I believe that if pancreatic drainage had been instituted in these cases, the result might have been different.

DISCUSSION

Dr. F. W. Du Bose, Selma, Ala.: A negress was sent to the infirmary with a diagnosis of enormous fibroid tumor. An assistant made the examination. On opening the abdomen I saw this enormous tumor with the stomach and duodenum spread out over it and densely and closely adherent to it. It was a pancreatic tumor, involving practically all of the pancreas, except the distal 3½ to 4 inches. The tumor was removed, and the distal end of the pancreas was stuck into the duodenum, a double row of sutures being used. We resorted to hypodermoclysis, and as soon as the operation was finished we gave an intravenous transfusion. The tumor was a sarcoma of the pancreas, globular in form, and measured about 15 inches in diameter. The woman died seven or eight hours after the operation.

Dr. Alexius McGlannan, Baltimore: If we will do as Dr. Watts recommends, and in addition to draining the gallbladder establish direct drainage of the pancreas, we shall provide an exit for the toxic material which forms, and give the patient an opportunity to recover rather than to absorb these toxins and die from a fulminating acute pancreatitis.

Dr. Lewis C. Morris, Birmingham, Ala.: About fifteen years ago I operated in a case in which there was marked enlargement of the head of the pancreas associated with stones in the gallbladder. The induration and enlargement were so great that I felt it was definitely a case of malignancy of the pancreas. I removed the stones and made an effort to get a specimen from the head of the pancreas for pathologic examination, and in so doing a rent was made in the portal vein. The vein was clamped and tied off, but no furtheer effort was made to secure a specimen for examination. The woman made a good hospital recovery and went home with the prognosis that death would probably ensue within a year or more. Two years ago I saw her alive and well. Her case was one of chronic pancreatitis secondary to an inflammatory condition of the liver, gallbladder and liver duct.

Dr. George A. Hendon, Louisville, Ky.: I should like to ask Dr. Watts whether or not in the cases in which he operated there existed a cholecystitis or cholelithiasis.

Dr. Joseph Ransohoff, Cincinnati: It is not good surgery to remove a piece of the pancreas for pathologic examination unless the tumor is limited. The smallest kind of wound of the pancreas is apt to bring about, by reason of autodigestion, an enormous amount of damage. I know of no way of diagnosing acute pancreatitis before operation. If an acute case has gone on to suppuration or abscess formation, if the case is not one of hyperpancreatitis, it is possible to make a diagnosis.

Dr. S. E. Watts, Charlottesville, Va.: In all of the three cases of subacute pancreatitis I found gallstones.

## WESTERN SURGICAL ASSOCIATION

*Twenty-Seventh Annual Meeting, held at Omaha, Dec. 14 and 15, 1917*

*(Concluded from page 342)*

### The Extreme Pendulous Abdomen and Its Surgical Treatment by a New Three Flap Operation

Dr. Neil John MacLean, Winnipeg, Manit.: The procedure that I have called the three flap operation is, I believe, the method of choice when operative treatment is undertaken in the case of extreme pendulous abdomen. Two long incisions forming an ellipse are made from one side of the abdomen to the other, the upper passing above the umbilicus, the lower passing about 2 inches above the fold where the abdomen hangs over the pubes. The skin and fat are dissected away from the external oblique aponeurosis until the ring of the umbilicus is met. The abdomen is then opened at the umbilicus, and the mass dissected away from the umbilical ring. The part of the abdominal wall that has given way can be lifted up in the form of a cone with the umbilicus forming the apex. Two lateral incisions are now made from the umbilical ring to the inner margins of the rectus muscles. A third incision is made from the umbilical ring downward to the firm lower margin of the internal ring, where the rectus muscles decussate. Three flaps are thus formed, two lower and one upper. The lower two flaps are overlapped from side to side, thus reducing by one half the space between the rectus muscles. The free margin of each flap is stitched with strong chromic catgut to the firm margin of the sheath of the opposite rectus muscle. The upper flap is drawn upward, and the upper margin of this lower and now double flap is stitched to the upper margin of the so-called internal ring. The upper flap is next drawn downward and spread over the lower double flap, and its margin stitched to the aponeurosis of the external oblique. The skin is closed and three small drain tubes are inserted, one at each angle and one in the center of the wound. In the place of the relaxed wall we have now a threefold aponeurosis covering the opening and secured at every point to normal anatomic structures that have not yielded to the intra-abdominal pressure.

### Supernumerary and Single Ureters Opening Extravesically

Dr. E. Starr Judd, Rochester, Minn.: I had two cases, one in which a single ureter opened into the urethra, and one in which the supernumerary ureter opened into the vagina. Under ordinary circumstances the procedure of choice is the abdominal extraperitoneal implantation of the abnormal ureter. We did this very satisfactorily in our second case in spite of the fact that there was considerable infection in the ureter at the time. In the abdominal operation the technic is more accurate and the implantation can be made with a better chance of preserving the lumen of the ureter, and therefore the function of the kidney. That ureters transplanted in this manner will continue to functionate and maintain a normal kidney function over a number of years, we have sufficient evidence. We recently examined two cases in which the ureter was transplanted four years ago, and in both instances the adjoining kidney was practically normal. In our two cases, incontinence was relieved immediately and relief has been permanent.

### Further Experience in the Use of Ether in Peritonitis and Other Infections

Dr. W. D. Haines, Cincinnati: For the past two and a half years my assistants and I have used ether intraperitoneally in all patients suffering of peritonitis coming to operation, a total of sixty-six cases with seven deaths, or a mortality of 10.4 per cent. for the entire series. This includes gastro-intestinal perforations from diseases, gunfire and stab wounds, abortion, leaking pus tubes and tuberculous peritonitis. In a fair percentage of the cases, primary union was obtained throughout the line of incision, and the patients recovered without going through the process of sloughing of the abdominal wall, frequent dressings, prolonged stay in the hospital, postoperative hernia and morbidity so frequently encountered in this type of infection.

### Gunshot Wound of the Cervical Spine

Dr. Carl E. Black, Jacksonville, Ill.: July 30, 1917, a boy, aged 2½ years, was brought to the hospital suffering from a gunshot wound of the cervical spine. The child had been in perfect health. The ball from a 22-caliber revolver had been accidentally discharged, and the ball had entered through the left upper lip, carried away the teeth from the left upper jaw, pierced through the pillar of the fauces, entered the posterior pillar of the pharynx, and lodged in the vertebral column a little to the left of the median line. The track throughout could be followed by inspection; and from the general direction of the ball and from the roentgenograms, I judged that it was lodged in the body of the axis. There was no paralysis, anesthesia or other evidence of direct pressure on the cord, and it seemed fair to assume that the ball had not entered the spinal canal or pushed bone in that direction far enough to cause pressure. The head was held rigid with the face rotated to the right, and any effort to turn the head or move the body gave pain and caused an outcry. The child was given an anesthetic, and the track followed with a probe until the foreign body could be felt embedded in the bone. It was dislodged by cutting away a bit of the bone around it, and with a pair of sharp pointed toothed forceps was loosened from its bed and extracted, leaving a deep cavity in the bone. In the bottom of the cavity something different from the surrounding structure could be felt with a probe. The bony opening was enlarged a little more until the point of the forceps could be introduced to the bottom, and a half of the tooth was extracted that had been carried in in front of the ball. The vertebral canal had not been entered. No opening could be found. Because of the pain on motion and extent of the trauma, the upper part of the trunk, neck and head were placed in a plaster cast in order to maintain perfect immobilization and to prevent the possibility of further injury. There was a considerable febrile reaction with nausea and vomiting, and there were other evidences of shock which were prolonged and which disappeared slowly. There was great physical and mental fear of movement. Recovery was slow, but seems to have been complete, and roentgenograms made nearly six months after the injury show the spinal column to be in good condition.

# *Current Medical Literature*

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Public Health, Boston

December, 1917, 7, No. 12

1 *Acute Contagious Disease in French Army. E. Rist.—p. 981.
2 Work of U. S. P. H. Service in Relation to Present War. J. W. Trask, Washington, D. C.—p. 987.
3 Results of Studies on Epidemic Poliomyelitis. E. C. Rosenow, Rochester, Minn.—p. 994.
4 Evolution of County Health Work. W. S. Rankin, Raleigh, N. C.—p. 998.
5 Determination of Ice Cream as Factor in Spread of Typhoid Infection. L. L. Lumsden, Washington, D. C.—p. 1005.
6 Bacterial Changes in Uniced Specimens of Water, Container for Transportation of Iced Specimens. H. Albert, J. J. Hinman, Jr., and G. Jordan, Iowa City, Ia.—p. 1010.
7 Comparability—Will-O'-the-Wisp of Cause of Death Statistics. G. H. Van Buren, New York.—p. 1016.
8 Housekeeping and Public Health. M. Talbot, Chicago.—p. 1026.
9 Specificity of Disinfectants and Its Bearing on Their Standardization. A. L. Walters, Indianapolis.—p. 1030.
10 *Patent Medicine Situation. J. P. Street, New Haven, Conn.—p. 1037.
11 Simple Medium for Differentiation of Members of Typhoid, Paratyphoid Group. I. J. Kligler, New York.—p. 1042.
12 Method of Isolating and Identifying Bacillus Coli Used at Cincinnati Filtration Plant. S. J. Hauser, Cincinnati.—p. 1050.

1. **Acute Contagious Diseases in French Army.**—During the whole course of the war, there have been only two cases of smallpox in the French army, and not more than fifty in the civilian population. From Jan. 1, 1915, to Dec. 31, 1916, there were only 193 deaths from dysentery. There has not been a single case of typhus or cholera in the French army in spite of the fact that these diseases are endemic in Morocco and Corfu from where many of the French troops have come. Uncinariasis is endemic in the native population of French Indo-China. Many ten thousands of Indo-Chinese have been imported into France since the beginning of the war, to do work in the ammunition factories and in the hospitals. They have been so carefully selected, examined, and, when necessary, treated, that there has not been a single case of uncinariasis in France.

The only tropical disease which has been imported into France so far, is amebic dysentery. It had been overlooked at the beginning, when North African troops contaminated quite a number of men in some French units. Now the carriers are very carefully searched after, segregated and treated, and there is no further extension of the disease. As regards communicable infectious diseases, there has been a steady decrease in number of cases and mortality, due particularly to the reduction in the number of typhoid cases. When the war began, a small number of soldiers actually in training had been vaccinated against typhoid. The 2½ million men who were not in actual training when the war began had not been vaccinated. But by the end of 1915, more than 80 per cent. of the army had been vaccinated. At the same time, other prophylactic measures had been taken: The drinking water problem had been solved, the disposal of fecal matter had been provided for, the general sanitary condition of the trenches and cantonments had been much improved. Carriers had been searched for—at least in some instances—and isolated. The combined effect of those measures with vaccination was that considerable decrease of cases from 5,587.8 monthly to 1,040.1, or, to put it more strikingly, from 13,993 in January, 1915, to 323 in December, 1916.

10. **Patent Medicine Situation.**—Street reviews the operation of the Federal Food and Drugs Act and the Sherley amendment and directs attention to the requirements drawn up by the National Vigilance Committee of the Associated Advertising Clubs of the World. In brief, these are as follows: 1. The medicine must be appropriate for the particular affection for which it is recommended and must not affect unfavorably the course of the disease. 2. The remedy must not be named or advertised in a way to conceal its proprietary character. 3. The remedy should be offered through the regular wholesale or retail channels of trade, and not directly to the purchaser from the manufacturer. 4. If the prepara-

tion contains alcohol, it must be sufficiently medicated to prevent its use as an alcoholic beverage, and the proportion of alcohol should be no greater than that needed to hold permanently in solution the essential active ingredients of the preparation. 5. If the preparation is one which may be taken internally it must not contain cocain, nor opium or any of its alkaloids, in greater proportion than those specified in the Harrison Act. 6. No children's remedy shall contain cocain, or opium or its alkaloids, or their derivatives, in any proportion whatever. 7. If the preparation is one which may occasion injury through misuse, proper warning against such use must be given on the label. 8. The preparation must not be intended for use as an abortifacient nor for any other immoral or illegal purpose, nor must it be advertised directly or indirectly for such a purpose. 9. The preparation must not be advertised or recommended, directly or by inference, as a cure for the diseases or conditions generally recognized as incurable by the simple administration of drugs, or for the cure of contagious diseases or those sufficiently acute to require skilled treatment. 10. The preparation must be in strict conformance with the Sherley Amendment. 11. Advertising not accompanying the package shall conform substantially to the statements on the label, carton or accompanying circular as to origin, composition, character and curative value.

### American Review of Tuberculosis, Baltimore

January, 1918, 1, No. 11

13 *Importance of Prolonged Bed Rest in Treatment of Pulmonary Tuberculosis. J. H. Pratt, Boston.—p. 637.
14 *Comparison Between Skin Tests, Using Various Tuberculosis Antigens, and Complement Fixation Phenomenon. F. W. Wittich, Minneapolis.—p. 654.
15 *Are Sanatoriums Worth While? B. W. Billings and J. B. Hawes, 2nd Boston.—p. 663.
16 *Tuberculosis Preventorium for Infants in Farmingdale. A. F. Hess, New York.—p. 669.
17 *Animal Experiments in Immunity and Treatment of Tuberculosis with Cell Poison Obtained from Sputum. W. B. Howes, Rutland, Mass.—p. 674.

13. **Bed Rest in Treatment of Tuberculosis.**—Pratt's observations were made on three types of cases: (1) the sick poor; (2) private patients treated in their homes; (3) private patients treated in a small sanatorium at Lunenburg, Mass. Keeping the lungs at rest in order to promote healing is the basis of the rest treatment. Absolute rest for the lungs is, of course, impossible but rest to the body and rest to the mind greatly lessens the work of the lungs and diminishes the blood flow through them. It takes a long time for firm scar tissue to form; hence, according to the severity and extent of the disease, months or years must elapse after the development of a fresh tuberculous process before pulmonary exercise can be taken without danger. Injury from exercise cannot always be detected, no matter how careful is the supervision, until it is too late to prevent renewed activity in the diseased area or a spread of the disease to other parts of the body. Herein lies the greatest danger from exercise in tuberculosis. This tendency of the disease to "light up" without warning furnishes an additional reason for a long continued period of rest until sufficient time has elapsed for the defense wall of scar tissue to become thick enough to protect the human host against the tubercle bacillus.

The bed should be placed outdoors, and, if necessary, a porch should be constructed. The meals are eaten in bed. In cold weather the bed is rolled into a warm room adjoining the porch at meal time. The morning bath is given by a nurse or attendant. Most of Pratt's patients have been kept in the recumbent position, but it is possible that a semirecumbent position is preferable, as it has been shown that the gaseous metabolism is lower, and that there is less inspiratory widening of the thorax, especially of the lower ribs. The patient should lie chiefly on the side of the chest that is most diseased. The placing of a small, firm pillow under the dependent side, as advocated by Webb, will aid in keeping the lung at rest. There should be mental as well as physical rest. The fewer the visitors the better. All excitement should be avoided, and talking restricted. The amount of reading should be limited, and little writing allowed. Games and knitting are forbidden, except as recognized forms of exercise after the initial period of strict bed rest. Coughing is injurious, but rest has proved so effective in favorable cases that Pratt has made little use of drugs. This investigation shows that the failure to cure pulmonary tuberculosis is not due to the incurability of the disease but to the fact that the proper treatment has not been employed. Tuberculosis can be cured in and out of sanatoriums in a larger proportion of cases by the strict rest treatment. As the most complete rest can be obtained only in bed, clearly bed rest outdoors should yield a larger percentage of recoveries in a shorter period of time than any other known method. The results published in this report confirm these statements.

14. **Skin Tests and Complement Fixation in Tuberculosis.**—Wittich is doubtful of the specific value when either the skin or hemolytic tests are done alone so far as differentiating between infection and disease, but when done together they are of value and furnish valuable confirmatory data to the other findings. Whether there is any relationship between the skin and fixation tests in certain stages of the disease and with certain antigens Wittich is not prepared to say but his results tend to show that there is.

15. **Are Sanatoriums Worth While?**—This paper is based on an examination of the present condition of 1,056 patients discharged from the Massachusetts state sanatoriums at North Reading, Lakeville, Westfield and Rutland during the two years from May 1, 1912, to May 1, 1914. The study shows that sanatoriums are distinctly worth while and should be encouraged in every way, but that some system whereby patients can be looked up, visited, and advised after their discharge, is an essential part of sanatorium treatment. The patient discharged with his disease "arrested" or "quiescent" does not always realize how temporary this may be or how slim his margin of safety.

16. **Tuberculosis Preventorium for Infants.**—Two years' experience has convinced Hess that it is quite possible to save the infants of tuberculous mothers.

17. **Animal Experience with Cell Poison from Sputum.**—The results of some of Howes' experiments suggested a possible beneficial action of cell poison in supporting the combating forces. Cell poison in small repeated doses and in large doses had similar deleterious effects on control pigs. The results of these experiments at least warrant a more thorough investigation, especially of the therapeutic value of cell poison obtained from sputum.

### Annals of Otology, Rhinology and Laryngology, St. Louis

September, 1917, 26, No. 3

18 Wax Model of Nasal Cavity and Paranasal Sinuses. C. M. Jackson and C. E. Connor, Minneapolis.—p. 585.
19 Closure of Obstinate Openings of Drumhead. F. Allport, Chicago.—p. 617.
20 Case of Coexistent Carcinoma, Tuberculosis and Syphilis of Esophagus. L. W. Dean, and J. B. Gregg, Iowa City.—p. 619.
21 Stereoscopic Roentgenograms of Head. J. M. Ingersoll, Cleveland. p. 637.
22 Voice Production from Standpoint of Laryngologist. H. P. Howell, New York.—p. 643.
23 Intranasal Drainage of Frontal Sinus. E. F. Ingals, Chicago. —p. 656.
24 Primary Diseases of Labyrinth as Result of Focal Infection. G. E. Shambaugh, Chicago.—p. 685.
25 Static Labyrinth in Syphilis. J. W. Downey, Jr., Baltimore.—p. 693.
26 *Serial Frozen Sections of Thorax from Case of Aneurysm of Aortic Arch. G. Fetterolf and G. W. Norris, Philadelphia. —p. 711.
27 Value of Galvanic Method of Testing Functions of Inner Ear and Eighth Nerve. G. W. Mackenzie, Philadelphia.—p. 733.
28 Cases of Hemorrhagic Mastoiditis. G. W. Boot, Chicago.—p. 744.
29 Hemorrhage in Rhinolaryngologic Work. A. M. Corwin, Chicago. —p. 749.
30 Subperiosteal Abscess of Mastoid Cure by Paracentesis. S. Salinger, Chicago.—p. 758.
31 Foreign Bodies in Esophagus; Analysis of Fifty Cases. S. A. Friedberg, Chicago.—p. 768.
32 Case of Nasal Sarcoma Cured by Radium. O. J. Stein, Chicago. —p. 782.
33 Perisinus Abscess; Extensive Thrombosis; Multiple Metastatic Abscesses; Jugulectomy; Recovery. O. Glogau, New York. —p. 788.
34 Suspension Laryngoscopy. H. L. Pollock, Chicago.—p. 793.
35 Diagnosis of Cerebellar Disease; Report of Two Cases. E. J. Bernstein, Detroit.—p. 804.

26. **Aneurysm of Arch of Aorta.**—Photographs of the patient were obtained at various periods during life and showed successive steps in the growth of the protruding mass. Frozen sections were made of this case which had had careful clinical study, and as a result conditions as they had existed in vivo could be reproduced accurately and deliberately studied after death. Search of the literature reveals the fact that this is the first opportunity of this kind which has arisen and of which advantage has been taken. The exact site of rupture, and the cause and mode of death could be determined and depicted with a degree of accuracy, certainty and detail which would be impossible of attainment in an ordinary necropsy. The hydrothorax, the pulmonary atelectasis, and the extreme dyspnea are explained in a manner which by any other method of study would have been much less satisfactory, if at all possible. The last statement is equally true of the anatomic relations. The altered position and general changes in the bronchial tree and other thoracic contents are depicted in such a graphic manner as to show to the laryngologist and internist alike what does take place in the presence of such a lesion as this large aneurysm. It also suggests what may take place in future clinical cases in the presence of other disturbers of the normal intrathoracic relations.

### Boston Medical and Surgical Journal

Jan. 17, 1918, **178**, No. 3

36 Roentgen Rays in Phthisis. G. W. Holmes, Boston.—p. 71.
37 Obstetrics. R. L. DeNormandie, Boston.—p. 76.
38 Focal Infection and Rheumatism. W. E. Preble, Boston.—p. 82.
39 Causes and Treatment of Chronic Hyperacidity, Heartburn and Sour Regurgitation. L. Fischbein, Boston.—p. 86.
40 Artificial Pneumothorax. H. F. Gammons, Carlsbad, Texas.—p. 90.
41 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 91. To be continued.

### Illinois Medical Journal, Chicago

January, 1918, **32**, No. 1

42 Double, Recurrent and Bilateral Tubal Pregnancies. A. P. Heineck, Chicago.—p. 1.
43 Epidemiology of Poliomyelitis. A. Strauch, Chicago.—p. 7.
44 Early Symptoms and Diagnosis of Poliomyelitis. E. K. Armstrong, Chicago.—p. 11.
45 Prognosis of Infantile Paralysis. F. D. Francis, Chicago.—p. 15.
46 Poliomyelitis. C. W. East, Evanston.—p. 18.
47 Postoperative Treatment of Surgical Cases. A. J. Ochsner, Chicago.—p. 20.
48 Pseudo-Appendicitis Uncovered. W. F. Grinstead, Cairo.—p. 21.
49 War Work of American Medical Women. E. M. Mosher, Brooklyn.—p. 23.
50 Radium. C. W. Hanford, Chicago.—p. 26.
51 Bedside Blood Counts. A. Gehrmann, Chicago.—p. 30.
52 Garden Work for Women in Public Institutions. I. M. Davenport, Chicago.—p. 32.
53 Compulsory Health Insurance. L. P. Kuhn, Chicago.—p. 36.
54 Are Our Present Methods of Combating Pulmonary Tuberculosis Equal to Task? J. L. Jacque, Chicago.—p. 41.
55 Medical Officer with National Army. P. J. H. Farrell, Chicago.—p. 46.
56 Causes of Insanity and Relation of Family Physician to Patient. J. T. Rooks, Kankakee.—p. 48.

### Journal of Biological Chemistry, Baltimore

January, 1918, **33**, No. 1

57 *New Method for Detection of Occult Blood in Stools. W. G. Lyle and L. J. Curtman, New York.—p. 1.
58 *Proteins of Cow's Milk. T. B. Osborne and A. J. Wakeman, New Haven, Conn.—p. 7.
59 New Hydrogen Electrode for Electrometric Titration of Alkaline Reserve of Blood Plasma and other Frothing Fluids. J. F. McClendon, Minneapolis.—p. 19.
60 Applications of Gas Analysis: IV. Haldane Gas Analyzer. Y. Henderson, New Haven, Conn.—p. 31.
61 Id. V. Blood Gas Analysis. Y. Henderson and A. H. Smith, New Haven, Conn.—p. 39.
62 Id. VI. Respiratory Exchange and Indirect Calorimetry. Y. Henderson, New Haven, Conn.—p. 47.
63 Study of Dietary Essential, Water Soluble B, in Relation to Its Solubility and Stability Toward Reagents. E. V. McCollum and N. Simmonds, Madison, Wis.—p. 55.
64 Effects of Diet on Plasma Chlorids and Chlorid Excretion in Dog. J. H. Austin and L. Jones, Philadelphia.—p. 91.
65 Studies of Acid Production. Mineral Loss During Acidosis. M. Sawyer, L. Baumann and F. Stevens, Iowa City, Iowa.—p. 103.
66 Lecithin. Hydrolecithin and Its Bearing on Constitution of Cephalin. P. A. Levene and C. J. West, New York.—p. 111.
67 *Colorimetric Determination of Hemoglobin. W. W. Palmer, New York.—p. 119.
68 Gasometric Determination of Oxygen and Hemoglobin of Blood. D. D. Van Slyke, New York.—p. 127.
69 Studies of Oxygen in Venous Blood. Technic and Results on Normal Individuals. C. Lundsgaard, New York.—p. 133.
70 Adenin and Guanin in Cow's Milk. C. Voegtlin and C. P. Sherwin, Washington, D. C.—p. 145.
71 Nutritive Properties of Kafirin. A. G. Hogan.—p. 151.
72 Occurrence of Lichenase in Digestive Tract of Invertebrates. M. E. Jewell and H. B. Lewis, Urbana, Ill.—p. 161.
73 Amount and Distribution of Creatinin and Creatin in Normal Human Blood. A. Hunter and W. R. Campbell, Toronto, Canada.—p. 169.
74 *Influence of Thyroid Feeding on Carbohydrate Metabolism. Storage and Mobilization of Liver Glycogen in Thyroid Fed Animals. S. Kuriyama, New Haven, Conn.—p. 193.
75 *Id. Epinephrin Content of Suprarenals of Thyroid Fed Rats. S. Kuriyama, New Haven, Conn.—p. 207.
76 Id. Acidosis in Experimental Hyperthyroidism and Its Relation to Epinephrin in Blood and Decrease of Liver Glycogen. S. Kuriyama, New Haven, Conn.—p. 215.
77 Structure of Yeast Nucleic Acid. Uridinephosphoric Acid. P. A. Levene, New York.—p. 229.
78 Determination of Sodium and Potassium. F. H. McCrudden and C. S. Sargent, Boston.—p. 235.

57. **Detecting Occult Blood in Stools.**—The method described by Lyle and Curtman was used in the examination of over 500 stools tested for occult blood with satisfactory results. The following procedure was adopted: Approximately 10 gm. of the stool are transferred to a beaker, 25 c.c. of distilled water are added, and the mixture is stirred until of uniform consistency. Over a low flame the mixture is heated, with constant stirring, to boiling and kept at the boiling temperature for several minutes. After cooling, one half of the mixture is transferred to a glass-stoppered bottle of 80 c.c. capacity, 5 c.c. of glacial acetic acid and 25 c.c. of ether are added and the mixture is thoroughly shaken and allowed to stand for several minutes. In a test tube, 2 c.c. of the ether extract are treated with 0.5 c.c. (1 : 60) of a preparation of guaiaconic acid, made by the authors from gum guaiac, and finally 1 to 5 drops of 30 per cent. perhydrol are added slowly from a pipet. A decided green, light or dark blue, or purple color indicate the presence of blood in quantity to be of clinical significance.

58. **Proteins of Cow's Milk.**—From the alcoholic washings of large quantities of casein Osborne and Wakeman have isolated several hundred grams of a protein which closely resembles gliadin of wheat in its solubility in alcohol of 50 to 80 per cent. Although the actual amount of this protein in milk is extremely small, the large quantity obtained as a by-product from the necessary processes incident to the authors' feeding experiments seemed to justify a special investigation of its physicial and chemical peculiarities. The results of this investigation have shown that this protein is an original constituent of milk and not a derivative of any of the other proteins contained therein. Since preparations have been obtained so far free from each of the other milk proteins that no evidence of such contamination could be detected by the anaphylaxis reaction, the authors feel justified in regarding it as a new constituent of milk.

67. **Colorimeteric Determination of Hemoglobin.** — The method described by Palmer for the determination of hemoglobin depends on the comparison, in a colorimeter, of carbon monoxid hemoglobin solutions, one of which has a known hemoglobin content. Blood is obtained in the usual manner by pricking the finger or lobe of the ear. A 1 per cent. solution of blood is made by drawing 0.05 c.c. into a special pipet and transferring into 5 c.c. of 0.4 per cent. ammonia solution—accurately measured with a calibrated pipet or buret into a 12 by 120 mm. test tube. The blood pipet is rinsed out by drawing into it two or three times the ammonia solution. Ordinary illuminating gas is bubbled rapidly through the ammonia blood solution for thirty seconds, after which, it is compared in a Duboscq colorimeter with a standard carbon monoxid hemoglobin solution set at 10. The average of at least four readings is taken. The calculation is simple, $\frac{10}{R} \times 100 =$ per cent. hemoglobin.

74. **Thyroid Feeding and Liver Glycogen.**—Kuriyama investigated the glycogenetic and glycogenolytic action of the liver

of thyroid fed animals, the influence of thyroid feeding on the liver glycogen of frogs, the interrelations of the thyroid and suprarenals, acidosis after thyroid feeding, and the influence of alkali on the diminished content of liver glycogen of thyroid fed animals. Desiccated thyroid was usually fed, although fresh pig thyroid was used in one series of experiments. Kuriyama found that the storage of glycogen in the liver of thyroid fed rats does not occur readily, even with the administration of a large amount of a very high carbohydrate diet. In fasted rats the liver glycogen reappears abundantly after ingestion of a comparatively small amount of food. If a sufficiently large calorific food intake is administered to thyroid fed rats, liver glycogen may sometimes reappear to a limited extent. The quantity of glycogen so stored is, however, much smaller than that in fasted rats, subsequently given food with a fuel value several times less than that of the thyroid fed rats. The diastase content of the normal rabbit serum and the normal rat liver is about 62.5 and 156 to 250, respectively. Thyroid feeding does not change these values markedly. The glycogen of the liver of thyroid fed frogs (*Rana pipiens*) is practically the same as that of controls.

75. **Epinephrin Content of Suprarenals after Thyroid Feeding.**—Kuriyama says that thyroid feeding of either short duration with large doses or long duration with small doses does not materially change the epinephrin content nor the weight of the suprarenals of medium seized albino rats.

### Journal of Laboratory and Clinical Medicine, St. Louis

January, 1918, **3**, No. 4

79 Liberation of Epinephrin from Suprarenal Glands. J. M. Rogoff, Cleveland.—p. 209.
80 *Responsibility of Vaccinator in Overcoming Rational Objections to Smallpox Vaccination. J. N. Force and I. M. Stevens, Berkeley, Calif.—p. 220.
81 *War Deafness and Its Prevention; Report of Tests on Eight Preventives. S. R. Guild, Ann Arbor, Mich.—p. 226.
82 Compact Box for Collection and Transportation of Blood for Hemoglobin Estimations and Cell Counts. S. P. Reimann and E. P. Heller, Philadelphia.—p. 238.
83 Aids to Laboratory Efficiency. M. J. Breuer, Lincoln, Neb.—p. 241.

80. **Overcoming Objections to Smallpox Vaccination.**—In order to test the effect of age, method of preparation, and method of storage on the potency of vaccine, Force and Stevens conducted a number of vaccinations with vaccines of various ages prepared by various methods. In a series of vaccinations made with vaccines ground in glycerin and stored in the ice-box for varying periods before use there were 8 reactions and no failures at the end of six months' storage; 8 reactions and 1 failure at the end of five months; 18 reactions and 1 failure at the end of four months; 24 reactions and 1 failure at the end of three and one-half months; 178 reactions and 1 failure when the vaccine had been stored for five weeks; and 33 reactions with no failures when the vaccine had been stored two weeks before use. In a similar series made with a glycerinated vaccine which had in addition been subjected to the action of ether to reduce the number of contaminating organisms before storage in the ice-box, there were 8 reactions and 1 failure with vaccine six months in storage; 2 reactions and 4 failures with vaccine held five months; 19 reactions and no failures with vaccine held four months, and 14 reactions and no failures with vaccine held three and one-half months. The percentage of failures in this series is only slightly higher than with the corresponding glycerinated vaccines which had not been etherized. In a series of 230 vaccinations made with a vaccine which had been etherized but showed a high bacterial count there were no failures; but equally good result were obtained in 168 vaccinations with a vaccine which had been etherized until practically sterile. In 38 vaccinations with a vaccine which had been incubated for twenty-four hours after grinding in glycerin and then stored in the ice-box until practically sterile, there were no failures. A series of sterile vaccine prepared according to the method of Noguchi, by passage through rabbit testicles, resulted in 5 reactions and 4 failures on second passage of the strain originally received from the Rockefeller Institute; 10 reactions and 11 failures on the fifteenth passage, and 7 reactions and 56 failures on the twenty-ninth passage through rabbit testicles. This shows a steady deterioration which Greely believes to be due to the absence of certain sporelike forms of the organism which are present in vaccine cultivated on the skin. The results of these vaccinations show that the greatest factor in vaccine potency is the maintenance of ice-box temperature during the entire period between manufacture and use. Etherizing and preliminary incubating do not appear to affect the potency provided the vaccine is properly iced. On the other hand, failure to secure constant ice-box conditions will result in the use of large amounts of inert virus even if the expiration date is not exceeded.

81. **War Deafness and Its Prevention.**—The relative efficiency of various devices for preventing injuries to the ear parts by detonations was tested on guinea-pigs by Guild. Eight preventives have been used in the work done to date: 1. The "Scientific Ear Drum Protector, Tommy," consisting of a hollow soft rubber spherical bulb with an opening on one side surrounded by a flange. 2. A device invented by Dr. J. Gordon Wilson and Prof. A. A. Michelson, consisting of a hollow framework of hard rubber in which is supported a valve of light metal so arranged as to stay open and permit ordinary sounds to pass at the edges, but so adjusted that detonation waves can cause it to shut by moving inward and forming contact with what may be called the valve seat. The Elliott "Perfect Ear Protector." 4. The "Mallock-Armstrong Ear Defender." 5. Wax cones which Guild made after the description given by Rho as having been adopted in the Italian navy. 6. Dry cotton placed firmly. 7. Cotton saturated with glycerin, carefully kneaded to drive out all the air bubbles possible. 8. Cotton saturated with petrolatum, carefully worked in until a uniform mass was obtained. In the first group Guild places the "Tommy" and the Mallock-Armstrong devices. There is nothing simpler to keep clean than "Tommy" and for army use it seems the best of those tested. The wax cone of the Italian navy type comes next in order, followed closely by cotton soaked with petrolatum. Cotton soaked with glycerin did not protect quite so well as that saturated with petrolatum; the explanation probably lies in the greater viscosity of the petrolatum. The Elliott Perfect Ear Protector and the Wilson-Michelson device rank together with dry cotton as having been given the least protection to the middle ear parts of the animals used. With all three preventive measures every animal showed positive injuries, and one out of each group of three animals had a ruptured tympanic membrane. Of the mechanical devices, the Elliott reduces ordinary sounds the least and the "Tommy" the most, the "Tommy" cutting it down more than dry cotton does, but all of the mechanical devices permit more to pass than do the wax or the soaked cotton plugs.

### Journal of Nervous and Mental Disease, Lancaster, Pa.

December, 1917, **46**, No. 6

84 *Pathology of Nervous System in Progressive Lenticular Degeneration. L. J. Pollock, Chicago.—p. 401.
85 *Psychoses Associated with Diabetes Mellitus. H. D. Singer and S. N. Clark, Kankakee, Ill.—p. 421.
86 Rational Use of Lumbar Puncture and Interpretation of Findings. J. B. Ayer.—p. 429.
87 Paronoic Condition; Report of Case. A. Sauthoff, Mendota, Wis.—p. 436.

84. **Pathology of Nervous System in Progressive Lenticular Degeneration.**—The changes observed by Pollock in this case of progressive lenticular degeneration may be said to consist of local and general reactions. The general reactions include such cell and glia changes as may be attributed to direct, acute and chronic types of reaction. Although diffusely found and widely scattered, these changes are moderate in their intensity. The condition causing the patient's death, attended as it was with sepsis and hyperthermia, must have played no small rôle in producing many of these changes. It certainly could have caused the perivascular infiltration, the small round cells, and many of the changes in the pyramidal cells, and the satellitosis. The chronic changes, which were widely scattered, were distinctly overshadowed by those which were localized in the lenticular nucleus. The degeneration of the lenticular nucleus showed no evidence of an inflammatory reaction. The very prominent vessel changes in areas where the degeneration had not proceeded to disintegration

indicated that these changes were at least a part of the general effect of the agent producing the degeneration, and were not consequent to the disintegration. Where the disintegration was greatest the blood vessels, reinforced by glia fibers, showed the greatest resistance to the destructive process. The intense gliosis seemed to have been built up on a groundwork of pathologic blood vessels. The gnarled, twisted, knotted and curved vessels occur wherever an atrophic process is present, as in paresis, foci in senile dementia, abiotrophy, etc. This is probably the explanation for their appearance in this case, where there was a marked atrophy in the degenerated area. The wavy curving of vessels is associated with thickening of the adventitia and here was due to sclerotic degeneration of the adventitia. In the absence of inflammatory changes and evidence of reactions due to toxic changes, the vessel changes in this case point to the existence of a process superimposed on a faulty development of the nervous system.

85. **Psychoses Associated with Diabetes Mellitus.**—Singer and Clark record the appearance of toxic hallucinosis in a case of diabetes and suggest that in all probability some of the so-called anxious depressions in the literature may have been really of this type.

### Medical Record, New York

Jan. 19, 1918, **93**, No. 3

88 National Danger from Defective Development of Growing Children in Time of War. H. D. Chapin, New York.—p. 89.
89 Histopathologic Studies on Brain Abscess. G. B. Hassin, Chicago.—p. 91.
90 Surgical Significance of Abdominal Pain in Children. W. E. Hartshorn, New Haven, Conn.—p. 96.
91 Physiology of Aerophagia. S. J. Meltzer, New York.—p. 100.
92 History and Symptoms of More Value than Physical and Laboratory Findings in Diagnosis of Pulmonary Tuberculosis. S. A. Slater, Oil City, Pa.—p. 101.
93 Scurvy Produced by Feeding Pasteurized Milk. J. M. W. Kitchen, East Orange, N. J.—p. 105.

### Modern Hospital, St. Louis

January, 1918, **10**. No. 1

94 Patient Labor in Hospitals for Insane. E. L. Hill, Jacksonville, Ill.—p. 1.
95 Development of Prison Industries. J. L. Whitman, Springfield, Ill.—p. 4.
96 Marine Hospital Sanatorium, Fort Stanton, N. M.—p. 7.
97 Elementary Terms of Nutrition. J. P. Street, New Haven, Conn.—p. 10.
98 Kansas Public Health Car. E. D. Hertzler, Halstead, Kan.—p. 14.
99 Pennsylvania an Example of Advantage of State-Wide Control of Tuberculosis. K. Schaeffle, Harrisburg, Pa.—p. 17.
100 New Children's Hospital at Denver. M. B. Biscoe and S. S. Goldwater, New York.—p. 22.
101 Standardization of Hospitals—Class VII, Small Municipal Hospitals. J. A. Hornsby and others.—p. 25.

### New York Medical Journal

Jan. 5, 1918, **107**, No. 1

102 Ophidismus or Snake Poisoning. C. C. McCulloch, Jr., Washington, D. C.—p. 1.
103 *Three Unusual Cases of Renal Tuberculosis. L. Buerger, New York.—p. 6.
104 Single Suture Appendicectomy. A. J. Walscheid, New York.—p. 8.
105 Hospital Treatment vs. Home Treatment. J. W. Brannan, New York.—p. 10.
106 Body Flexibility; Its Influence on Health. S. Lewis, Lakehurst, N. J.—p. 12.
107 Comparison of Physical Condition of Prisoners on Admission and on Discharge. F. L. Heacox, Auburn.—p. 13.
108 Organization of Department of Physical Education of Rochester Public Schools. H. J. Norton, Rochester.—p. 17.

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109 Ductless Glands and Dermatology. W. P. Cunningham, New York.—p. 97.
110 Some Features of Cerebrospinal Meningitis in Children. A. G. Mitchell and W. W. Falkener, Philadelphia.—p. 103.
111 Treatment of Eclampsia. J. R. McCord, Atlanta, Ga.—p. 105.
112 Instruction and Supervision of Expectant Mothers in New York City. J. Sobel, New York.—p. 107.
113 Myalgia of an Isolated Portion of Muscle. A. Gordon, Philadelphia.—p. 113.
114 Colitis. A. C. Geyser, New York.—p. 116.
115 Gaucher's Disease; Report of Case. M. S. Reuben, New York.—p. 118.
116 Myoma of Intestines; Report of Case. F. Christopher, New York—p. 120.
117 Amaurotic Family Idiocy. J. W. Brandeis, New York.—p. 121.
118 Trench Diseases. J. E. Lind, Washington, D. C.—p. 122. To be continued.

103. **Renal Tuberculosis.**—Three cases are described by Buerger because they emphasize how difficult it is to recognize a tuberculous lesion in a kidney, even when the kidney is bisected, and practically the whole of its pelvis brought into view. In one case the kidney had a seemingly normal parenchyma and yet there was apparently extensive involvement of the pelvis of the kidney and ureter. This was a case of frank vesical tuberculosis, with tubercle bacilli in the urine, and with typical lesions about the right ureteral orifice. Buerger removed an enormously thickened ureter, doubtlessly tuberculous, and a kidney with minimal changes, changes insufficient for recognition by the surgeon at the operating table, and requiring thorough investigation on the part of the pathologist for their detection. In the second case there were early lesions of tuberculosis in the pelvis of a kidney in which there were no signs of involvement of the parenchyma. The dissemination of the process took place by way of the pelvic mucosa rather than upward into the cortex or pyramids. In the third case there were necrotic lesions in the calyx and pelvis and on the tip of the papilla.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### Archives of Radiology and Electrotherapy, London

December, 1917, **22**, No. 7

1 Roentgen Diagnosis of Pulmonary Tuberculosis. W. Overend, and G. T. Hebert.—p. 193.
2 New Apparatus for Assisting Surgeon in Finding Foreign Bodies Localized by Roentgen Rays. J. H. Edwards.—p. 211.
3 Roentgen Rays from Sources Other Than Focal Spot in Tubes of Pure Electron Discharge Type. W. R. Coolidge and C. N. Moore.—p. 216.

### British Medical Journal, London

Dec. 22, 1917, **2**, No. 2973

4 *Some Points Arising in Nerve Injuries. H. S. Souttar.—p. 817.
5 *"Myalgia;" Its Diagnosis at the Front. F. B. Chavasse.—p. 820.
6 *Treatment of Thrombosis. H. F. Marris.—p. 822.
7 Anatomic and Physiologic Principles Underlying Treatment of Injuries to Muscles, Bones and Joints. A. Keith.—p. 824.

Dec. 29, No. 2974

8 *Study of Fifty Cases Treated by Flavine. E. F. Bashford, J. N. J. Hartley and J. T. Morrison.—p. 849.
9 *Treatment of Paraplegia from Gunshot or Other Injuries of Spinal Cord. A. W. M. Robson.—p. 853.
10 Necessity for Education in Roentgenology and Electrotherapeutics. G. H. Orton.—p. 854.
11 Mycologic Detection and Determination of Certain Carbohydrates and other Carbon Compounds in Pathologic Work. A. Castellani and F. E. Taylor.—p. 855.
12 Method of Skin Grafting Under Septic Conditions. P. Bousfield.—p. 857.
13 Skin Grafting. N. H. Joy.—p. 857.
14 Anatomic and Physiologic Principles Underlying Treatment of Injuries to Muscles, Bones and Joints. A. Keith.—p. 858.

4. **Nerve Injuries.**—Souttar is of the opinion that in the vast majority of cases the nerve is implicated in the primary wound. The nerve may be severed totally, with the formation of end bulbs, or a portion only may be replaced by dense fibrous tissue. But in the latter case careful examination will show that some fibers at least were totally severed. The fact that complete spontaneous recovery may sometimes occur is readily explained when one recollects that one third of the fibers of any nerve may be destroyed without any permanent loss of function. The injury being primary, it is possible to diagnose the condition at an early stage and to institute at once suitable treatment. As a result contractures can be prevented, muscles can be kept in good condition, joints can be kept free, and the whole limb can be brought to such a point that when the time does come for the nerve to regenerate, whether by itself or with the assistance of the surgeon, it can do so under perfect conditions and with the best possible prospect of success. Of this success the foundation is an early diagnosis.

As to treatment, Souttar says that the first treatment which can be adopted is massage, and to it must be given the premier place throughout. It should be started at the earliest possible moment, and splints should be so arranged that as much as possible of the limb can be reached. But even if only a very small area is available it should not be neglected. When gross damage to the limb has been more or less repaired, wounds healed and bones united, movements, active and passive, on a larger scale may be attempted. By this means any adhesions which may have formed in joints, or between muscles and tendons, can be broken down gradually, and a wide range of movement obtained, while the nonparalyzed muscles are fully exercised, and regain their normal power.

A new form of treatment has lately come into favor in the form of the whirlpool bath. The principle is that the limb is surrounded by a stream of rapidly moving water at as high a temperature as can be comfortably borne, about 110 F. The result is a rapid absorption of heat by the limb, the blood flow in which is in consequence greatly accelerated, while at the same time it is subjected to a continuous gentle massage by the moving water.

Electrical treatment is in Souttar's opinion at least equal in value to the methods already mentioned, and has peculiar possibilities of its own. Two forms of current are used: galvanic and sinusoidal. The latter is used through the medium of baths, and probably acts chiefly on the vascular channels, for it is never used in sufficient strength to provoke contraction of muscle. The paralyzed muscles will, of course, only respond to the galvanic stimulus. This is arranged by means of a metronome to come at regular intervals of two or three seconds, or the small moist pad which forms the electrode is slowly stroked up and down the limb, the muscles responding in turn by a gentle wave of contraction. In the intervals between treatment every precaution must be taken to keep the limb warm, protect atrophic skin from injury, to keep paralyzed muscles relaxed, and to prevent the development of contractures.

No operation can be undertaken until all risk of sepsis has gone. The suture of a divided nerve where the gap is small and there are no complications is simplicity itself. In most cases it can be accomplished by very wide freeing of the nerve, and by placing the limb in a suitable position. In cases in which there is a large gap there is usually a large end bulb on the proximal end. In this case one may take advantage of a flap operation which Souttar advised to meet the difficulty, and from which he has obtained excellent results. A flap is turned down as far as the bulb, which forms a sort of hinge. The terminal half of the bulb is now amputated, and the raw surface, on which the majority of the fibers must appear cut across, is folded over itself and sutured. In this way the living fibers are preserved to almost their extreme point, and a living scaffold is provided for their downgrowth, which still retains its blood supply. The results of this method have been surprisingly good. In other cases the only way to bridge the gap is by the introduction of a graft, and for this the radial nerve is useful. The most attractive of all methods, in a case otherwise impossible is cross-grafting. This has given brilliant results in animal experiments, and Souttar sees no reason for the wholesale condemnation to which it has been subjected. It can be done without permanent damage to the healthy nerve, for it is possible to divide one third of the fibers of the median, for example, without any permanent disability whatever. Souttar has done it on three occasions for the benefit of the musculospiral, and though they are somewhat recent cases he feels confident from their progress that they will be successful. At the same time it is a method which must at present be regarded with great reserve and adopted only in very special cases.

5. **Diagnosis of Myalgia.**—Chavasse discusses the work done to improve the diagnosis "myalgia" by the application of simple and rapid criteria suitable to the difficulties which attend diagnosis in the front line. The observations were conducted at a field ambulance over a period of three months, and with a front line battalion over a period of twelve months. A few cases necessary to complete the series were seen at a casualty clearing station. The application of rough and rapid diagnostic criteria to 200 cases reaching field ambulance and casualty clearing station diagnosed myalgia resulted in an improvement of the diagnosis in 60 cases, excluding those newly diagnosed "neuralgia," and in 108 cases including the new diagnosis, neuralgia (that is, in more than one half). Of these there were: pyrexial conditions, 19 cases; postpyrexial conditions, 19 cases; arthritis, 16 cases; sciatica, 4 cases; neuralgia, 46 cases.

The question of malingering assumed considerable importance in the inquiry. Gross malingering was uncommon, but the exaggeration of symptoms was very prevalent among those who were in the habit of reporting sick. The inquiry was concluded in fifty cases which may be taken as typical of genuine uncomplicated myalgia as seen in forward areas. The distribution is usually symmetrical (36 cases) and is in the majority of cases lumbosacral, extending down the lower extremities for a varying distance. Pain is absent when the patient is lying down, warm, and perfectly still (44 cases). This is a marked distinction from pyrexial, postpyrexial and neuralgic conditions. In these the pain is aggravated when the patient is warm in bed. Rest makes the patient stiffer (46 cases). This stiffness wears off on moving about gently (34). Active contraction and passive hyperextension, especially if quick, cause pain, which is described as sharp rather than dull (45). Cold and damp weather precipitates or aggravates the condition (37). Prolonged exertion (route marching with full pack, digging, etc.) have a like effect (41). Massage is painful (27 cases out of 31) but beneficial (21 cases out of 31). The condition is chronic (previous attacks in 44 cases). The site of the pain is generally identical in successive attacks (29 cases out of 44). The onset is usually sudden (35).

There appears to be no connection between previous pyrexial attacks and myalgia. But in the case of neuralgia there would seem to be a definite relationship. The young are not exempt (one patient aged 19), but the condition is uncommon under 30 and increasingly common thereafter. Therefore it may be said that myalgia is a chronic condition, precipitated or exacerbated by cold, damp and fatigue affecting groups of muscles and characterized by muscular stiffness becoming greater on resting and less with movement, and by pain, absent at complete rest, and sharp on active contraction and passive hyperextension. It is to be distinguished from neuralgia by the facts that in neuralgia the pain is aggravated when the patient is warm and motionless, and that in neuralgia hyperesthesia of the skin is commonly present.

6. **Treatment of Thrombosis.**—During the past two years, seventeen cases of venous thrombosis have been under Marris' care, the majority having arisen during the course of an infection bacteriologically proved to be by a member of the enteric group, the remainder occurring during the course of other fevers of obscure origin. Signs and symptoms: Rigors were noted in four of the cases. Fever was always present; pain invariably so, on two occasions being so severe that the question of intestinal perforation arose. Swelling of the limb was always present, usually appearing on the third day from onset of the other symptoms. In most of the cases the thrombus could be felt. The earlier cases were treated locally with anodyne liniments, and internally and intravenously by the liberal administration of citric acid and a milk free diet. An analysis of these cases appears to justify the conclusion that the treatment of thrombosis by this method does quickly arrest the process. From the patient's point of view the almost immediate release from pain was most gratifying.

Analysis of two groups shows that in those treated by the intravenous method the subsequent period of pyrexia was shorter by an average of four days and the onset of convalescence by an average of ten days than in those cases treated by the oral method. The average number of days from the onset of thrombosis to evacuation in the cases treated by the intravenous method was thirty days, while in those cases treated by the oral method it was thirty-nine. In the seven cases treated by the intravenous method five were evacuated as walking and two as sitting cases, and in one only was there edema present on discharge; in the oral series of ten cases, only five were evacuated as walking and three as sitting cases, while two had to be sent to England as stretcher cases, and in no fewer than five cases there was a considerable amount of edema present on discharge.

8. **Fifty Cases Treated by Flavine.**—Since June, 1917, Bashford and his associates have investigated the clinical results of the application of flavine to war wounds. At the same time an attempt has been made to interpret these results with the help of histologic and bacteriologic methods. The flavine used has been for the most part "acriflavine" sent out by the Medical Research Committee, but latterly samples of proflavine from the same source were substituted. The results were substantially the same with both. On account of the experimental nature of the treatment, the cases were carefully arranged in a series of gradually increasing severity. The wounds, taken as a whole, were not of great gravity, and this fact was considered in estimating the value of the treatment. Almost all had been treated previously at the front by the Carrel-Dakin method within twenty-four hours of being wounded, and, in the majority of instances, very efficiently. No wounds involving the cavities of the head, chest, or abdomen were included. The patients reached the wards at periods varying from one to six days from the date of reception of the wound, and the flavine treatment was then substituted for that of Carrel-Dakin. It was carried on continuously until either the wound became ready for secondary suture, or until, after three weeks' treatment, it had definitely failed to attain the necessary standard for closure. In a few cases the treatment was stopped in the patient's interest before the three weeks had elapsed. Every attempt was made to eliminate the possibility of personal bias. In wounds treated by the Carrel-Dakin method it is the cocci which are usually the last to disappear from an infected wound surface. In these wounds treated by flavine the commonest type of organism to outlive others on the wound surface was a gram-negative bacillus.

This study showed, in brief, that a solution of 1 : 1,000, far from being innocuous, produces very deleterious effects on the entire process of healing, killing successive layers of the reacting tissue elements, including the essential vascular mechanism. The flavine treatment of wounds is associated with small formation of pus, slow epithelial ingrowth, delay in all the processes of repair, lingering of organisms on the wound surface, some diminution in the local and general reaction to infection. The only favorable feature has been that the patient is apparently protected in some way from the absorption of toxic products. Whether this is due to the disturbance of vascularity or to flavine rendering toxic products nontoxic has not been determined. The authors are convinced that the employment of flavine and other dyes as if they supplied royal roads to success must be regarded as retrograde steps.

9. **Treatment of Paraplegia.**—Robson cites a case to prove that suture of the severed cord can be successfully performed. Some years ago he performed laminectomy in the middorsal region in a boy suffering from tuberculous disease of the spine and paraplegia. He ultimately made a complete recovery. The spinal support with which he had been furnished was, after a time, discarded, without advice, and in time he developed a well marked hunchback. One day, while giving a boy a ride on his back, he fell and fractured his spine at the seat of weakness. This was immediately followed by paralysis. Robson saw him shortly after the accident and cut down on the cord, which was torn nearly across from behind forward, the separation behind being in width about half an inch, a small part of the front of the cord only holding together. On straightening the spine the divided ends came into good apposition, and were fixed with fine catgut sutures. The theca of the cord was then closed by a continuous catgut suture, and the rest of the wound was united. The patient was put up at once in plaster-of-Paris in the straight position. There was very little shock, and recovery from the operation was uninterrupted. The function of the lower part of the cord gradually returned. Ultimately he regained power over the sphincters and recovered the use of his lower extremities.

### Journal of Tropical Medicine and Hygiene, London

Dec. 15, 1917, **20**, No. 24

15 Solubility of Malarial Pigment. A. C. Stevenson.—p. 277.
16 Malarial Mimicry. A. E. Kamar.—p. 277.

### Lancet, London

Dec. 22, 1917, **2**, No. 4921

17 Medicine, Magic and Religion. W. H. R. Rivers.—p. 919.
18 Relation Between Chemical Constitution and Physiologic Action. F. L. Pyman.—p. 924.
19 *Tetanus Treated in Home Military Hospitals. D. Bruce.—p. 925.
20 Modern View of Tetanus. F. Ransom.—p. 928.
21 Analysis of One Hundred and Two Consecutive Cases of Tetanus. N. A. Cooper.—p. 930.
22 Certain Forms of Albuminuria and Polyuria: Their Cause and Cure. E. F. Cyriax.—p. 931.

Dec. 29, No. 4922

23 Medicine, Magic and Religion. W. H. R. Rivers.—p. 959.
24 Antitetanus Serum in Monkey. C. S. Sherrington.—p. 964.
25 Analysis of Recent Tetanus Statistics. F. Golla.—p. 966.
26 Fatal Case of Splanchnic Tetanus. H. Burrows.—p. 970.
27 Ten Cases of Tetanus. R. N. Salaman.—p. 971.

19. **Tetanus Treated in Home Military Hospitals.**—In the 100 cases of tetanus reviewed by Bruce the mortality was only 19 per cent. The incubation period tends to become longer, due to the prophylactic injection. Hence there are only ten cases reported, with an incubation of ten days or under. Only fourteen cases are reported to have received secondary prophylactic injections of antitetanic serum in home hospitals. In regard to the therapeutic effect of antitoxic serum the evidence is still inconclusive.

### Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 9, 1917, **41**, No. 30

28 Atypical Coccobacilli Found in Nonvaccinated Typhoid Patient. Braillon.—p. 1077.
29 Patent Botalli's Foramen in Robust Man of Fifty. Menetrier and Wolff.—p. 1080.
30 Case of Paratyphoid Hemorrhagic Nephritis. A. Gouget.—p. 1083.
31 Third Case of Rat Bite Disease Known in France During the War. F. Ramond and Lévy-Bruhl.—p. 1086.
32 Paroxysmal Hemoglobinuria. L. Giroux.—p. 1090.
33 *Passage of Alcohol into Cerebrospinal Fluid. E. Lenoble and F. Daniel.—p. 1094.

33. **Elimination of Alcohol in Cerebrospinal Fluid.**—Lenoble and Daniel report further tests which confirm the early passage of alcohol into the cerebrospinal fluid in large amounts in alcohol intoxication. It gradually disappears from the cerebrospinal fluid, but takes eight, ten, twelve or thirteen days before it disappears completely—ten days is the average. The elimination of alcohol is parallel in the cerebrospinal fluid and in the urine, but the proportion in the urine is less. From the medicolegal point of view, the discovery of alcohol in the cerebrospinal fluid has capital importance as alcohol can be artificially introduced into the urine through a catheter, while this fraud is practically impossible with the spinal fluid. In the fifteen cases described the discovery of alcohol in the fluid explained certain febrile conditions otherwise mysterious. The alcohol intoxication superposed on the uremia or liver disease brought on the apoplexy or jaundice.

### Paris Médical

Dec. 15, 1917, **7**, No. 50

34 *Valvular Defects and Service at the Front. C. Laubry.—p. 486.
35 *Spider Bites. Gougerot.—p. 493.
36 *Endo-Urethral Diathermy. E. Roucayrol.—p. 495.

34. **Valvular Defects and Army Service.**—Laubry expatiates on the generally practically inorganic nature of the alleged systolic murmurs at the base of the heart when they are not followed by a diastolic murmur. His experience with fifty-five men with valvular defects who have been at the front for a few months up to two years has confirmed the great tolerance, even the indifference of valvular defects in respect to the fatigues of life at the front. Mitral stenosis is the least resistant, but even with this the men had nothing more serious than palpitations or transient attacks of tachycardia. Congenital and complex valvular defects seemed to do as well as any. One of the great elements of this tolerance is the fact that the men were not aware that they had valvular disease. Laubry thinks that a young man with a valvular disease should be assigned to light duty only. If over 35,

and if there are pains in the heart, attacks of tachycardia and palpitation on exertion and the man has been sent back for recurring rheumatism or typhoid, he advises temporary discharge to refrain from compromising the man's future.

35. **Spider Bites.**—Gougerot describes two cases in which the bite of a spider on the cheek or hand induced a lesion resembling anthrax in some respects. It covered more area, however, than an anthrax pustule, while there was no edema, no involvement of glands, no general disturbances, and bacteriologic examination was negative. In both the cases the lesion had entirely retrogressed by the twelfth day at latest.

36. **Intra-Urethral Diathermy.**—Roucayrol extols the subsidence of pain, the rapid disappearance of threads from the urine, and a general tonic effect under the influence of diathermia applied to the urethra in treatment of acute or chronic urethritis. He gives an illustrated description of the high frequency equipment for the purpose.

### Presse Médicale, Paris

Dec. 3, 1917, **25**, No. 67

37 *Azotemia in Prognosis. F. Widal, A. Weill and P. Vallery-Radot. —p. 681.
38 *Injection of Air to Replace Effusions. P. E. Weil and Loiseleur. —p. 683.
39 *The "Hole in the Hand" Test for Binocular Vision. A. Cantonnet. —p. 686.
40 High Resisting Power of the Blood Corpuscles in Malaria. L. Netter.—p. 687.
41 Open "Skeleton" Plaster Casts. P. Audion.—p. 688.

37. **Initial Uremia.**—Widal and his co-workers reiterate that the proportion of urea in the blood is the index to the prognosis with chronic kidney disease. The urea content fluctuates at times; only the steady content of 2 or 3 gm. to the liter indicates a fatal outcome in a few weeks or months. When the urea averages 1 or 2 gm. to the liter, the patient seldom lives more than a year. When there is 0.5 gm. up to 1 gm. to the liter this should sound the alarm, and the urea content should be tested every month or two. If it shows a steady rise, the prognosis is grave. Ambard's constant does not throw light on the prognosis. They give some examples of patients with very high Ambard constant for four years or more who yet have no abnormal urea content in the blood. It may keep high for years and then drop to normal findings. It indicates merely abnormal conditions in regard to excretion of urea, but gives no information as to whether the organism can take care of the retained urea without its accumulating in the body fluids. In testing the urea content of the blood it is well to keep the patient for several days on a salt-poor diet. This reveals initial azotemia which otherwise might escape detection, but it is only when it becomes progressive that it is to be dreaded.

38. **Roentgen Exploration of Effusions in Serous Membranes.**—Weil and Loiseleur give roentgenograms showing the instructive findings when air is injected into a joint or the pleura, pericardium, vaginalis or peritoneum, after evacuation of an effusion. There are no untoward by-effects, and the air shows the distention of the parts, the laxity of the joint capsule, etc., and the presence of free bodies in a joint. In tuberculous pleurisy and pericarditis, the injection of air in the place of the effusion has a direct therapeutic action, besides rendering roentgenoscopy possible and distinct. In one case of tuberculous seropurulent and hemorrhagic pericarditis, the young patient has been clinically cured for the eight months since eight applications of paracentesis and insufflation of air in the course of seven months. When the effusion recurs, the presence of the air forces it down into the lower part where it is most readily accessible by subxiphoid puncture. They inject as much air as the amount of effusion withdrawn.

39. **Test of Vision by the "Hole in the Hand."**—Cantonnet expatiates on the information in respect to the condition of binocular vision that can be obtained by the device of looking with one eye through a rolled up paper forming a tube about 10 inches long, holding the open hand against the tube near its outer end. The image seen through the tube gets crossed with the image of the hand, and the result is that what is seen through the tube seems to be seen through a hole in the hand when binocular vision is normal.

### Progrès Médical, Paris

Nov. 17, 1917, **32**, No. 46

42 *Enterococcus Infections. Tricoire.—p. 387.
43 Drainage of the Uterus in Puerperal Infections. A. Aimes.—p. 391.

Nov. 24, 1917, **32**, No. 47

44 *Compass for Locating Foreign Bodies. H. Lebon.—p. 395.
45 Eyelashes Driven into Anterior Chamber. A. Cantonnet.—p. 398.
46 Hemophiliac Hemorrhage Arrested by Coagulen in Two Chinese. Clément.—p. 398.
47 The "Coefficient of Robusticity." B. du Coteau.—p. 399.

42. **Enterococcus Infections.**—Tricoire reviews the literature on localized and general infections with the enterococcus and enterococcus septicemia. He warns that when acute articular rheumatism is refractory to the salicylates, the enterococcus should be suspected. Besides the general measures for infections, enterococcus infection may be treated with fixation abscess or vaccine therapy when the general disturbance is slight.

44. **Compass for Locating Foreign Bodies.**—Nemirovsky's mechanical localizer for projectiles, which does not require calculations or diagrams, was described in the Paris Letter, Dec. 8, 1917, p. 1990. Twelve illustrations to shows its workings are given.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Dec. 2, 1917, **38**, No. 96

48 *The Heart in Soldiers with Bronchitis or Pneumonia. E. Morelli. —p. 1267.

Dec. 6, 1917, **38**, No. 97

49 Alopecia Areata as Traumatic Neurosis. C. Vignolo-Lutati.—p. 1283.

48. **Bronchopulmonary Disease in Soldiers.**—Morelli refers to cases brought in with the diagnosis of acute febrile bronchitis, but the dyspnea, the stasis at the base of the lungs, large left ventricle and liver, and edema at the ankles suggest that the trouble is mainly failing compensation of the heart, and drugs to tone up the heart are called for; the bronchitis factor is quite subordinate or may be altogether secondary to the heart weakness. Such cases could be treated in the regiment infirmary and do not need regular hospital treatment. He appeals to all to have greater heed paid to the heart of the soldier, and above all when there is complaint of any affection of the respiratory apparatus. Tincture of strophanthus should be supplied to army doctors for just such emergencies, he says.

### Policlinico, Rome

Dec. 2, 1917, **24**, No. 49

50 The Duty of Italian Physicians at the Moment. E. Morselli.—p. 1429.
51 Treatment of War Wounds of the Thorax. U. Carpi.—p. 1432.
52 The Uniform Collar Should Be Loose and Capable of Being Turned Back. G. Boschi.—p. 1438.
53 Defence Neurosis. G. Galli.—p. 1439.

November, 1917, **24**, Medical Section No. 11.

54 Etiology of Dysenteriform Diarrhea in the Troops at the Front. A. Gasbarrini.—p. 429.
55 Modification of the Electrocardiogram by Increased Work of the Heart. N. Pende.—p. 442. Conclusion.
56 *The Pituitary Body in Relation to Loss of Memory and Inability to Concentrate the Attention. G. Basile.—p. 458.
57 Diplococcus Empyema Perforating Early into the Lung. L. Manfredi.—p. 462.

56. **Pituitary Mental Symptoms.**—Citelli described in 1912 some cases in which there was more or less loss of memory, somnolence or insomnia and inability to concentrate the attention—all in young persons with adenoid vegetations. He later has encountered the same syndrome in persons with diseased sphenoidal sinus or tumors in the nasopharynx. Basile reports an additional case with the typical syndrome in a young man with a tumor in the nasopharynx. He agrees with Citelli that the lesions in the nasopharynx or accessory sinus probably involve the pituitary body, and that this is responsible for the mental disturbances. On this assumption Basile gave pituitary treatment. The coexistence of sexual frigidity with the psychic symptoms, and the development of the latter keeping pace with the growth of the tumor, confirmed the causal connection with the pituitary. The gradual and complete recovery after removal of the tumor demonstrated further that the pituitary had not been damaged beyond repair.

### Riforma Medica, Naples

Dec. 8, 1917, **33**, No. 49

58 *Test of Functional Capacity of the Heart. G. Breccia.—p. 1133.
59 *Cancer Fever. L. Pedrini.—p. 1135.
60 *False Sero-Agglutination. A. Martiri.—p. 1140.
61 Malaria Contracted in Balkan States. G. Molinari.—p. 1145.

58. **Functional Test of the Heart.**—Breccia calls attention to the rapid enlargement of the heart in certain persons when the upper abdomen is briskly and repeatedly tapped. The heart returns to its former outline in a few minutes. He first outlines the heart by percussion, the subject standing or lying strictly horizontal. The abdominal wall is then tapped vigorously with the bunched fingers or the earpiece of a stethoscope, striking on the lower third of the line from the xiphoid process to the umbilicus, the strokes hard enough to shake well the abdominal wall, giving from twenty to thirty strokes. The heart outline is then determined anew and again after flexing the forearm on the arm several times. The reaction indicates that the heart is weakened too much to respond quite normally to the extra demands made on it by the mechanical stimulation thus induced in the abdominal aorta. It is thus a rapid and practical sign that the heart is below par. In 100 cases of mitral defect the reaction was negative in the perfectly compensated cases and positive in all the others and in the anemic and weak.

59. **Cancer Fever.**—The primary fever with cancer has no special type. The progress of the growth is not stimulated and there is no special modification of the blood picture. Secondary fever, from superposed infection, has the character and effects of pus fever; the cancer increases in size and the pains are magnified, the whole malignant process being apparently whipped up.

60. **Pseudo-Agglutination.**—Martiri warns that agglutination is not characteristic unless there is actual clumping with formation of more or less large flakes, through the fluid. Simple precipitation without floating clumps is not true agglutination. In twelve cases of catarrhal jaundice, in four there was only this false sero-agglutination for typhoid or paratyphoid germs.

### Brazil-Medico, Rio de Janeiro

Oct. 27, 1917, **31**, No. 43

62 *Kidney Stones in Children. N. Gurgel.—p. 365.
63 Substitute for Giemsa Stain: Azurol. A. de Vasconcellos.—p. 367.

Nov. 10, 1917, **31**, No. 45

64 Godoy's Hygrometer. II. A. Godoy.—p. 383.

Nov. 17, 1917, **31**, No. 46

65 *Serotherapy against Scorpion Stings. E. Villela.—p. 393.
66 *Helminthiasis in Bahia District. O. Torres.—p. 393. Commenced in No. 45, p. 383.

62. **Kidney Stones in Children.**—Gurgel reports the case of a boy of 6 who for three years had suffered from paroxysms of pain which were treated at first for bowel trouble or neuralgia. When traces of abnormal elements were found in the urine, gravel was suspected but treatment on this basis gave no result. Roentgenoscopy disclosed two stones in the left kidney pelvis and they were easily removed, freeing the child at one stroke of all disturbances. The stones consisted of phosphates and oxalates, weighing 762 and 555 mg. There had been no hematuria or pyuria, and only slight and infrequent albuminuria, and the child was in robust health aside from the recurring pains. Gurgel has encountered several cases of concretions in the child kidney but this is the first in which the stones were in the pelvis.

65. **Serum for Scorpion Stings.**—Villela reports that the difficulties in obtaining scorpions for the purpose have now been overcome at the Bello Horizonte branch of the Oswaldo Cruz Institute. An antiserum has now been obtained which in the dose of 5 c.c. protects a guinea-pig against an otherwise certainly fatal dose of the scorpion poison. The antiserum has already been applied in a clinical case and with complete success. A boy baby of 9 months was stung in the stomach region by a scorpion, and pain and vomiting followed at once. The prostration by the end of the hour was extreme, with intense pallor, dyspnea, frothy and yellow vomit; pulse 100; respiration 100 to the minute; the hands and feet were icy and the entire body was covered with a clammy sweat. Three hours after the child had been stung the scorpion antiserum was injected subcutaneously, 4 c.c. at the site of the wound and 4 c.c. in the thigh. Fifteen minutes after the injections the vomiting stopped and the general condition rapidly improved. In less than two hours the child's appetite had returned and the temperature and respiration had returned to normal.

66. **Helminthiasis at Bahia.**—Torres is professor of clinical medicine at the University of Bahia in northeastern Brazil, and he states that systematic examination of stools in his service revealed the hookworm in 795 out of 1,213 examinations, ascarides in 700, and the trichocephalus in 714, Manson's schistosomum in 209, the oxyuris in 86 and the anguillula in 107; only 57 examinations were negative. Association of helminths was common. Of the 230 persons examined, less than 5 per cent. of the healthy persons were found free from helminths and none of the hospital patients. The only ones free from hookworm were persons who habitually wore shoes or boots, most of the clinical material in Bahia being farm laborers who do not wear shoes regularly. No signs of tenia were found in any instance. It is the routine practice now in the service for skin diseases to give each patient 0.75 gm. of naphthol B every morning for twenty or thirty days, examining then to see if the helminths have disappeared from the stools. He gives thymol systematically to all the patients in his service. He cites three cases of chronic leg ulcers, long rebellious to treatment, in laboring men harboring hookworm, trichocephalus and ascarides. After cure of the helminthiasis under thymol, the leg ulcers healed promptly under simple local measures. It is the rule now to give a course of thymol before undertaking any except emergency operations. Torres has urged that the children in the primary schools should be taught the principles of hygiene in respect to helminths. In conclusion he refers to the fact that Rio de Janeiro has accepted the offer of the Rockefeller Foundation to aid in the prophylaxis of helminthiasis, and he is confident that other states will follow the example of Rio.

### Gaceta Medica de Mexico

January-June, 1917, **11**, No. 1-6. Last two-thirds, pp. 38-202

67 Experiments with Mexican Typhus. J. I. Saloma.—p. 40.
68 *Diagnosis of Pregnancy. A. L. Hermosa.—p. 43.
69 *Deficiency Edema. E. Landa.—p. 67.
70 Prophylaxis and Treatment of Typhus. G. Mendizabal.—p. 86.
71 Etiology of Typhus. J. Terres.—p. 111.
72 Multiple Causes of Dysentery. J. Terres.—p. 112.
73 Paracolon Bacilli and Paratyphoid Infections. J. Terres.—p. 115.
74 *Ophthalmology in the Medical Course. M. Uribe y Troncoso.—p. 123.
75 *The National Medical Institute of Mexico. J. Terres.—p. 132.
76 Hernia in Children. M. R. Soberon.—p. 138.

68. **Diagnosis of Pregnancy.**—Hermosa systematizes his examination, proceeding from questioning to inspection, then palpation with or without auscultation and percussion, and vaginal palpation combined with palpation of the abdomen. This simultaneous vaginal and abdominal palpation is particularly instructive. He classifies in tabulated form the woman's subjective signs, the objective and the signs on the part of the fetus. Ptyalism is the earliest sign of all as it may develop close after fecundation, but it is of rare occurrence. There may be itching or pain in the breasts or even infarction of the glands in the axilla. Pathologic hemorrhages from vicious embedding of the ovum or other cause, explain the cases on record of apparent menstruation during gestation. An otherwise abnormal tendency to drowsiness may be one of the early signs of pregnancy, as also dizziness and syncope. Among the abdominal findings liable to be mistaken for pregnancy he mentions a case in which the assumed pregnancy at term proved to be a huge subperitoneal fibroma, its lumpy surface simulating the parts of the fetus. If the woman can raise her head quickly from the pillow and stretch and bend her limbs freely, we can exclude an abdominal inflammatory process as otherwise she would be unable to do this without wincing. Percussion is useful when there is suspicion of an ovarian cyst or tumor in liver or spleen, or when there is gaseous inflammation or meteorism simulating a gravid uterus.

69. **Edema from Inadequate Food.**—Landa relates that in August, 1915, when the city of Mexico had been the center of military operations for two or three months, the appearance of numerous cases of edema in men, women and children began to be noted. Physicians called attention insistently to the absence of albuminuria in these hundreds of cases of edema. Many persons died of actual starvation, but the findings in these cadavers differed from those in the edema cachexia from defective nourishment. Four cases are described in detail with the necropsy findings. The mortality was high, the patients dying in marasmus from heart failure. Besides the anasarca and hypothermia, there was bradycardia and also pains in the muscles and reduction of the reflexes. The number of corpuscles in the blood was below normal, and the hydremia was generally marked, but in some cases proliferation of sclerous tissue around the arteries suggested a possible active infectious process. The only food available had been vegetables of the chenopodia and amaranth families, such as beets and spinach.

74. **Ophthalmology in the Regular Curriculum.**—Uribe pleads that the affections of the anterior segment of the eye should be taught as part of the regular medical course, not to train specialists, but to give the general practitioner the ability to ward off blindness in urgent cases. Some of the statistics he cites show that over 72 per cent. of the cases of blindness were avoidable. According to the 1910 census in Mexico, there were 15,000 blind persons, ten to each 10,000 inhabitants. Spain, Hungary and Norway have respectively over 11, 12 and 13, while France has 9.4, Germany 8.7 and Holland 4.4. Mexico, however, heads the list with the largest proportion of cases of blindness from purulent ophthalmia. In the Mexican National School for the Blind over 49 per cent. of its graduates had lost their eyesight in consequence of purulent ophthalmia. For a large proportion of blindness in Mexico, smallpox is undoubtedly responsible. Blindness from accidents might sometimes be prevented if the physicians called at first had had some training in ophthalmology.

75. See news columns, Feb. 2, 1917, p. 332.

### Medicina Ibera, Madrid

November, 1917, **1**, No. 1

77 *Nongonorrheal Disease of the Prostate. M. Barragan.—p. 3.

77. **Nongonorrheal Disease of the Prostate.**—Barragan reviews his experiences with 36 cases of inflammatory processes in the prostate resulting from catheter infection or the catheter going astray; 4 cases consecutive to rectal processes; 4 from foreign bodies in the urethra; 8 from processes in kidney or bladder, and 3 as a consequence of a perineal operation. His two fatal cases were in aged men with septicemia. In the diagnosis he emphasizes the importance of the disturbance in defecation, the desires for defecation occurring almost as incessantly as the desires for micturition, and the act causing intense pains. The pain with acute prostatitis is localized mainly in the depths of the perineum and in the anal region, increasing in intensity at the slightest movement of the muscles, and spreading forward and backward to the lumbar and sacral region. The only relief from the pain is when all the muscles of flexion are relaxed, and we generally find the patient curled up in bed when called in the acute phase.

In his 36 cases a retention prostate catheter was used in 20; in 6 cases the high incision gave relief without infection; in 10 it was followed by infection but an abscess developed only in 4 of the cases; the rest healed with retention catheter. He reiterates that catheterization should be attempted only in men accustomed to the use of the catheter, and in cases of acute retention. Under bed rest, with very hot irrigation under slight pressure of the rectum (45 or 50 C., 113 or 122 F.) every eight hours, sitz baths and light diet, the general phenomena may subside, along with the tumor felt in the rectum. If they persist, the probabilities are that an abscess is forming, and prompt operative relief is called for unless the prostatitis is known to be of urethral origin. In this case expectant treatment for a time is advisable as the abscess may rupture into the urethra and the danger be over. The perineal route for the operation is preferable from every point of view except that the incision takes weeks to heal and the patient has to stay in bed. The great objection to the rectal route is the danger of hemorrhage liable from the congestion in the region. Routier and Oraisson have compiled 32 cases of prostate abscess, opened through the rectum by ten different surgeons, with no death or secondary infection. On the other hand, two of Desnos' three patients died, one from septicemia and one from hemorrhage.

The after-care, as for acute prostatitis, should never be neglected, especially if the gland feels hard and the surface irregular, testifying to catarrhal prostatitis. Otherwise the prostate disease may become chronic. Tuberculous lesions in the prostate present much the same symptoms as any other chronic form except that initial and terminal hematuria is frequent. The perineal or high incisions are preferable for tuberculous processes. Barragan's article was the leading address at the recent meeting—the fourth congress—of the Asociacion Española de Urologia. Others mentioned their experiences, bringing to 97 the number of cases of nongonorrheal prostate mischief. It was emphasized that in the gonorrheal cases ascending infection was the rule, while in the others infection was generally of blood-borne origin.

### Prensa Medica Argentina, Buenos Aires

Nov. 20, 1917, **4**, No. 17

78 *Emetin in Amebiasis. P. Barlaro and S. Parodi.—p. 223.
79 *Syphilitic Pancreatitis. C. B. Udaondo.—p. 225.
80 Nonspecific Serotherapy by the Mouth for Ocular Infections. A. J. Manes.—p. 226.

78. **Amebiasis.**—The three cases reported with illustrations and tracings were examined day by day, comparing the clinical course, and the findings in the stools with the treatment. In two the amebiasis was in a latent phase, but the toxic action of the parasites was manifest in the anemia. The treatment with emetin proved promptly effectual in the vegetative or motile forms of the ameba while it did not seem to act at all on the encysted parasites. The cysts are the resistant form, like the spores of tetanus and anthrax. The attempt to conquer the ameba cysts by increasing the doses of emetin or continuing it a long time are ill advised, the result being invariably nausea, general debility, disordered action of the heart or other disturbance.

79. **Syphilitic Pancreatitis.** — This is the second case reported by Udaondo recently. Profuse diarrhea for the last six months in the man of 39 with positive Wassermann reaction was ascribed to chronic pancreatitis, confirmed by functional tests. Mercurial and iodid treatment was pushed but no benefit was observed from the first ten injections. After a week of repose the treatment was resumed, and a prompt cure then was soon realized, as in his first case.

### Revista de la Asociacion Medica Argentina, Buenos Aires

November, 1917, **27**, No. 156

81 *Lymphogranulomatosis in Man of Twenty-Four. C. B. Udaondo and M. M. Casteigts.—p. 515.
82 *Large Concretions in Urethra. E. Castaño.—p. 526.
83 History of Public and Social Hygiene in Argentina. E. R. Coni. —p. 537. Continuation.
84 Mineral and Thermal Springs in Argentina. E. H. Ducloux and P. Belou.—p. 608. Conclusion.
85 *Extensive Prolapse of Genital Organs. R. S. Gomez.—p. 635.
86 Action of Dog Serum on Frog and Toad. B. A. Houssay.—p. 641.
87 Skin Secretory Reflexes in Large Toads. E. Hug.—p. 647.
88 *Biologic Treatment of Fistulas in Digestive Tract. J. M. Jorge, Jr., and F. L. Soler.—p. 663.
89 *Cauterization Treatment of Cervicitis. J. P. Toribio.—p. 685.
90 Osteoplastic Disarticulations. G. Zorraquin.—p. 692. To be continued.

81. **Lymphogranulomatosis.**—In the case described, the tumors had all developed in the course of sixteen months. The tuberculin and Wassermann reactions were negative, and no appreciable improvement was detected under roentgen treatment or arsenic. No successful instance of vaccine therapy, using the Negri and Bunting Yates bacillus, has yet been published, the writers remark.

82. **Urethral Concretions.**—Castaño reports the third case in his service of successful operative treatment of concretions

impacted in the urethra. In a fourth case the young man was so debilitated from septicemia that he survived only a few hours after extraction of a concretion forming almost a cast of the entire dilated urethra. It measured 4¼ inches by 1½ at its widest point. A narrow passage through it had prevented absolute retention for years. At the age of 6 a concretion had been removed from the bladder by lithotrity but some scrap must have been left as he had complained of pains in the perineum ever since, and a tumor became evident at 14, which had slowly increased in size.

85. **Genital Prolapse.**—Gomez describes the technic with which in three cases he corrected prolapse of the entire vagina and uterus. One of the women has passed through a normal pregnancy since and in none has there been any sign of recurrence. He cites similar favorable experiences with the technic in the hands of others, pregnancy later not interfering with the successful outcome. The uterus is drawn out and up on the pubis, and the fundus of the pouch of Douglas is drawn up and buried by a purse-string suture including the posterior aspect of the uterine cervix, the right uterosacral ligament, the anterior aspect of the rectum, the left uterosacral ligament, and thus reaching anew the starting point in the cervix. Catgut or linen suture material may be used. When it is drawn up and tied, the pouch of Douglas is thus obliterated. As the knot is tied, the uterus is pushed down a little to relax the tissues of the cervix. The second step of the operation is to draw the round ligament through an opening made in the broad ligament with closed Kocher forceps, on a level with the isthmus of the uterus. The forceps holding the round ligament are given to an assistant to hold, and the procedure is repeated about 1.5 cm. below the insertion of the round ligament in the uterus, drawing the round ligament again through an opening made for it in the broad ligament of the same side. The whole is repeated with the broad and round ligaments of the other side. We then have four Kocher forceps holding each a loop of round ligament. These four loops are then sutured together, back of the uterus, working from below upward and including the uterine wall in the last suture. The uterus is thus forced forward and lies on the solid basis thus afforded. When the uterus has been removed, he sutures the stumps of the broad ligament together on the median line, working down from the top, and finally including the stump of the uterus in the suture.

88. **Biologic Research on Salivary and Pancreatic Fistulas.**—Jorge and Soler give the findings in six operative cases of fistulas in the parotid gland or pancreas. They gave the patients test tubes labeled with the food to be taken, the saliva to be collected separately. The tubes with the saliva were then brought to them for examination, and in this way they obtained insight into conditions and were able to direct the diet so that the fistula was relieved of much irritation and it promptly healed. The tests showed that much more saliva was secreted after eating 30 gm. of bread and after a meat meal, while the minimum was secreted with eggs. In a case of supposed echinococcus cyst in the spleen no germinative membrane was found, and the fistula secretion was finally recognized as pancreatic juice. Attempts then were made to check the secretion by modifying the diet, but the debility was too extreme. In two other cases, however, the improvement under dietetic measures was pronounced. The diet found effectual included meat, eggs, fats, cream, milk, asparagus and spinach, adding a little sodium bicarbonate. The rebellious salivary fistulas were treated locally, besides, with liquor formaldehydi under pressure, under which they promptly healed after the secretion had been diminished by the diet.

89. **Treatment of Chronic Inflammation of the Uterine Cervix with Hypertrophy.**—Toribio describes extremely favorable results from application of a caustic pencil made of one part calcium to two parts caustic potassium hydroxid. The vagina is packed with cotton around the cervix and the caustic is introduced into the previously cleared out cervix. It is left in contact for from five to eleven seconds and then a glycerin tampon is applied and the patient can get up at once. From eight to ten applications are generally necessary, allowing intervals of eight or ten days. There may be local hemorrhage, and increased leukorrhea is constant. The applications do not cause pain except in those predisposed to uterine congestions. An enema with laudanum may be indicated in these cases. The eschar is soft and the cervix retrogresses to normal size and shape, and offers no obstacle to delivery later, as was determined in three of the women who have passed through a pregnancy since. Toribio is confident that cauterization by this method will render operative measures unnecessary in many cases of chronic hypertrophy of the inflamed cervix. The reflex digestive and nervous disturbances and excessive menstrual flow that so often accompany cervicitis disappear.

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May, 1917, **7**, No. 2

91 *Nonmalignant Tumors of the Cecum. M. A. Llanos.—p. 69.
92 Differential Diagnosis of Tumors in the Right Hypochondrium. R. Araya.—p. 76. To be continued.
93 *Cerebellar Symptoms. C. Muniagurria.—p. 97.
94 *Pipe Stem in Child's Trachea. M. Steinsleger.—p. 109.

91. **Nonmalignant Tumors of the Cecum.**—Llanos adds a fourth to the three cases of this kind he has found on record. In none was the diagnosis made before the operation, the irritation from the pedunculated tumor having induced invagination. The tumors were lipomas or fibromas; in his own case a fibromyxomatous polyp. When the invagination was easily reduced, this was done; otherwise the segment of bowel was resected. Smooth recovery was constant.

93. **Cerebellar Symptoms.**—The child of 10 presented symptoms indicating pressure on the brain, bilateral choked disk, characteristic vomiting, and occasional intense headache. The Kernig, Babinski and Brudzinski signs were positive, and the legs so weak the child could not stand without falling, but there was no paralysis and no ataxia. The child merely staggered like a drunken man, but he slept quietly and did not complain of pain except when frontal headache was brought on by raising him for examination. The head was of normal size and symmetry. There was no Wassermann or skin tuberculin reaction, and no eosinophilia. The spinal fluid was under considerable pressure, with evident xanthochromia, albumin 0.75 per thousand, and numerous red corpuscles in the field but only one leukocyte. The Nonne and Appelt reactions were both negative. An operation was done on the assumption of a tumor in the cerebellum, probably a cyst. The child died soon after the operation. Nothing suggesting a tumor was found nor any macroscopic changes enough to attract attention, unless possibly the lateral ventricles were larger than usual. The diagnosis was corrected to probable internal hydrocephalus.

94. **Pipe Stem in Child's Trachea.**—Steinsleger gives an illustrated description of what he thinks is the largest foreign body ever successfully removed from a child's trachea. It was the stem part of a pipe, and measured 6.7 cm. (2.6 inches), being about twice as long, and wider than an intubation tube. Two are shown in the illustration for comparison. Tracheobronchoscopy was impracticable and repeated roentgen examination gave negative findings, but the parents had seen the glass mouth piece of a pipe vanish into the throat, and the child was hoarse, with signs of laryngeal and bronchial irritation. The child breathed freely through it. The lower end must have rested in the right bronchus as the child trachea at this age averages only 8 cm. The three upper rings of the trachea were divided. A Kocher forceps was introduced, closed, into the pipestem and as the blades were spread the foreign body was easily drawn out. It had been in the throat four days.

## Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 3, 1917, **2**, No. 18

95 *The Signs of Hemolysis with Anemia. L. S. Hannema.—p. 1653.
96 *Psychoneuroses and Therapeutic Exercise. F. J. Soesman.—p. 1670.
97 Comparative Mortality of the Sexes. J. P. H. Kroon.—p. 1674.
98 Cerebral Syphilis with Negative Wassermann Reaction. B. Frank.—p. 1679.
99 Fracture of Humerus above the Condyle. A. E. Vermeij.—p. 1720.

95. **Signs of Abnormal Hemolysis in Anemia.**—Hannema regards high bilirubin content of the blood serum as an instructive sign of abnormal hemolysis. That the spleen is the main seat of destruction of red corpuscles has been confirmed anew by his and Daniels' recent experimental research with injections of hemolytic serum into rabbits before and after splenectomy. Removal of the spleen protected the animals against the hemolysis to a great extent. The hemoglobin released from the corpuscles destroyed in the spleen is carried along the portal vein to the liver, where it is split up into bilirubin. Van den Bergh's test shows whether the bilirubin in the blood has been formed in the liver or elsewhere. One part serum from patients with retention jaundice is diluted with two parts distilled water, and Ehrlich's diazoreagent is added in an amount of one fourth of the volume. The tint changes to red which turns to a greenish blue in an alkaline medium, and, on addition of a drop of hydrochloric acid, into violet. Serum from persons with abnormally high hemolysis does not give this reaction, or not until after a long time and only when alcohol is added. Hannema has frequently applied this test and always found it possible to differentiate by this means the bilirubin from abnormal hemolysis and that from retention of bile by obstruction of the common bile duct. The bilirubin content in the blood may be very much above normal before manifest jaundice or bilirubinuria appears, and with hemolytic conditions the bilirubinemia is seldom intense enough to induce them.

Another sign of abnormal hemolysis is an abnormally high excretion of urobilin in the feces. Eppinger found that the average amount excreted by an adult in the twenty-four hours is from 0.120 to 0.150 gm. In hemolytic jaundice patients the figures were 2,96, 3.95 and 2.59 gm.; with pernicious anemia, 0.58 and 0.93 gm.; with aplastic anemia 0.03 gm., and with cancer anemia 0.012 gm. In two cases of hemolytic jaundice the figures were 2.96 and 3.95 gm. but dropped to 0.062 and 0.07 gm. a week after removal of the spleen. In others, from 0.68 and 0.58 gm. before splenectomy the figures dropped to 0.015 a week afterward. Hannema's own experience has confirmed the value of this sign of increased hemolysis, especially in connection with urobilinuria. In eight cases of pernicious anemia described, these three signs were pronounced. One patient was a woman of 40 and the severe anemia was much benefited by splenectomy. Five months afterward the hemoglobin percentage had increased from 23 and the reds from 1,900,000 to 75 and 3,000,000. But two years later the symptoms of pernicious anemia returned. Evidently some other organs have assumed the functions of the spleen in respect to hemolysis. Hannema never found this bilirubin-urobilin triad in cases of secondary anemia, while it was constant in his true pernicious anemia cases, but not with aplastic anemia. The pernicious anemia may however, assume the aplastic type, with the above triad. As a rule this triad is accompanied by the blood picture of pernicious anemia, but this is not invariably beyond question. In none of the eight cases described was any cause for the anemia discovered. The experiences related justify the conclusion, he thinks, that we have in bilirubin a means of differentiating true pernicious anemia in a comparatively early stage.

96. **Exercise in Treatment of Psychoneuroses.**—Soesman expatiates on the advantages to be derived from light athletics, mountain climbing, fishing, etc., as exercising not only the muscles but the eye and ear, in systematic treatment of psychoneuroses. They are especially useful in the forms with depression and atony, while the obsession forms are often relieved by tennis, hockey and other outdoor games. The forms with hypertony, the excitable, impulsive patients do better with fishing, ball playing and gymnastics. In all forms of psychoneuroses, the exercises and games which have to be done in concert with others are likely to have a beneficial influence when suited to the form of the psychoneurosis.

### Hygiea, Stockholm

October 31, 1917, **79**, No. 20

100 The System for Medical Inspection of Troops. (Sjukvisitationer.) R. Erhardt.—p. 1041.

### Ugeskrift for Læger, Copenhagen

Nov. 8, 1917, **79**, No. 45

101 *Fatal Hemorrhage in the Suprarenals in Young Children. C. Friderichsen.—p. 1817.

Nov. 15, 1917, **79**, No. 46

102 *Disease of the Internal Ear with Epidemic Parotitis. C. Heilskov.—p. 1843.
103 The Solution of Salvarsan. M. B. Pedersen.—p. 1851.
104 Economy in Making Cereal Gruels. J. O. Kristensen.—p. 1853.

101. **Hemorrhage in the Suprarenals in Young Children.**—Friderichsen reports a case, in a 6 months child, of fatal hemorrhage in the suprarenal glands which were both large and congested, without external rupture. He found a similar case in another infant recorded in the hospital annals, and a case in a boy of 14, and has compiled twenty-five from the literature. Most of them were in nurslings; only three cases were in children between 2 and 3, and only one in a child of 14. The children were all apparently well nourished and seemed to be thriving. They woke suddenly towards morning, screaming, sometimes vomiting, sometimes with diarrhea, sometimes with convulsions, intense cyanosis and pallor; no signs of lung affection, but high temperature, small irregular pulse, and sometimes unconsciousness or great distress. The cyanosis extends around the trunk and on the extremities and nates, and in a few hours petechiae develop and death follows in from six to twenty-four hours after the first symptoms, without any cause having been discovered until necropsy reveals hemorrhages in both suprarenals.

Examination of the blood in twelve cases revealed staphylococci, streptococci or pneumococci in only seven cases. In none of the cases was the hemorrhage sufficient in amount to rupture the capsule. Death seems to have been due to the acute insufficiency of the suprarenals, and this suggests that epinephrin given in time might have warded off serious consequences. The cutting off of the natural epinephrin supply from the blood relaxes the tonus of the peripheral blood vessels, and thus may explain the cyanosis and also the purpura in these cases. The absence of hemorrhages in other internal organs shows that a general hemorrhagic tendency is not in play here. All the children died, but the occasional discovery of signs of old hemorrhage in one suprarenal at necropsy of children dying from other cause, shows that this "suprarenal apoplexy" is not always inevitably fatal. If the blood pressure is found low with the shifting cyanosis and asthenia, a subcutaneous injection of epinephrin in large and repeated doses is justified. The favorable results obtained with this in diphtheria suggest the advisability of systematic investigation of the blood pressure in alimentary and infectious toxic states, and giving of epinephrin besides the generally applied stimulants. It is possible that different hemorrhagic conditions of the blood and mucous membranes are the result of temporary insufficiency of the chromaffine system over which we may thus tide the patient.

102. **The Internal Ear in Mumps.**—Heilskov reports three cases of symptoms on the part of the internal ear as an element in the clinical picture of epidemic parotitis. In one case the labyrinth symptoms, tinnitus, vomiting, dizziness and sudden and rapidly progressive deafness in one ear, preceded by nine days the other manifestations of the parotitis, and the latter developed on the other side. The patient was a young woman, and the loss of the thermic reaction indicated apparently total paralysis of the labyrinth. The parotid gland was only lightly affected, and the mumps showed no other localizations, but there was slight fever for six weeks, with some uncertainty in the gait, and for a long time she could not lie on that side without dizziness and vomiting if she raised her head. The tinnitus has persisted for three years to date, with total deafness on that side. In the two other cases there is still a slight labyrinthal defect left from the acute serous labyrinthitis accompanying the mumps. These patients were a girl of 16 and woman of 36. In another case a girl of 7 was left totally deaf after mumps. This "traveling mumps" suggests that the virus may localize in the labyrinth or in the acoustic nerve, meninges or brain. Lumbar puncture may throw new light on it.

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## AN EXPERIMENTAL INVESTIGATION OF LIPOVACCINES

### A PRELIMINARY NOTE *

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The advances that have been made in medicine and surgery as a result of the war in Europe have been, almost without exception, in the technical improvement of methods before used or in the final and practical demonstration of the efficacy of certain measures of prophylaxis (such as typhoid vaccination), the basis of which has been previously established. Among the advances has been the preparation of lipovaccines, a subject that so far has received little or no attention in this country, but one that seems to us to be of great value not alone in the relation to immediate medicomilitary problems but also in the possibilities that it offers in the prophylaxis of a number of infectious diseases in which vaccine immunization heretofore has been of limited applicability.

It is rather curious that the obvious expediency of preparing bacterial vaccines in a vehicle less rapidly absorbed than physiologic sodium chlorid solution has been completely ignored in the technic of vaccine work, despite the fact that an ever increasing number of pharmacologic preparations in oil have become available for subcutaneous and intramuscular injections. Wassermann, it is true, made up a staphylococcus vaccine in the form of an unguentum, but it was with the purpose of making the vaccine available to the patient without hypodermic injection. Zeuner used soap solutions in making a tuberculin, but here again the object was the complete solution of the tubercle bacillus, not an alteration of the rate of absorption. Whitmore made similar experiments in leprosy. Le Moignic and Pinoy[1] grasped the evident possibilities that presented themselves in the lipovaccines for use in prophylactic work. They used at first a mixture of liquid petrolatum and lanolin as a base for the vaccine; later, however, vegetable oils were substituted. Achard and Foix[2] reported favorably on similar experiments; they had used olive oil in their work; they noted, however, that the oil, if heated at too high a temperature during sterilization, seemed to cause abscess formation at times.

### ADVANTAGES OF LIPOVACCINES

Among the advantages derived from the use of oil vaccines may be considered: (*a*) the diminution of both the local and the systemic reaction; (*b*) the feasibility of giving sufficient vaccine at a single injection properly to immunize the individual; (*c*) the persistence in the individual of a focus from which the immunization proceeds over a period of several months with a resulting lengthening of the period of immunity; (*d*) the actual detoxicating effects of certain lipoids that can be incorporated in the vaccine, and (*e*) the prevention of autolysis and deterioration of the vaccine.

The vaccine used in the Army for prophylaxis against typhoid and paratyphoid fevers contains 1,000 million typhoid and 750 million each of paratyphoid A and B per cubic centimeter, given in three doses, the first of 0.5 c.c., the second and third of 1 c.c. each, the total number of organisms used being, therefore, 6,250 million. This method of immunization, as introduced by Colonel Russell, gives practically complete protection for a period of several years.

The reactions following the injections, however, are at times rather severe. A period of malaise extending for from twelve to forty-eight hours is not uncommon; the local reaction, as a rule, is comparatively negligible.

When a dose of 7,500 million organisms is prepared as a lipovaccine, either in olive oil or oil of sweet almonds, it can be given with less local reaction than that which follows a single dose of the aqueous vaccine, and an almost entire absence of constitutional effects.

The possibility of giving the entire immunizing dose at one time is, for military purposes, an advantage in relieving the medical service from a not inconsiderable routine of injections and record work as well.

The persisting focus of slowly absorbing vaccine may be of certain benefit, too, in the effort to protect against diseases in which prophylactic immunization, as heretofore observed, has had but transitory value. Wright, in working with aqueous pneumococcus vaccination of the Rand laborers, found that protective effects seemed to disappear after a period of three months. With a lipovaccine, absorbing over a long period of time, the immunity might conceivably be prolonged. The same phenomenon may be expected to apply to meningococcus vaccination.

Lipovaccines make it possible to take advantage of the distinct detoxicating effects of certain lipoid combinations, and in this way lessen the reaction, quite apart from the delayed absorption. It is well recognized that the true toxins are lipotropic, detoxication by means of brain substance, by lecithin, by cholesterols, and by soaps having been carefully studied. Even when we are dealing with bacterial endotoxins and the intoxication arising from the splitting of bacterial proteins, it is very probable that some lipoids can act as inhibiting and neutralizing factors. The incorporation of lanolin (consisting largely of cholesterols and fatty acids) in the lipovaccines very probably is of value in this direction.

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* From the Department of Pathology, Army Medical School.

[1] Le Moignic and Pinoy: Compt. rend. Soc. de biol., 1916, **79**, 201, 352.

[2] Achard and Foix: Compt. rend. Soc. de biol., 1916, **79**, 209.

Finally, and from a technical point of view, a not unimportant advantage in the lipovaccine lies in the fact that autolysis of the organisms is largely prevented and the deterioration of the vaccine reduced. In routine work the organisms for vaccine are killed at a temperature of 53 C., leaving the intracellular enzymes of the bacteria partially intact and permitting autolytic processes to continue. This is particularly true in such coccus forms as the pneumococcus and meningococcus. In the preparations of the lipovaccines the young cultures are rapidly dried—within a half hour after scraping from the agar—and either are kept dry until used or ground and mixed with the proper oils immediately, in which condition autolysis is largely held in abeyance.

### PREPARATION

In view of the possible advantages presented, we have prepared a series of vaccines in this laboratory for experimental study. These include:

A. Typhoid-paratyphoid (A and B).
B. Pneumococcus (Types I, II and III).
C. Meningococcus (Types 1, 10, 30 and 60).
D. Dysentery (Shiga, Flexner and Y).

The method of preparation that we have tentatively employed in making these vaccines is, briefly, as follows:

Bacteria are grown for about twenty hours in large Petri dishes on mediums made up essentially as suggested by Vedder; that is, a meat infusion, soluble starch agar (3 per cent. agar) enriched with hemolized rabbit's blood. While it would be possible to use broth cultures for the growth of the organisms, we rather believe that a better immunizing product is obtained on agar. The growth is scraped from the smooth, firm surface by means of a small rubber squeegee, and transferred to a small Petri dish. The bacterial mass or paste is next dried at 53 C. in an oven in which a current of sterile dry air passes over the opened dishes; the drying seldom requires more than forty-five minutes, depending, however, on the thickness to which the bacterial mass has been spread. After thorough drying, the bacteria remain in the form of fine, glistening, brittle scales, which are readily removed by any sharp instrument. The dry weight of the organism per thousand million being known (a large number of these determinations are at present being made by Hersfeld in this laboratory), the bacteria are weighed under sterile precautions and ground in a ball mill for at least twenty-four hours. We add a few cubic centimeters of chloroform-ether to the grinding mass at the beginning of the process to insure the final killing of any organism still viable at that time.

A second method that we have used in some preparations has been to grow the organisms in Kolle flasks, wash off the growth with a small amount of distilled water, freeze the latter, and dry the frozen bacterial mass in vacuo. Both methods give excellent results, although for the production of large quantities of vaccine the first method described seems more expedient.

After thorough grinding, the admixture of the lipoids and oils is made as follows: Sterile anhydrous lanolin in an amount sufficient for the percentage desired in the final mixture (we have employed 10 per cent.) is gently warmed, and one-half volume of oil (olive oil or oil of sweet almonds) added to the lanolin, the whole being poured into the ball mill. The viscid mass is mixed for another six or eight hours, at the end of which time increasing amounts of oil are added at intervals until the volume has been brought to the quantity desired.

The choice of oils used in the preparation is rather limited. The mineral oils were first tried by the French observers, but were evidently soon discarded in favor of vegetable oils, such as olive, sweet almond and poppy. The oils used must be nonirritating, of slow absorbability, must not be too viscid for injection, should withstand complete sterilization without alteration, and must be available in the market in reasonable quantities. Mills' work[3] gives considerable information concerning the use of a variety of oils for subcutaneous injection.

We have heated some of our preparations to 53 C. for thirty minutes, although this step is probably not necessary.

After bottling, sterility is tested by means of bouillon shake cultures, and animal inoculations are made for each run of vaccine.

### THE TYPHOID-PARATYPHOID A AND B VACCINE

Experiments with a lipovaccine of typhoid-paratyphoid A and B bacteria prepared in this manner and containing 7,500 million organisms to the cubic centimeter have led to the following results:

(*a*) The agglutination titer of rabbits immunized with a single dose of lipovaccine compares favorably with that obtained with the three doses of aqueous vaccine.

(*b*) Protective experiments made in guinea-pigs indicate a degree of protection equal to that obtained with an aqueous vaccine. Table 1 presents a typical protocol. Young guinea-pigs were injected with 1 c.c. of vaccine, Dec. 1, 1917. December 11, three were injected intraperitoneally with increasing doses of fresh cultures of typhoid organisms.

TABLE 1.—PROTECTIVE EXPERIMENTS IN GUINEA-PIGS

| Controls | | | Immunized Animals | | |
|---|---|---|---|---|---|
| Weight, Gm. | Loops of Bacteria | Result | Weight, Gm. | Loops of Bacteria | Result |
| 510 | 4 | + 12/15/17 | 480 | 4 | + 12/17/17 |
| 590 | 5 | + 12/16/17 | 580 | 5 | Remained well |
| 560 | 6 | + 12/14/17 | 480 | 6 | Remained well |

(*c*) The agglutination in human serum following a single inoculation is equal to or exceeds that obtained following the aqueous Army vaccine. In the chart the result of the composite agglutinin response in three groups of physicians of twelve each, who were inoculated with our preparation, with a French preparation and with the Army triple vaccine is shown.

It is rather interesting to note that the agglutinin response to paratyphoid B in the lipovaccine group lags far behind the others. Whether this is due to the greater dosage of this particular organism employed in the vaccine, or to some other factor, we do not know.

(*d*) The reaction, both local and general, following the injection of the vaccine is relatively mild, and of the original group of twenty-four men who received the oil vaccines, only one gave a temperature rise of more than 1 degree.

### THE PNEUMOCOCCUS VACCINE

It is, of course, well known not only that well marked differences exist in the human mortality for the different types of pneumococci, but also that the direct toxicity of the organisms varies. In a preliminary titration of the toxicity of the drier organisms injected into mice subcutaneously in salt solution, the results given in Table 2 were obtained.

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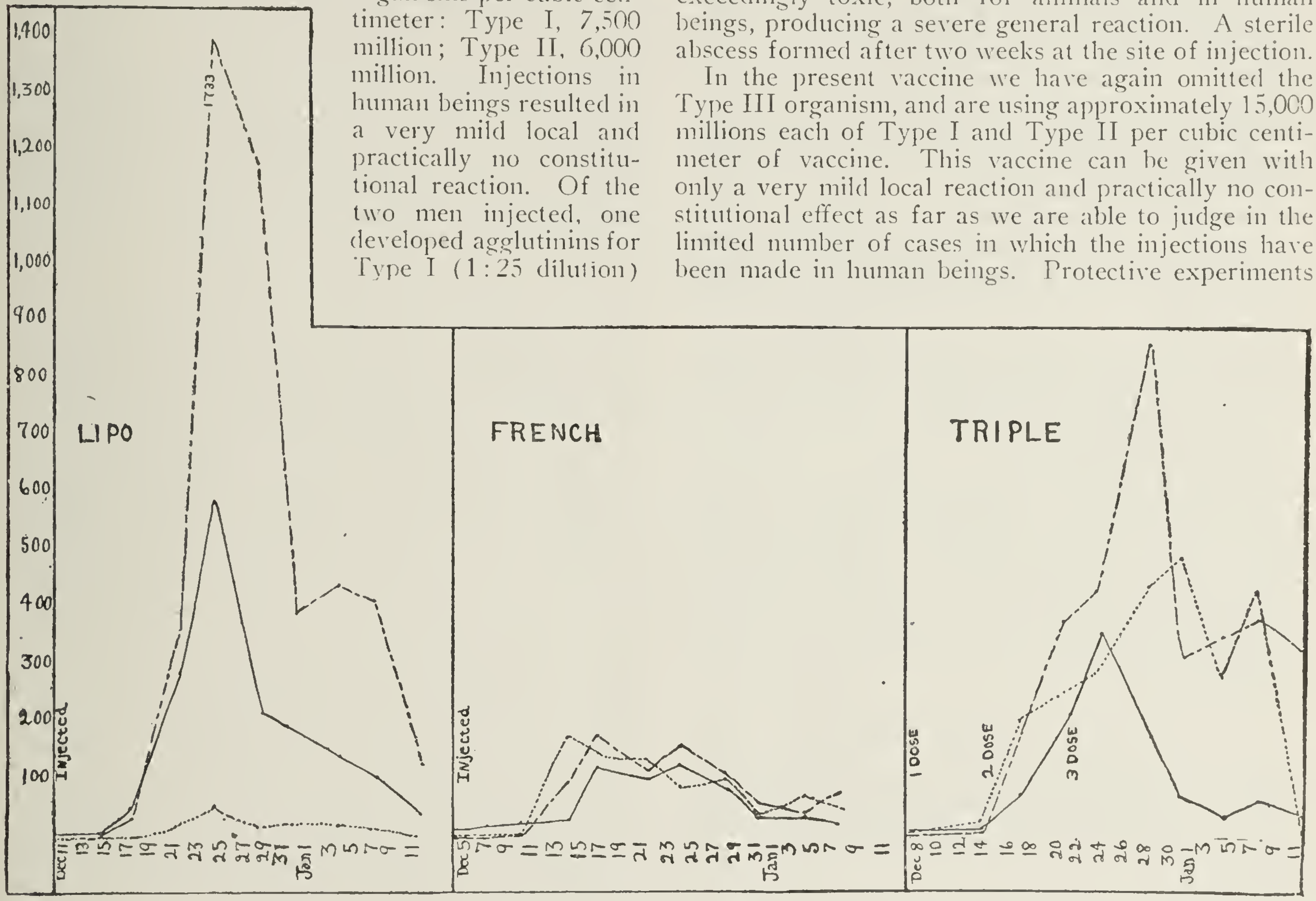
[3] Mills, L. H.: The Utilization of Fats and Oils Given Subcutaneously, Arch. Int. Med., May, 1911, p. 694.

TABLE 2.—TOXICITY OF PNEUMOCOCCUS VACCINE FOR MICE

| Type I | Type II | Type III |
|---|---|---|
| 20 mg. + 24 hours | 20 mg. Remained alive | 20 mg. + 2 days |
| 10 mg. Remained alive | 10 mg. Remained alive | 10 mg. + 3 days |
| 5 mg. Remained alive | 5 mg. Remained alive | 5 mg. + 3 days |
| 2 5 mg. Remained alive | 2.5 mg. Remained alive | 2.5 mg. Remained well |

In our first vaccine we therefore omitted Type III, the vaccine being made up to contain the following organisms per cubic centimeter: Type I, 7,500 million; Type II, 6,000 million. Injections in human beings resulted in a very mild local and practically no constitutional reaction. Of the two men injected, one developed agglutinins for Type I (1:25 dilution) still existent after six weeks; for Type II (1:20 dilution) these remained for two weeks.



Comparative agglutination curves of our triple typhoid vaccine in oil, our triple typhoid vaccine in saline solution, and the French triple typhoid vaccine in oil. The agglutinations are in agglutinin units; to get the dilution, it is necessary to multiply by the factor set down for each organism. Composite, twelve men in each group. Continuous line, Paratyphoid A; dotted line, Paratyphoid B; Factor, T=8.0; A=4.0; B=4.0.

A second man developed agglutinins for Type I (1:15 dilution), and for Type II (1:40 dilution); but after six weeks no agglutinins were present.

Two rabbits were injected at the same time; the serum of one, unfortunately was lost. The other rabbit developed agglutinin for Types I and II (1:10 and 1:20 dilutions, respectively).

Protection experiments in mice with this vaccine resulted as follows: Six mice were injected with 0.5 c.c. and six with 0.25 c.c., Nov. 24, 1917; December 10, they were injected with a twenty-four hour broth culture of Type II with the result given in Table 3.

A second series of mice was vaccinated, Dec. 5, 1917 (0.25 c.c.), and injected, Jan. 5, 1918, with a relatively avirulent strain of Type I, with the result given in Table 4.

The second preparation was made up containing approximately 15,000 million per cubic centimeter of Types I, II and III. This vaccine, however, was exceedingly toxic, both for animals and in human beings, producing a severe general reaction. A sterile abscess formed after two weeks at the site of injection.

TABLE 3.—PROTECTION EXPERIMENTS IN MICE WITH FIRST VACCINE

| Controls | | | Vaccinated | | | |
|---|---|---|---|---|---|---|
| | | | 0.25 C.c. | | 0.5 C.c. | |
| 1. | 1/500 c.c. | + 12/12/17 | 1. | Remained alive | 1. | + 12/12/17 |
| 2. | 1/1,000 c.c. | + 12/12/17 | 2. | + 12/12/17 | 2. | + 12/12/17 |
| 3. | 1/5,000 c.c. | + 12/12/17 | 3. | + 12/12/17 | 3. | + 12/12/17 |
| 4. | 1/10,000 c.c. | + 12/12/17 | 4. | + 12/12/17 | 4. | + 12/12/17 |
| 5. | 1/50,000 c.c. | + 12/11/17 | 5. | + 12/12/17 | 5. | + 12/13/17 |
| 6. | 1/100,000 c.c. | + 12/12/17 | 6. | Remained well | 6. | Remained well |

In the present vaccine we have again omitted the Type III organism, and are using approximately 15,000 millions each of Type I and Type II per cubic centimeter of vaccine. This vaccine can be given with only a very mild local reaction and practically no constitutional effect as far as we are able to judge in the limited number of cases in which the injections have been made in human beings. Protective experiments in mice and agglutination experiments in man with this vaccine are not sufficiently advanced to draw definite conclusions as to its probable value, although the recent work of Lister in South Africa would seem to indicate very definite protective value for pneumococcus vaccination properly carried out.

TABLE 4.—RESULTS WITH AVIRULENT STRAIN OF TYPE I

| Control | | | Vaccinated mice | |
|---|---|---|---|---|
| 1. | 1/1,000 | + 1/6/18 | 1. | + 1/7/18 |
| 2. | 1/5,000 | + 1/7/18 | 2. | Remained well |
| 3. | 1/10,000 | + 1/7/18 | 3. | + 1/7/18 |
| 4. | 1/50,000 | Remained well | 4. | Remained well |

### MENINGOCOCCUS VACCINE

In the preparation of meningococcus vaccine we have used Strains 1, 10, 30 and 60 (Rockefeller), of which we have incorporated approximately 10,000 million of each strain per cubic centimeter. The meningococcus shows considerable variation in weight, corresponding to its fluctuation in morphology; Strain 1, however, weighs approximately 0.1 mg. per thousand million with considerable consistency. We have, therefore, made up the vaccine with 1 gm. of each of the dried organism per liter.

We have injected a series of rabbits (twelve) with this vaccine, using a dose of 1 c.c., and in a series an additional dosage of 1.5 c.c. three days following the first dose. With two exceptions, all show decided agglutination for Strain 10; several for Strain 30; the majority for Strain 60, some in a dilution of 1:200. Only one of this series showed agglutination for Strain 1 (1.25 dilution).

The men injected have been divided into three groups:

One group of twenty-five received a 1 c.c. dose of this vaccine, with very mild local and no constitutional effect. Of these only two have so far given any agglutinin response (three weeks).

A second group of twenty-five received 1 c.c., Jan. 12, 1918, and a second dose, January 15. Following the second dose, two men complained of some constitutional effects.

In this group no agglutinins have developed by January 21 for Strain 1; all but five have developed agglutinins for Strain 10 (some as high as 1:800 dilution). Five have developed agglutinins for Strain 30 in the lower dilutions (1:12 and 1:25). None have responded to Strain 60.

A third group of five men received 1 c.c. of a vaccine made up twice as strong as the previous vaccine (2 gm. of each type to the liter), January 18. This vaccine was followed after twenty-four hours by a moderate general reaction. Of this group, one responded in four days in the lower dilutions to Strain 1; three to Strain 10, and one to Strain 30; but none to Strain 60.

### THE DYSENTERY VACCINE

Vaccination against bacillary dysentery has heretofore encountered serious difficulties because of the pronounced toxicity of all aqueous preparations employed. The attenuation of the toxicity of dysentery vaccine when prepared in oil is illustrated in the following experiment:

> Five thousand million Shiga bacilli (aqueous vaccine) per cubic centimeter injected into a rabbit was followed by death in two days.
>
> The same dose, prepared as an oil vaccine, was well tolerated by a rabbit, although no agglutinin production was to be observed.

For preliminary experiments we have prepared a vaccine containing 2,000 million each of the Shiga, Flexner and Y types. Injection into rabbits has resulted in the following agglutinin curve:

One rabbit received 1 c.c., Dec. 17, 1917, and another 2 c.c., Dec. 17, 1917. Both have responded with agglutinins to all three strains, the rabbit receiving the larger dose agglutinating in the following dilution: Shiga, 1:100; Flexner, 1:400; Y, 1:1,600.

Two human beings were injected, one receiving 0.25 c.c., the other 1 c.c. In neither case were the reactions at all marked either locally or systemically. There was no agglutinin response in the first case; the second man has responded in the following dilutions: Flexner, 1:200; Y, 1:37; Shiga, 1:25.

Because of the demands of other work, we have not carried these experiments farther for the time being.

### METHODS OF PRESERVATION

In the preparation of aqueous vaccines, certain of the coal tar preservatives—tricresol, etc.—are commonly added as preservatives. Unfortunately, as Koch showed in some of his early work, practically all of the common disinfectants and preservatives are lipotropic, and in the presence of lipoids and fats are without effect on bacteria. Both vegetative and spore forms of tetanus, and Welch bacilli seeded into oils and treated at room and incubator temperature with large percentages of ether and chloroform, remain viable (Dr. Pritchett of the Rockefeller Institute very kindly carried out these experiments for us). Iodin has so far given us the best results, and has the advantage that it soon combines with the unsaturated oils, and is thereby rendered inert after it has served its purpose. Whether iodin will alter the antigenic property of the vaccine is still to be determined. The attenuation of toxins by means of iodin is, of course, a well recognized procedure. At present no antiseptic of any kind is added to the vaccine as we prepare it.

### METHOD OF ADMINISTRATION

Because of the tendency of the oil of the vaccine to make the glassware and needles slippery, the injection of the lipovaccine seems at first to be more tedious and disagreeable to one who has worked with the aqueous vaccine for any length of time. Certain precautions must be taken, too, that are less essential in the manipulation of the aqueous vaccine. The skin should be sterilized with iodin. The vaccine should be warmed slightly (37 C. is sufficient) to facilitate the ready flow of the oil. It is well to use a large bore needle (if the point is kept properly sharpened the pain of injection is not increased thereby), and to draw up the oil into the barrel with the needle detached. Absolute care must be observed to prevent an intravenous injection. The large size of the injecting needle leaves a puncture from which the oil has a tendency to run back; to prevent this we press a small iodin swab firmly against the puncture until the flow ceases. This prevents, too, the occurrence of superficial puncture infections, which are apt to follow if the needle puncture is permitted to remain open and the clothing pulled down over it.

### CONCLUSIONS

While we regard our work as purely preliminary, we have gained the impression that the lipovaccine offers a number of advantages over the aqueous preparation. The production of the vaccine is, of course, more laborious and expensive, and a number of technical problems remain to be studied in connection with it, together with detailed investigations of the comparative antigenic value. Apart from the typhoid-paratyphoid A and B preparation, the pneumococcus and meningococcus vaccines have been of interest to us because of the apparently ready response in agglutinins of both animals and man to a single injection. Whether such a response properly portrays the protective value of the vaccine is, of course, not to be determined in so short a period of time as has been available to us. Protection tests in animals vaccinated with the triple typhoid lipovaccine have indicated the development of a considerable degree of resistance, and similar experiments carried out in mice following pneumococcus vaccination gave some evidence of protection. The latter experiments, together with those under way with meningococcus vaccine, are, however, not sufficiently advanced to permit us to draw definite conclusions.

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# TYPE DETERMINATION OF PNEUMOCOCCUS INFECTION

## AS PRACTICED IN THE FIELD WITH AVERY'S NEW CULTURAL METHOD

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The clearly demonstrated beneficial results in the use of Type I serum for the treatment of cases of lobar pneumonia infected with Type I pneumococcus has led to the introduction in the hospitals of the United States Army of type determination as a part of the routine treatment of cases of lobar and bronchopneumonia. The shortage of mice, however, has been so great that in many places it has been absolutely impossible to obtain these animals for laboratory use. It is indeed fortunate, therefore, that the cultural method recently devised by Avery, the so-called "artificial mouse," has been placed at the disposal of laboratory workers in the Army base hospitals. I have used the method described by him in one of the base hospitals, and it has given complete satisfaction, as far as practical results are concerned. Since laboratory equipment in these institutions is necessarily somewhat curtailed, and since it is essentially the same in all such laboratories, I take this occasion to describe in some detail the routine that I have worked out, and I do so with the hope that it may be of use to others. For reasons of economy, it has been found necessary, first, to use as little apparatus as practicable, and secondly, when working with the sputum itself or with mediums containing pneumococci, to use exceedingly cheap apparatus which may be immediately disposed of by burning, thereby saving time and trouble in subsequent cleaning and sterilization. The method here outlined is rather rough, but it is to be recommended on account of its simplicity, reliability and rapidity of execution.

### APPARATUS

The following is a list of articles required in the carrying out of group determination:

Beef infusion broth. (One thousand c.c. should be enough for the determination of 250 sputums.)

Twenty per cent. sterile glucose solution. (This can be made by autoclaving 50 c.c. of distilled water in a 4 ounce bottle with a rubber stopper, and subsequently adding to this 10 gm. chemically pure glucose. This is then sterilized by boiling.)

Sterile defibrinated blood. (This can best be obtained by autoclaving an ordinary 2 or 4 ounce bottle with a rubber stopper, in which have been placed several glass beads. Twenty or 30 c.c. of blood may then be drawn from the arm vein of a patient whose blood is known to be normal, a sterile glass syringe, as for the Wassermann technic, being used. This is immediately transferred to the sterile bottle, which is then shaken to defibrinate the blood.)

(These three ingredients of the culture mediums may be kept separately in the ice-box, and portions drawn off, as needed, with a sterile pipet. There is no great danger of contamination; but if this method is followed, no larger amounts of blood and glucose solution should be kept in each bottle, and the sterile beef infusion broth should be in 250 or 300 c.c. lots. The other method that may be followed is that of keeping the culture medium in centrifuge tubes with the various ingredients already mixed and in the proper proportions.)

Two 4 ounce bottles for glucose solution and blood.

From twelve to twenty-four glass beads.

Five or more 10 c.c. graduated pipets, which may be rolled up in a towel and sterilized by dry heat.

Twelve or more small nongraduated pipets about 8 inches long, which may easily be made from ordinary glass tubing of about 7 mm. diameter.

Twenty-four or more centrifuge tubes or heavy glass test tubes of similar size, suitable for using in a centrifuge.

Agglutination tubes, from four to six dozen or more. (The small, thick glass tubes, 3 inches long and three-eighths inch in diameter, usually on hand in the base hospital laboratories, are entirely satisfactory for this purpose.)

Porcelain dish for concentrating urine.

Four deep glasses for decolorizing Gram's stain, etc. (If regular glasses are not on hand, nurses' medicine glasses are very satisfactory.)

Gram's stain.

Hiss' capsule stain.

Ziehl-Neelsen stain.

Microscope with oil immersion lens.

Glass microscope slides.

Incubator (37 C.).

Dishes for holding disinfecting solution, preferably cresol. (One should be about the size of a 1 quart Mason jar, and is used as a receptacle for contaminated pipets. A Mason jar will do, or another article that is always on hand is an empty tin can for alcohol, 2 pound size, the cover of which may be removed with a can opener or by merely melting the solder by inverting on a hot stove lid. Tin wash basins are satisfactory for discarded centrifuge and agglutination tubes. The bottom half of unused white enamel cuspidors is of convenient size and shape. The work done at this base hospital was in a temporary laboratory located in the pneumonia ward, and it was decided that the cuspidors regularly allotted to the ward were thus being put to infinitely greater advantage than had they been standing on the floor of the ward.)

Alcohol lamp.

Tripod for porcelain dish.

Platinum loop.

Immune serums, Types I, II and III, for diagnostic purposes.

Six medicine droppers for staining.

Two rubber nipples for use on nongraduated pipets.

Cresol solution.

Test tube racks.

### METHOD OF PROCEDURE

As soon as the patient is admitted to the ward, a fresh sputum specimen is sent to the laboratory, where it is stained by Gram's stain and by Hiss' capsule stain. Frequently several sputums are to be examined at once, and the culture medium, if not already stored in the centrifuge tubes, is now made up from the three bottles of broth, blood and glucose. With a sterile 10 c.c. pipet, 10 c.c. of broth are drawn up and distributed equally into three centrifuge tubes. Provided the pipet is not contaminated by touching anything, this process can be repeated with the same pipet until the desired number of tubes have been prepared. If sterile pipets are scarce, the same pipet may now be used to draw up glucose solution, and approximately 0.2 c.c. is distributed to each of the centrifuge tubes. Blood is now distributed in the same manner and in the same amount as the glucose solution. This preparation of medium takes only a few minutes. It must be emphasized, however, that whenever not in use, the ingredients *must* be kept in the ice-box.

A portion of the sputum that has been brought to the laboratory in a nonsterile pasteboard sputum cup is stained by Gram's stain, and if found to contain large numbers of pneumococci, it is washed through three washings of sterile physiologic sodium chlorid solution and then transferred to the culture medium in the centrifuge tube. We have found it convenient to cut strips of thin cardboard about 10 cm. long, 2 cm. wide at one end, and 0.5 cm. at the other, which are used to pick up a portion of the sputum the size of a kidney bean and place it in the tube. Next, an important procedure, is to loosen the sputum from the wall of the centrifuge tube and make sure that it is floating free in the fluid. Otherwise, when later centrifugalizing is attempted, the mucus may adhere to the side of the glass and be thrown down with great difficulty. The sputum is thus loosened by stirring with a slender wooden applicator about 5 inches long, such as is commonly used in swabbing throats. This is much easier than stirring with a wire, which must subsequently be sterilized over a small alcohol flame. The culture is now placed in an incubator for from five to six hours at 37 C. A water bath has the advantage that the tubes heat up more rapidly, and such may easily be improvised merely by the placing of a pan of water inside the incubator.

The sputum cup, cardboard spatulas and wooden applicators are now easily disposed of by being thrown into the fire. When one is running from six to ten or more sputums at one time, this is a great saving in time and materials.

Satisfactory test tube rancks may be made, if necessary, out of ordinary 2 by 4 inch boards of about 1 foot length, into one broad surface of which two or three rows of holes of desired diameter have been bored to a depth of about 1 inch.

After proper incubation, smears are made from the culture and stained with Gram's stain and with Hiss' capsule stain. The growth of pneumococcus is as a rule very abundant at this time, as shown by microscopic examination. Other organisms for which the medium is not suitable have not multiplied to any remarkable extent. The size and shape of the pneumococcus is here noted in the records as well as the extent of capsule development. If the growth is found not to be abundant at the end of six hours, the incubation may be prolonged. This, however, is rarely necessary.

After microscopic examination, the centrifuge tubes are centrifuged at low speed (high speed on the ordinary centrifuge) for from two to five minutes or more, after which the supernatant fluid from each tube is pipetted with the nongraduated pipet and a rubber nipple, into each of the agglutination tubes in 0.5 c.c. portions. To the first tube is added an equal amount of Type I serum, to the second Type II serum, and to the third, if on hand, Type III serum. Each tube should be shaken after the serum is added, and then they are all incubated for two hours. Usually a positive reaction occurs within one hour, and consists in the settling out of a flocculent precipitate, leaving a clearer supernatant fluid than in the case of the other tubes from the same sputum, and on agitation of the tube, the rather large floccules become evenly distributed throughout the fluid. If no such precipitation or agglutination occurs in any of the three tubes, the assumption is that the infection is with a Type IV organism.

If sterile ox-bile can be obtained, the type determination may be hastened by adding 1 c.c. of clear bile to the culture after five or six hours' incubation in the water bath, and incubating for twenty minutes, a process which, as Avery has shown, dissolves the pneumococcus cellular substance, with the consequent liberation of a much greater concentration of soluble pneumococcus substance available for the precipitin reaction. After centrifugalization, then, equal amounts of the supernatant fluid and of immune serum will show and almost immediate positive reaction in case of Type I, II or III infection, and subsequent incubation is unnecessary.

Although it is highly desirable to work with sterile apparatus, sterile centrifuge tubes, agglutination tubes and pipets, yet in the laboratory of a base hospital, where the work is extremely heavy and the facilities are at times rather limited, it is frequently more practical to use when possible articles that are thoroughly clean but not necessarily sterile, except through the process of boiling. The test tubes and centrifuge tubes may be nonsterile. At least four 10 c.c. pipets must be sterile—one for the preparation of culture medium in centrifuge tubes and one for each of the three immune serums. The nongraduated pipets for transferring culture from centrifuge tubes to agglutination tubes do not need to be sterile, and if they are very scarce one may be used for all sputum specimens, care being taken to rinse out the pipet several times in clean water after every transferal of broth culture. Organisms might be transferred in this manner, but not enough of the culture medium could be transferred to interfere with the agglutination or precipitin reaction; any transferred organisms would not in two hours have sufficient time to grow to an extent great enough to interfere with the reaction. This is demonstrated by the fact that when we have obtained a Type I or a Type II organism while running ten or more sputums at once, there was not the slightest suggestion of Type I or Type II, as the case may be, in the adjoining agglutination tubes. However, since it is necessary to sterilize a portion of the pipets, it is no additional trouble to sterilize by dry heat, at the same time, all of those used.

## COMMENT

Certain points require especial emphasis.

First and foremost, the sputum specimen must be sputum raised from the chest and not contaminated by saliva. Avery reports that in the use of his new method, in only three cases were the results at variance with those obtained from mouse inoculation. In these three instances the mouse culture showed Type I infection to be present, whereas the artificial medium showed absence of Types I, II or III organisms. On repetition with carefully washed sputum which was thoroughly broken up in a mortar, the results with the artificial medium were found to correspond with those of the mouse method. As Avery has pointed out, in the peritoneal cavity of a mouse the more virulent organism will outgrow the less highly infectious Type IV organism, but in broth culture the two types will grow with equal rapidity, and the one that is present in the greatest concentration to begin with will be the predominating organism after five or six hours' cultivation.

It is frequently difficult to find ward attendants who can readily comprehend the importance of obtaining uncontaminated sputum, and it may be advisable to instruct one nurse or ward master in each ward, and to hold her or him responsible for proper collection. If a pneumonia patient finds it impossible to raise sputum while lying on his back, he can often be made to cough while lying on his unaffected side, and a fit of coughing once started usually terminates in the expulsion of one mass of sputum entirely sufficient in amount for the laboratory examination.

The laboratory worker should be instructed never to accept a sputum specimen that is contaminated with saliva.

In order to free the collected sputum from contaminating mouth organisms, especially from the Type IV pneumococcus, which is so frequently present in the normal saliva, Avery recommends washing the specimen in two or three changes of sterile saline solution and subsequently grinding it in a sterile mortar to liberate the infecting organism from the interior of the pellet of sputum, previous to incubation. We have insisted on this washing in sterile salt solution; but since sterile mortars are not numerous in the equipment of a base hospital laboratory, we have replaced the latter procedure by thorough agitation of the sputum in the culture medium, with wooden applicators as previously described. By this method the sputum may be quite efficiently broken up.

It must be emphasized that a report of Type IV pneumococcus infection is a negative report. It is analogous to a report of "nothing found." In every Type IV pneumococcus report there is the possibility of salivary contamination, and it is a good rule to follow that, in Type IV infection, one should continue the search for the infecting organism. Every case of Type IV pneumonia should therefore have at least two type determinations, and in each case with sputum collected with the utmost care.

As regards the dilution of serums used in the agglutination or precipitin reactions, it may first be stated that Types I, II and III serums may be used undiluted. It is, in fact, advisable to use Type I serum undiluted, because for therapeutic purposes it is all important that no false negatives be obtained from the use of too dilute serum. Such instances have been known to occur, and are explained by the fact that the particular batch of serum used was unusually low in agglutinins. In using undiluted Type I serum there is no danger of obtaining a false positive reaction from action on a Type II, III or IV organism. The same statement holds true for the other two types of serum.

In order, however, to economize in the use of serum, it is well to dilute when possible. It is considered safe to dilute the Type I and Type II serums 1 : 10, and the Type III serum 1 : 5 before using. No greater quantities of diluted serum than enough for three days should be made up at one time on account of the danger of contamination. Dilution should be made in sterile physiologic sodium chlorid solution, and the serum must be kept cold.

In the grouping as it is determined in the base hospitals, it is well to set up three tubes of pneumococcus culture in agglutination tubes, into the first of which is placed Type I serum, undiluted or diluted 1 : 10, as preferred, into the second Type II serum, undiluted, and into the third Type III serum, diluted 1 : 5. By using Type II undiluted, the atypical Type II organisms will also be recognized, and these may be distinguished from straight Type II organisms by subsequent incubation of a fresh sputum culture with Type II serum diluted 1 : 10. If the reaction is positive with the diluted serum, the infection is with the straight Type II organism. It has been found to be a saving of both time and serum thus to resort to diluted Type II serum only when the reaction was positive with the undiluted serum.

If the test tube stands, made from a block of 2 by 4 inch wood, as previously described, have three rows of holes drilled into them, the cross rows of three holes each will be such that each cross row serves for one patient's sputum, with serums of Types I, II and III in the row.

Only one additional point requires mention. If the infection should be with a streptococcus instead of with a pneumococcus, the streptococcus will be found in the smear from the six-hour culture. Here also it would be most important to obtain uncontaminated sputum. Otherwise the culture might show a large number of mouth pneumococci. If the infection is with a hemolytic streptococcus, hemolysis of the red cells in the culture medium will occur. This diffuse reddening of the fluid which is not otherwise the rule is of a diagnostic value. Occasionally in a pneumococcic infection the pneumococci will grow out in chains of diplococci, in the culture, and to a cursory examination it would appear as a streptococcus infection.

If possible, the determination of pneumococcus type by this rapid method should be controlled by agglutination reactions on pure cultures of the organism. Pure cultures may be made from smears of the six-hour blood-glucose-broth culture on glucose-blood-agar plates. If this is done, differentiation of the Type II organism from the atypical Type II may be accomplished with the pure culture, thereby eliminating the necessity of making a second sputum culture in cases showing agglutination or precipitation with undiluted Type II serum.

A blood culture should be made in every pneumonia case soon after entrance of the patient to the hospital, and if a pneumococcus growth be obtained, agglutination tests, and if time permits, further identification tests should be performed on the pure culture.

Precipitin tests on an admission specimen of the patient's urine, both unconcentrated and concentrated, may also be performed in the manner described by Blake.

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**Patent Medicines—Why?**—At a time when additional revenue is imperatively needed, why do patent medicines escape a fair share of the burden? In the estimated returns from the new war tax bill these are credited with a contribution of only $3,000,000, while cigars, cigarettes and tobacco are expected to bring in $55,000,000, fermented liquors $45,000,000, soft drinks $14,000,000, and wines $10,000,000. It is not a sufficient answer to say that these other things are luxuries—that is only partially true, at best. Nor can it be argued, on the other hand, that these patent medicines are necessities: that again is only partially true. For, although some of them serve a useful purpose, by far the greater number are injurious. They either do not cure the complaints for which they are recommended or they bring on others. It is notorious that some widely sold compounds contain a high percentage of alcohol, and that their "tonic" effect is the result of the alcohol in them, not of the other ingredients. Their large sale in "dry" territory is proof enough that they are largely used as substitutes for undisguised spirits, and often do more harm. The world would be much better off if most of them were taxed out of existence.—*Philadelphia Ledger.*

# PERSONALITY IN PARESIS

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American psychiatrists, led by Meyer, Hoch, Jelliffe, Kirby and others, have revived interest in the study of the development of various mental disorders, particularly dementia praecox, by definitely showing the great part which the personality of the individual plays in the development, progress and nature of a given psychosis. The major part of this work has been done in dementia praecox and manic depressive insanity, and conditions allied to these two abnormal mental reactions.

Recently I[1] reported 144 cases of mental disease selected from a great number of cases which were observed at the Vanderbilt Clinic and were studied particularly with the idea of bringing out peculiarities of make-up. The results have confirmed the observations long ago made by the writers mentioned above. Further, however, it seemed interesting to note that in twenty-five cases of undoubted general paresis, those cases which were distinctly psychotic developed in persons with peculiar personalities. In the report I said:

> Of these twenty-five cases of general paresis, it will be immediately noticed that fourteen have been placed in the chart under the classification "efficient." By this term we mean to indicate that before the onset these patients were efficient, normal, average individuals without unusual traits which could be learned. It is peculiar that in nearly all of these fourteen cases the psychoses are limited to memory defects and some mental deterioration, both of which are expressions of destruction of brain tissue by the disease process with hardly any irritative mental symptoms. These are the cases also which appear to be general paresis with physical signs dominating the picture, the mental signs being greatly subordinate. On the other hand, an analysis of the other eleven cases shows that the contrary is true. These are the euphoric, bad tempered, explosively emotional, highly excitable paretics who are usually committed as insane.

A large number of paretics will run a fairly even course from onset to dissolution without at any time coming within the average lay person's concept of insanity. These persons appear to be suffering mainly from the definite physical results of the destructive disease process in the brain tissues, meninges and blood vessels. On the other hand, a large group of paretics, from the very inception of their disease, are peculiar, irritable, excitable, euphoric, inefficient, boisterous, lewd, and subject to delusions or hallucinations. Therefore, according to the nonmedical conception, these patients are affected with the psychosis, paresis. In the twenty-five cases reported, there were fourteen of the first group and eleven of the second. According to this study, the type of psychosis in the eleven appeared to be distinctly influenced by the personality of the patient before the onset of the organic disease. The various types of make-up in these eleven persons seemed to determine the nature of the psychotic manifestations. For years, as long as they or their relatives could remember, these patients had been practically always of a distinctly irritable, excitable disposition, showing various degrees of inefficiency as workers. One was considered a neurasthenic prior to the onset of his illness. One, besides being of a nervous, irritable, inefficient make-up, had frequent periods of depression and was immoral. Four of the eleven patients had been alcoholic for years besides being inefficient workers, and two, besides possessing the neurotic temperament, were subject to alternating periods of depression and excitement. One neurotic was a morphin addict. Another had suffered from diabetes, was dull and drowsy and easily fatigued, and had been sexually impotent for many years before the onset. These eleven, who were either simply neurotic, or neurasthenic, or alcoholic and inefficient, were the only ones of the twenty-five patients who could really be said to have a psychosis plus the paresis. They were also the euphoric, boastful, indifferent, confused, incoherent, excitable persons who showed gross defects in behavior, judgment, memory and intelligence, and who make up the class of paretics that are early committed to hospitals for the insane.

I have no desire to formulate the theory that paresis of this type occurs only in persons who possess the characteristics which we are in the habit of classifying as neurotic, neurasthenic or inefficient. In the following twelve cases, I shall endeavor to prove with clearness and detail that the personality, or so-called make-up of the patient who is infected with the specific toxin of syphilis and develops the disease known as general paresis, will determine whether he is to have the gradually progressive disease characterized chiefly by physical signs, or the more rapidly progressive disease characterized chiefly by mental signs and being essentially a psychosis. For many years, statements have been made to the effect that paresis occurs only in peculiar, highly energetic, mentally active persons, and that it is uncommon to find this psychosis in dull, less talented persons. That this is not true, any one who sees a great number of these patients will be prepared to confirm. On the other hand, many clinicians have been impressed with the fact that paresis develops only, or at least much more often, in individuals peculiarly predisposed.

Without attempting a psychologic analysis of personality or make-up, as it is usually understood, I wish to define clearly what I understand by these terms. For me, personality is that intangible, because complicated, something which stamps the individual as a unit and makes him different from a great many of his fellows. It consists primarily of the nervous system (and secondarily of all the organs of the body) with its capabilities for development predetermined by inheritance, modified secondarily by education and experience as the result of contact with the environment. For normal persons with healthy organs, under the influence of an average environment, there is possible but very little difference in the personality. Persons with nervous systems not weakened hereditarily and not disturbed by abnormal influences in the environment form the great mass of the people who, we say, have the normal, average make-up. Those persons, however, who are handicapped by the possession of neurotic constitutions (for instance, according to the conception of Adler) or those who, possessing a normal heredity, are subjected to stressful or other harmful influences in an environment poorly adapted to successful development, develop the personalities which we recognize as peculiar, shut-in or seclusive, neurotic, psychasthenic, etc. In paresis, we are attempting to determine whether parenchymatous syphilitic infection of the nervous system is influenced in the production of the mental symptoms by individualistic, particular traits of the patient. There is no more reason for us to lose sight of the patient in considering general paresis than for us to lose sight of him in studying dementia praecox, or manic depressive insanity, or the alcoholic psychoses.

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[1] Osnato, Michael: New York Med. Jour., to be published.

It has for many years puzzled psychiatrists and other clinicians why it is that, of the great number of persons who are infected with syphilis, only a few, probably less than 3 per cent. of the total number of syphilitics, eventually end as paretics. If we, therefore, postulate in these patients the presence of a defect in the nervous system, particularly the brain, which exists either as a hereditary or an acquired weakness, then Adler's conception of organic inferiority helps to explain the problem. Adler conceives that the neurotic is somatically inferior, also that this inferiority affects more than one organ and that, as an overcompensation medium, the central nervous system is always involved. In other words, if we can prove that, before the onset of his psychosis, the psychotic paretic is practically always a neurotic, then we can go further and say that paresis has developed in him because the central nervous system is an inferior organ and the inferiority serves to determine the location of the characteristic destructive process caused by his syphilitic infection.

The following twelve cases have been selected from my private practice, because I was able to obtain data in sufficient detail to make a study of this kind possible only from persons who could be constantly and intimately under observation and whose relatives were readily accessible for information about the previous characteristics of the patients studied.

### REPORT OF CASES

Case 1.—The most instructive of these cases is that of a native Italian woman, G. E., aged 33, married, whom I saw for the first time, Jan. 20, 1917. The most important point in the family history is that two first cousins of this patient died insane in asylums in Italy. One of these cousins had been insane for seventeen years; the other was insane for only a few months and died from his trouble. The patient was married when she was 22 years of age. The marriage was unhappy and not of her choice, being arranged by her parents. The mother is an obstinate Italian woman of poor mental endowments who married a rather brilliant musician. This marriage also had been unhappy and ended in desertion of the patient's mother by the father, who has not been heard of for a number of years. The dissatisfaction felt by the patient on account of her married state was increased by the fact that the pair had no children. The husband was never a very good provider, and was rather dull, uninteresting and inefficient as a worker. Because of her husband's inability to provide properly, the patient, who is good looking, had been forced to work as a seamstress. She was always sensitive when her married relationships were mentioned, was inclined to be moody, would not speak for days, was seclusive, and was more often depressed than in any other mood. Her relatives have told me that she often appeared to be dreaming or thinking about something. She was a very efficient worker but distinctly not a normal personality. About Jan. 1, 1917, shortly after her sister had been operated on, she awoke suddenly in the middle of the night and proposed to the sister that they both run away to Italy, leaving her husband behind. She was quieted with difficulty and remained fairly well for a few days, when she again had an episode of excitement while purchasing some groceries in the store of a friend. This friend had offered her a cup of coffee, which she refused with great vehemence, accusing her friend and the friend's husband of attempting to kill her by putting poison in her coffee. She came home and got her husband to go back to the store with her, and accused the pair so loudly that she created a scene and was calmed with great difficulty. A week later while attending a social affair at her aunt's home, she suddenly threw the assemblage into an uproar by accusing her aunt of having put poison in the food which she, as well as the other invited guests, had eaten. She was brought home much excited, yelling that a lot of men were coming to the door and knocking at it with knives in their hands and demanding that she submit to their caresses. She said that these men spoke to her threateningly saying, "Kiss me or I will kill you." She stated that the friends who, she said, had originally attempted to poison her were sending these men with knives in their hands after her, and that these people followed her in the streets taunting her and calling her bad names. They also told abominable lies about her, saying that she was not married and that she had committed gross sexual sins. She was finally taken to the Kings County Hospital, January 15, and was sent from that institution with a diagnosis of dementia praecox, paranoid form, to the Kings Park State Hospital, where I saw her, Jan. 20, 1917. At this time she was so much disturbed that it was impossible to examine her, but the hospital physicians were sure that the diagnosis made at the first institution was undoubtedly wrong and that the patient was suffering from manic depressive insanity. A lumbar puncture was suggested at this time together with a blood Wassermann test. I saw the patient again, Feb. 1, 1917. At this time she was almost mute and inaccessible. When pressed hard for an answer she said, "I want to see Andrew and my mother and my sister." Her husband was not mentioned at all. She insisted on being called by her maiden name, she cried easily, and she did not appear to be reacting to hallucinations or delusions. She was very much annoyed, and insisted that she was not insane. The diagnosis at the Kings Park State Hospital at this time was manic depressive insanity, but a perusal of the serologic report made me suspicious that we had to deal with something else, particularly after I had examined the patient physically. The Wassermann test in both the blood and the spinal fluid was negative, but the cell count was seven. The physical examination showed that the right pupil was larger than the left and that both pupils reacted very sluggishly to light, but well to accommodation. The patient showed a slight unsteadiness on standing with the eyes closed, and the left patellar tendon reflex was much more active than the right. Accordingly, another lumbar puncture was done, and a report from the Kings Park State Hospital showed that there were seventeen cells, that the butyric acid test was positive and that the spinal fluid showed a positive Wassermann test. But the blood was again negative. Quoting from the report which was sent me with the diagnosis from the Kings County Hospital of dementia praecox, we find that the case had been thus summarized: "The patient expressed a diffuse, paranoid, hallucinatory trend with auditory and visual hallucinations. Her paranoid ideas were referred to a local business man who is married and whom she accused of making improper suggestions to her." She is said to have been apprehensive, restless and assaultive, and she reacted to auditory hallucinations. Her make-up is said to have been somewhat seclusive. In other words, not only from the nature of the psychosis but also from the history of the shut-in personality, this patient appeared to be definitely affected with paranoid dementia praecox. There is no reason to believe that any fault should be laid at the door of the observers at the Kings County Hospital for this conception of the case. In view of the patient's previous typical, seclusive make-up and the absolutely characteristic development of the psychosis, no one could be blamed for thinking this a case of dementia praecox. It is easy to see how large a part the personality of this patient led to the diagnosis made in this place of observation.

Later at the Kings Park State Hospital, other observers equally skilled and experienced in the care and treatment of cases of this kind decided that, because of the history of the depressions which preceded the onset of the psychosis and because of the sudden onset with great excitement, this was not a case of dementia praecox but rather a case of manic depressive insanity. Was not the personality distinctly in favor of this view? As a matter of fact, what the patient really had and still has (she is now on parole and is being treated with intravenous injections of salvarsan) is the organic nervous disease known as general paresis plus a psychosis which, in one place, was called dementia praecox, and in another, manic depressive insanity. There is very little room for doubt that the make-up of the patient, as described above, determined the nature of her psychotic reactions, and that the syphilitic infection merely decided the location of the irritative and destructive processes in the brain, which were responsible for the physical signs that played so small a part in her disease.

Besides illustrating this point, the case is of interest in other ways, because it illustrates the existence of conjugal paresis. The shiftless, dull, inefficient husband, always mentally below par, was committed to the Kings Park State Hospital suffering from general paresis. I saw him on a number of occasions; but at no time before his commitment, or since, has he been the victim of delusional trends, hallucinatory episodes, euphoria, or alternating periods of either depression or excitement. He has deteriorated slowly but progressively, has presented all the usual signs of paresis, and is now grossly demented, incontinent and helpless. The onset in this individual must have been exceedingly insidious, because not until he became so extremely stupid as to be helpless was it considered that he might be ill. It seems that he emerged from his ordinary normal, dull, inefficient state into a gradually increasing dementia, progressively and without incident. This illustrates the type of paresis which I would call the physical, as against the psychotic type.

Case 2.—A. L., a man, aged 29, married, was a brilliant musician who played for some of the best musical organizations in this country. His wife, a talented woman, had known him since he was a boy. He was always considered nervous, sensitive and timid, was inclined to be seclusive, and made very few friends. He was always restless and, outside of his musical ability, was wholly inefficient, depending on his wife to manage his affairs. His psychosis began suddenly about a year before he was first seen by me. He awoke one night exclaiming to his wife that he had seen a fearful vision in which a great number of soldiers were approaching him, threatening to do him harm. He said that streams of water seemed to be coming out of his body. He was very fearful and apprehensive, and feared the same death as his father. The latter, an officer in the Italian army, had died from a violent attack of insanity which was characterized by great excitement and lasted only several months, and which was said to have been due to syphilis of the brain. The patient had always had a horrible fear of insanity, and in the beginning of his trouble, gave expression to this fear continually. He slept poorly. After a few days he became much calmer, continued his musical duties, giving lessons to various pupils, and again assumed his place in the orchestra in which he was employed. It was noticed, however, that he gradually became less efficient as a musician, and in the midst of an important operatic engagement his services were dispensed with because he frequently caused disharmony through his mistakes. Immediately after his discharge, he exhibited delusional trends toward a famous singer whom he blamed for his dismissal. At the time I saw the patient, his thought content was full of ideas against this person, who, he said, had left no means unturned to humiliate him, going so far as to conspire with several of his co-workers to make it appear that his work was no longer satisfactory. This patient began to go to pieces rapidly, and one day ran away from home, jumped into a taxicab and rode around for hours, saying that he was a nephew of the king of Italy and a cousin to Caruso, and finally becoming so disturbed that he was taken to Bellevue Hospital. Here he was restless, euphoric and incoherent, and gave expression to a number of delusions against the singer whom he blamed for all his troubles. A sample of his stream of thought follows:

> I saved my wife from the cruelties of a famous singer; then I married her. Many women are in love with me. My father was also a wonderful musician like me and was an officer in the Eighty-First Cavalry in Italy. As a result of an attack of progressive paralysis which affected his mind, a wonderfully famous man was lost to the world. I, too, am a wonderful musician. I wrote an operatic masterpiece entitled "Boorei," which I have dedicated to my friend Caruso. He and Botti are to sing it at a banquet tonight. At this banquet I am to have thirteen apostles like Christ, and all the famous singers will sing for me.

It was only during the last few months of this patient's illness that marked physical signs of paresis were observed, although the serum reaction was positive from the very beginning. Curiously enough, it was never possible in this case to obtain the history of a syphilitic infection. The wife, who was extremely devoted, refused even to think of the possibility that her husband had acquired the disease. It was her idea (and she may possibly have been right) that he had suffered a hereditary infection. I have nothing but the wife's word that his father had died from general paresis. It should not require much argument to convince one that the sensitive, seclusive, neurotic make-up of the patient predetermined the early praecox-like reaction. He is now at the Central Islip State Hospital.

Case 3.—N. M., a man, aged 34, married, an electrotyper, seen first, July 4, 1917, with his family physician, had been restless, talkative and quarrelsome, had felt too good, and had made numerous useless and extravagant expenditures for the past month. He had talked about going into business with millionaires and building million dollar hotels. In keeping with these grandiose ideas, he had been riding around in taxicabs, and ordering $10 and $12 silk shirts and other equally expensive apparel which he not only could not afford but did not need. He had been treated neither continually nor sufficiently for syphilis ten years before. His family physician assured me that he had known the patient from boyhood. The patient's wife and sisters gave me the history that he had always been extremely jolly, energetic and of a good-natured, bluff, breezy disposition. He was always the life of any party which he joined, was continually cracking jokes, and always made his presence felt in any company. Since boyhood he had been noted as a quick, witty talker, being bright and fond of company. Accordingly when, about a month before I saw him, he began to enjoy himself a little more than usual and to talk extravagantly, very little was thought of the matter. In fact, he had nearly ruined his wife and family by spending the savings of years before any one stopped to think that there might be something wrong with him mentally. At the time I saw him, the pupillary reactions, even after careful and repeated examinations, were all normal. His superficial and deep reflexes were active and equal, but there was a distinct unsteadiness with the eyes closed and some tremor in the hands and face. The speech was not defective. He was committed to the Manhattan State Hospital for the Insane, and continues in his euphoric state.

Case 4.—J. S., a man, aged about 50, married, a leather merchant, had been a gambler and a "sport" all his life. His wife says that his first wife died from a broken heart because of his careless, profligate habits. He always made money easily, but was a spendtrift, although he did not drink. He never seemed content to stay home. He was restless, irritable, dissatisfied and fault-finding, slept poorly, and seemed to enjoy himself only when in the company of his boon companions. He would not even go to see his two children who lived within 20 or 30 miles of the city where he resided. In fact, until he became sick, he had seen neither of them for more than ten years. His children quarreled frequently with him about his habits, to no avail. His first symptoms were attacks of uncontrollable temper, great restlessness, and profound indifference. He soon became grossly inefficient, could not earn a living, and finally had to be committed because of his threats to kill either himself or his wife. The diagnosis in the case was confirmed by positive blood and spinal fluid examinations, as was the case with each of the foregoing patients. This patient also began to show somewhat rapid deterioration, grave defects of memory manifesting themselves almost from the beginning. The physical signs of paresis were present, but had been overlooked, the mental symptoms having evidently dominated the picture. The patient was sent to me from Wilmington, Del., for diagnosis, and is now in the State Hospital at Dover.

Case 5.—F. S., a man, aged 35, married, had a make-up characterized by shyness, seclusiveness and a tendency to alternate moods of depression and elation. For a number of years, he had been separated from his wife, who is in Italy, and had often been found staring for hours at a picture of her and his children, apparently in a very much dejected attitude. During his work, he suffered a severe injury to his right leg. This happened about four months before the onset of his mental trouble. After this injury, his right knee became ankylosed, as a result of which he limped a great deal in walking. He was very sensitive about this, and felt keenly his misfortune. Soon after this injury, about three months before, he became extremely restless, cried a great deal, and talked about sending for his wife and children. He could not sleep at all at night, and finally became so disturbed, especially if annoyed, that he was considered dangerous and was taken to the Kings County Hospital. A letter from this institution describing a week's observation stated that he was there from July 17 to July 25, when he was discharged. The letter further says:

> He had no anomalies and he did not show anything mentally while here, except possibly an inadequate emotional reaction. He had some sort of excitement in one of the wards and was restrained, but he explained that he wanted to get up out of bed and that they did not understand what he wanted, so when he tried to get up he was restrained. His physical examination was negative here. The Wassermann test was negative. We did not take a spinal fluid. We discharged him as not insane.

I saw the patient for the first time, July 29, 1917. At this time he was extremely emotional and restless. He said that he was going to make a lot of money and was going to organize a mutual benefit and protective insurance society in order to better the conditions of his fellow workmen and, incidentally, was going to make himself and me immensely wealthy. The neurologic examination was still negative. The pupils reacted well to light and accommodation. All superficial and deep reflexes were equal and active, and there was no clonus, no Babinski nor Rhomberg sign, but the speech was slightly defective and there was some tremor in the face and tongue. A Wassermann test taken at this time was positive, as was also the spinal fluid taken on the occasion of the patient's second visit to the Kings County Hospital and at the Kings Park State Hospital, where he now is. Here again we have a sudden onset in general paresis in which the disease shows no paresis at all. At least none of the physical signs of general paresis became apparent until long after the mental symptoms attested the presence of the psychosis.

Case 6.—H. M., a man, aged 54, single, when first seen, in July, 1916, showed no anomalies of behavior and suffered from no emotional defects, but was almost blind and greatly paretic. There was a distinct memory defect, particularly for recent events and dates, and retention was poor. But I have no doubt whatsoever that, if any attempt had been made at that time or even since to commit this patient, no judge would have signed the petition because there was not a single mental symptom except loss of memory. The patient's symptoms were almost entirely physical, and began with sexual impotence during the spring of 1914. This was followed by gradually failing vision, weakness in both legs, and a heavy, dead feeling throughout the body, together with considerable pain in both shoulders which had been diagnosed as rheumatism. He exhibited a coarse tremor in the face, tongue and hands, was markedly ataxic, and had a distinct Rhomberg sign, an Argyll Robertson pupil, and the thick, slurring elision speech characteristic of this condition. He also had a double optic neuritis. Intensive intraspinal and intravenous treatment was given after the diagnosis was serologically corroborated, with the following results: The patient is still outside an institution for the insane, but suffers from a double spastic condition in both legs. His sight has been restored, so that he is 20/40 in the right eye and 20/30 in the left. The optic neuritis has disappeared, as has also the Argyll Robertson pupil. Mentally the patient's condition has not changed at all since the first day he came under observation. He is being cared for in a general private hospital, is quiet and fairly well behaved, has no delusions nor hallucinatory experiences, and has exercised a very close supervision over his business affairs, paying his own bills and exhibiting considerable interest in a large business which is executively run by his brother. The patient has a double Babinski sign and a clonus in both the patellar and ankle tendons, showing marked destruction of the corticospinal tracts. If it were not for this, I believe that he could with safety take an active interest in his business affairs. His make-up was always considered normal. He was a highly respected, hard-working business man, and exhibited no peculiarities until the onset of his troubles. These have consisted mainly of physical symptoms aside from the memory defects.

Case 7.—A. N., a woman, aged 38, married, had always been a hard-working, efficient, capable housewife of a sociable type, always reliable until two years before I saw her, Aug. 5, 1916. She began with trembling of the hands and a rather acute enlargement of both the lateral lobes of the thyroid. Her face became flushed and she developed palpitation of the heart and a marked exophthalmos, with spells of excitement and depression which were designated as hysterical. She became fearful and apprehensive, would not let her husband leave her, and cried when he left her in the morning to go to work. She was treated for exophthalmic goiter, but instead of improving became gradually worse. After a few months' treatment she began to deteriorate quickly, smiled foolishly, became talkative, good natured and silly, ate ravenously, and would sleep for twelve or thirteen hours at a stretch. The dementia in this case came on very rapidly. When I saw her she was perseverating, her speech was unintelligible, and she was disorientated for time, place and persons. She had a distinct Argyll Robertson pupil, irregular and unequal tendon reflexes, a positive Rhomberg sign, etc. It is very evident that the symptoms in the early part of this patient's trouble were determined entirely, or in a great part, by the evidences of hyperthyroidism that dominated the picture.

Case 8.—This case is of interest because of the possibility of the existence of a hereditary condition, in which respect it is exactly like the second case. The patient's father is definitely known to have died from paresis, because I have seen the correspondence between the patient's family physician and the superintendent of the insane asylum, in which Bianci wrote the diagnosis of the father's condition. F. M., a man, aged 29, single, a hatter, seven or eight years before I saw him, June 1, 1916, began to have convulsions. These attacks came on at first every few months, and later three or four times a week. They lasted for a half hour or more, and were either preceded or followed by attacks of pain in the head, loss of speech, and episodes of excitement, fear and apprehension. Seven or eight weeks before he began to show grave defects of memory, he became mildly euphoric, menacing, assaultive and finally very threatening. The patient's sister is a morphin addict, and a younger sister is affected with dwarfism and imbecility. The older sister has a positive Wassermann test and an Argyll Robertson pupil. She is extremely emotional, but efficient and a good dressmaker, although she has to rest frequently because "of her nerves." According to the mother, who is the only one in this family that can be trusted to give a reliable history, the patient was always headstrong, impetuous and excitable, and on several occasions had got into trouble with the authorities. As it was impossible to keep him at home, he was committed to the Central Islip State Hospital, where the diagnosis was confirmed serologically and where he was one of the most troublesome patients in a disturbed ward. He died recently, but during his residence in the hospital he showed the most prolonged and sustained period of excitement I have ever seen in a case of general paresis.

Case 9.—L. D. L., a man, aged 38, married, seen Aug. 17, 1916, was a familiar type of a very amusing nature. He was a "sporty," flashy Italian barber, talkative, fond of the opera, sure to attend any sporting event, and addicted to cards and the race track. In fact, he was fond of everything except his business, his wife and his family. In his own home he was a brute and a miser; outside it, he was a liberal hail fellow well met. Sixteen years ago, his wife said, he contracted syphilis and was very careful to receive prolonged, intensive and persistent treatment for three years, after which he was declared cured. A year before I saw him, he had wagered his barber shop, which the wife was running and which possessed considerable value, in a poker game. The wife thought that her husband's peculiarities had developed a little beyond the normal, and asked the family physician for advice. When I saw the patient, he was frankly affected with general paresis, and was restless and euphoric with all the physical signs, namely, an Argyll Robertson pupil, ataxia, tremor, defect of speech, etc. He became so annoying that he had to be committed to the Central Islip State Hospital, and the diagnosis was confirmed by positive blood and spinal fluid examinations, at that institution, where he died two months ago.

Case 10.—S. D., a man, aged 46, died in the institution for the insane at Overbrook, N. J., within three months after I saw him. He was a common day laborer of low mentality, with no more than the average intelligence and education for one of his station, and he undoubtedly had had his disease for a long time before it was considered necessary to ask medical advice. His mental symptoms consisted entirely of memory and retention defects. There were no delusional trends and no hallucinatory experiences, no excitements, and no depressions of any importance. Physically, all the symptoms were exceedingly well marked, including the Argyll Robertson pupil and the ataxia, and signs of the pyramidal tract destruction as shown by exaggerated tendon reflexes. The Babinski reflex, the clonus, etc., were all present. Soon after admission to the institution, the patient began to lose control of his bladder and rectal functions, and died greatly emaciated. The diagnosis was confirmed by a positive serum reaction. The patient's personality was normal for one of his class, which was that of the ordinary, average Italian day laborer.

Case 11.—E. A., a man, aged 37, single, had four brothers who run a large wholesale grocery business in New York and have been highly successful business men. They told me that since the patient was 15 or 16 years of age he had practically always been a burden to them and a source of constant worry and despair. When he worked at all, he worked for them. He was unreliable, dull, indifferent and ungrateful, but usually so good natured and amusing that they never really lost patience with him. He would say flippant and silly things, and always took life as a huge joke. He was certainly an inferior, if not distinctly a pathologic type. During the past five or six years, the patient's brothers informed me, he had become more dull and stupid, could not be trusted to perform even little errands, had stolen small sums of money and then laughed about it when he was accused, could not make change of small denominations over the counter, and finally had become so grossly inefficient that they had sought medical advice. April 18, 1917, when the patient was brought to me, he presented all the physical signs of paresis greatly marked, together with profound defects of memory, perseveration, echolalia, profound emotional and intellectual dulling, and a severe, restless euphoria with considerable excitement. After the diagnosis was confirmed by means of the blood and spinal fluid Wassermann test, he was committed to the Manhattan State Hospital, remained there about three months, was taken home, and died a few days later.

Case 12.—M. D., a man, aged 34, has a peculiar personal interest for me. He was a boyhood friend, was always very quiet, timid and reserved, and out of a large class of boys made friends with only two, another comrade and myself. He was extremely sensitive to ridicule, and the other members of the class who knew of this goaded him so that he was compelled to fight them in order to get some peace. The three of us were very friendly, however. The other comrade and I understood his exquisitely sensitive nature so well that we never chided him, and so got along with him very well. He seemed always to be thinking of something, and very often conversation addressed to him found him uninterested and at times absolutely unheeding. Gradually I lost sight of him; but he followed a mechanical bent, and became a successful electrotype engraver. He commanded a very large salary, and I always understood that his services were much sought after. He continued his friendship with this other comrade, and I saw him only occasionally. His general characteristics had not changed. He was still shy, sensitive, and given to moments of abstraction and day dreaming. One day about five years ago, I met him and was informed that he had married. A few weeks later, I met our mutual friend, who informed me that the patient had married a disreputable woman and was making a reputation for careless spending and unusual sociability that was quite surprising. Married life for him, however, was not successful, and at the end of a year and a half of difficult family situations, he secured a divorce from his wife and began drinking. He drank rather heavily for several years, I was given to understand, and then quit suddenly. A few weeks after he quit his alcoholic indulgence, he began to give expression to various delusions of persecution by members of his family. He accused his father and mother of ruining his life and of foisting an unfaithful woman on him as his wife. He accused his brother of stealing his good name and of being unduly familiar with his former wife. He became suspicious that his food was being tampered with and finally became extremely excited, assaultive and threatening, yelling, particularly at night, at the top of his voice. The family sent for me, and I saw him with the physician who had treated him, and every one was shocked when I suggested that his condition was paresis. The diagnosis was confirmed, however, by a positive serum reaction, and because of the extreme emotional unrest, he was removed to Dr. Barnes' sanatorium at Stamford, Conn. If the other case mentioned above was unusual for the protraction and severity of continuous excitement, this one was unique for the intense episode of excitement that followed. Despite powerful sedatives, this patient did not sleep a wink at the sanatorium for three weeks. In reaction to his delusions, he yelled continuously, shouting defiance to his enemies and fighting to be allowed to get at them. Finally the authorities at the sanatorium refused to keep him on account of his disturbed condition, and he was brought back to New York and committed to the Central Islip State Hospital for the Insane. He deteriorated rapidly, however, at the latter institution and died a few months after the diagnosis was made. Even by us as boys, he was recognized as peculiar, and several who remembered him when they heard of his death said they were not surprised that he died from some mental disorder, because they had always thought there was something wrong with his mind.

## COMMENT

In presenting these cases, it is not my object to formulate a proposition that any particular type or types of individual are prone, granted first the presence of the syphilitic infection, to develop paresis. It seems, nevertheless, to have been amply demonstrated in these cases, first, that individuals possessing unusual, abnormal personalities are more apt than those of normal personality to develop paresis, and second, that after the development of this disease, the mental symptoms of paresis in these patients dominate the situation to the practical exclusion of physical symptoms. At least, putting it in another way, I may say that when patients possessed of neurotic, seclusive or emotionally unstable personalities develop general paresis, they are apt to exhibit themselves in their psychoses as florid, euphoric, emotional types. Recognition of this fact, it seems to me, is important because it indicates a measure of prophylaxis that should be taken in all our syphilitic patients who possess abnormalities of personality. Any patient of this type who comes to the general practitioner with syphilis should be observed carefully and continuously. Even more than any other individual suffering from syphilis, he should receive intensive and repeated antisyphilitic treatments. These patients should have examinations of their spinal fluid made from time to time, and every safeguard of a prophylactic nature now within our power should be used against the development of paresis. Thus it may be possible that in the future the 3 per cent. of all syphilitics who have heretofore developed paresis will be spared the agony and the unfortunate ending that almost invariably accompany this disease.

SUMMARY

In eleven out of the twenty-five undoubted cases of general paresis reported in the original study, the influence of the individual's make-up on the character of the reaction observed is conclusively shown. These were dispensary patients, about whom it was not always possible to obtain information as reliable and detailed as that obtained in the twelve cases reported in this article.

Each one of the twelve cases is also undoubtedly one of general paresis, the diagnosis being confirmed by blood and spinal fluid examinations. In nine of these cases, the influence of the personality in determining the character of the psychotic reaction is conclusively shown. The other three, namely, the husband of Patient 1, Patient 6 and Patient 10, also undoubtedly had general paresis, but the patients seem to have been normal before the inception of their disease, as far as their make-up could be determined.

Grouping these thirty-seven cases, I find that in twenty of them it was possible to demonstrate my contention that paresis of the psychotic type occurs as a general rule in persons possessing abnormalities of make-up.

In seventeen cases in which it was impossible to demonstrate this point, the paresis existed mainly as a physical disease, the physical signs of this condition being dominant.

In neurotic persons infected with syphilis, the period of observation and treatment must be indefinitely prolonged because it is fairly evident that paresis occurs by preference in persons of this type.

I do not like to leave the subject without making reference to the work of Reasoner, Noguchi and Nichols with various strains of syphilitic organisms as a result of which they seem to have proved conclusively that certain strains have a predilection for infecting the nervous system. Reasoner[2] states, however, in his sixteenth conclusion, that "Granting that there are strains or types of syphilis, differing in invasiveness or predilection for certain tissues, and having in mind more especially the nervous tissues, the individual resistance of the infected person must still be considered as a possible factor in the development of the disease." It would appear, therefore, that the investigation which we have made and which seems to show the great influence the individual's make-up has on the character and development of paresis can be interpreted as being "the individual resistance of the infected person." Although it is hardly fair to call into evidence the illustration of a single case in support of my contention, nevertheless, the opportunity is taken of calling again on my first case in this report in which both the wife and husband are infected with paresis. The husband was undoubtedly the first infected. If it is taken for granted that he infected the wife with his own particular strain of syphilitic organism, is it not rather peculiar that she did not show the same sort of reaction that he did? This case tends to illustrate the point made by the investigators mentioned, namely, the existence of specific strains of spirochetes which have the peculiar power of causing nervous syphilis. It also particularly well illustrates the point I wish to make, namely, that, given the presence of syphilitic infection in two persons, and especially of a specific nervous system strain of syphilitic organisms, it is still possible that the character of their mental reactions may differ markedly, despite the fact that they may develop paresis, for instance. Whether this difference is explained by Reasoner's phrase "the individual resistance of the infected person," or by the conception of Adler of organ inferiority, it is difficult at this time even to speculate. Particularly would it be unwise to draw conclusions of a definite character in view of the statement of Weygandt and Jakob[3] who, as well as Reasoner, worked with rabbits:

> We also found that the animals infected with the same strain in some cases developed nervous syphilis and in some cases did not. This militates strongly against the theory of "virus nerveaux."

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[2] Reasoner, M. A.: Some Phases of Experimental Syphilis, The Journal A. M. A., Dec. 16, 1916, p. 1799.

[3] Weygandt, W., and Jakob, A.: Warum werden Syphilitiker nervenkrank? Dermat. Wchnschr., 1914, **18**, 150 (quoted by Reasoner).

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# BILHARZIASIS IN SOUTH AFRICA

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In certain parts of South Africa a varying proportion of the population suffers from hematuria, caused by the presence in the urine of numerous spine-pointed eggs. The condition is due to a trematode worm, *Schistosoma*, which inhabits the blood-vessels of the bladder and portal system. It is especially prevalent among the school children of the low veldt, and careful analysis of certain schools has shown that 80 per cent. of the boys and one in ten of the girls are infected.

Many of the young persons who harbor the *Bilharzia* worm complain of no other sympton than that of hematuria; but in most instances this is remarkably protracted and, when the more obvious signs of the disease have disappeared for many years, ova may still be present in the urine. In the severer forms of the disease patients complain of constant or occasional aching pains in the back, pain on micturition, and renal colic. Severe exacerbations of the symptoms are noticeable in many instances. In some schools anemia, general malaise and backwardness among the pupils who are bilharziatics are very noticeable.

For many years the disease was attributed to bathing in infected rivers and stagnant pools, but the cercariae which caused it were not known. In June, 1915, Dr. E. Warren of the Natal Museum at Pietermaritzburg drew my attention to some cercariae which had developed in specimens of a common fresh-water snail, *Physopsis africana*, which had been exposed to infection from the urine of a patient of mine who was suffering from *Bilharzia* disease. These cercariae were similar to those which Drs. Leiper and Atkinson[1] had described as causing Asiatic schistosomiasis, and the description of them[2] proved to be the first that had been published in Africa. During the next few months I collected several hundred specimens of this snail from various parts of Natal which were known to be heavily infected with *Bilharzia* disease. In some pools I found *Bilharzia cercariae* in 10 per cent. of the specimens I examined. Though I examined an equal number of other species of snail from these same pools, I failed to procure *Bilharzia* cercariae from any other snail than *Physopsis*. At the same time I attempted to infect with urine from a *Bilharzia* patient numerous specimens of the commoner species of snail. I failed to produce infection in any other than *Physopsis*,[3] but, in dealing with specimens of the latter snail, which I obtained from infected rivers, I demonstrated a distinct increase of infected specimens in those I had exposed to possible infection by miracidia hatching out of ova from the urine of an infected person.

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[1] Leiper, R. T., and Atkinson, E. L.: Brit. Med. Jour., 1915, **1**, 201.

[2] Watkins-Pitchford: Med. Jour. S. Africa, July, 1915.

In October, 1916, Becker[4] reported that he had found three adult schistosomes in the portal vein of a guinea-pig to which he had given a hypodermic injection of cercariae from *Physopsis* six months previously. These cercariae, which he had obtained from Nijlstroom in the Transvaal, were similar to those I had found at Durban and Maritzburg in Natal.

I have found cercariae answering to the description of the schistosome group, in possessing a divided tail and showing an absence of esophagus, in 102 specimens of *Physopsis* I have had the opportunity of examining from various parts of Natal and the Transvaal. Some of these cercariae have the appearance of avian trematodes and are common in specimens collected from the Umsindusi River at Maritzburg. I have found a cercaria similar to that for which I have suggested the name *C. secobii,* in a specimen of *Isidora schakoi* Jick, from a pool at Potchefstroom in the Transvaal. On one occasion I came across an eye-spotted furcocercous cercaria[5] in a sporocyst developing in one of the snails I had collected from the brickfields at Durban. The cercaria which produced the *Bilharzia* worm in Dr. Becker's guinea-pig is from 0.5 to 0.6 mm. in length, the tail is divided into two prongs for about a quarter of its length, and the alimentary canal of its body, which runs backwards from the oral sucker, bifurcates into two, just anterior to the ventral sucker. This cercaria, like all furocercous forms, swims backwards. I have found it in twenty-three specimens of *Physopsis* at the Durban brickfields, or 14 per cent., and in infected specimens at Maritzburg, Rustenburg, Magaliesburg and Mulder's Drift — all areas infected with *Bilharzia*.

The Crocodile River is one of the longest in South Africa, and is known to carry the infection. I have found several small pools near its source where *Physopsis* is particularly abundant[6] and where its eggs are continually being washed downstream. I have also come across pools close to the source of the river where numbers of *Bilharzia* carriers are continually bathing and using urinals close to the river bank, and have suggested the use of cyanid of lime to destroy the snails in these pools and by-laws to prevent persons who are suffering from this disease from bathing in the open or defecating close to the streams. A great deal has been done to assist in the eradication of *Bilharzia* disease in South Africa, by warning schoolchildren of the danger of bathing in infected rivers. Recently active measures have been taken by the educational authorities of Natal and the Transvaal, and some definite results have been achieved. These measures have included the use of disinfectants in the urinals of infected schools, thus helping to destroy the eggs before they reach fresh water, where they rapidly hatch on a warm day; and the encouragement of sea bathing or the use of rain water baths instead of river swimming. Much more could be done by the public health authorities to remove the decomposing reeds from stagnant water, fill in unnecessary pools, and enforce suitable by-laws. As the disease exists in certain well defined areas in various parts of the Union, it is surprising that more active measures to eradicate a disease of such importance have not yet been taken.

So far, we have not been able to determine how this cercaria of South African rivers, which develops in a common fresh-water snail, enters the human subject, but from the observations of scientific observers in Japan,[7] Egypt[8] and Venezuela[9] there can be no doubt that the cercaria may enter any part of the body of a person who bathes or even wades in infected streams, and that the cercaria may penetrate the lining of the mouth of anyone imbibing water containing it. Having found their way to the portal system, these trematodes, which have now lost their tail, grow to be from a half to three quarters of an inch in length. After some years they often die out without treatment, but I have met persons who have manifested symptoms of the disease for many years, though they have, as far as possible, avoided the possibility of fresh infection.

Among the many drugs that have been advocated in the treatment of *Bilharzia* disease, hexamethylenamin is probably the most effective.[10] I myself prefer to combine its use with buchu. Sodium salicylate is also of service, especially when there are pain and renal colic. Some persons have advocated the use of benzoic acid; but any of the drugs that have been suggested with the object of destroying the parasite in the blood stream would seem to be equally unavailing. Rest and a light diet often result in improvement without drug treatment, but the symptoms are only too likely to recur. The disease may often die out without treatment of any kind. In all cases in which there are obvious symptoms I recommend hexamethylenamin, combined with other forms of treatment, and, when there is much pain, hyoscyamus is indicated, or sometimes morphin. Many cases show every indication of renal calculus when none exists, and, generally speaking, operative treatment is better avoided in the treatment of *Bilharzia* disease. The ova have been found in the lungs, the liver, the appendix and other parts; but it would appear that they cause symptoms only when they accumulate in the kidney or bladder and form gravel or stone, or as they escape through the bladder wall, where they give rise to a varying amount of hemorrhage and thickening of the bladder wall. At one time it was a common practice to wash out the bladder of these patients, but such treatment would seem only to aggravate the complaint and increase the tendency to bacilluria, which is common in severe cases. Arsphenamin (salvarsan), santonin, thymol, male fern and methylene blue have all been tried; but, so far, we know of no more effective remedies than those that are usually prescribed as urinary antiseptics.

The urine of a *Bilharzia* patient usually contains a considerable amount of blood and a certain amount of mucus. The ova vary in size in the same specimen of urine; the average size of a fairly well developed ovum in the Transvaal or Natal is 0.15 mm. in length and 0.0625 mm. in breadth. The terminal spine of the shell is 0.125 mm. long. When a drop of warm water is added to the drop of urine on a microscopic slide in a good light, movement is soon detected in the shell of the egg, and a ciliated embryo, called the *miracidium*, escapes through the ruptured shell. This miracidium, which is covered with cilia except at its head end, is 0.1125 mm. in length and 0.065 mm. in breadth. These free-swimming organisms attack any specimens of *Physopsis* in the water and, burrowing their way to the liver substance, form sporocysts, producing daughter-sporocysts by budding and cercariae by division. I have never seen any sign of redia formation in snails containing *Bilharzia* cercariae in South Africa, though I have seen a furcocercous cercaria with the appearance of an avian trematode, developing in typical rediae. At the end of three weeks these cercariae are fully developed and ready to attack man. Neither the miracidium nor the cercariae it produces in the substance of the fresh-water snail can live as free-swimming organisms for more than a few hours, and it is very hard to procure satisfactory microscopic preparations of either.

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[3] Cawston, F. G.: Lancet, London, 1915, **2**, 1427; ibid., 1916, **2**, 121.

[4] Becker, J. G.: Med. Jour. S. Africa, October, 1916.

[5] Cawston, F. G.: Jour. Parasitol., 1917, **3**, 131.

[6] Cawston, F. G.: South African Med. Rec., Oct. 27, 1917.

[7] Mills: China Med. Jour., Review of Recent Japanese Literature, 1917.

[8] Leiper, R. T.: Proc. Roy. Soc. Med., 1916.

[9] Iturbe: The Intermediary Host of Schistosomum Mansoni in Venezuela, 1916.

[10] Cawston, F. G.: Brit. Med. Jour., 1915, **2**, 746; ibid., 1916, **2**, 144.

These observations help to confirm the conclusions arrived at by independent investigators in other parts of the world. Work of this kind covers a remarkably large field, and the ground covered by those who have been investigating this subject in Egypt will be remembered as one of the achievements of science during the present war, though we are primarily indebted to the Japanese for the very brilliant piece of work they have done in elucidating the life cycle of the *Bilharzia* parasite of man.

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## RECURRENCE OF URINARY OBSTRUCTION AFTER PROSTATECTOMY

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In the past few months I have had occasion to reoperate in five cases of prostatic obstruction in which a suprapubic prostatectomy had previously been done.

One of these cases was one in which I, myself, had operated. The other operations had been done by men of experience in Kansas City and elsewhere. In two of the cases I assisted the original operator to correct the secondary obstruction.

The usual history of these patients was of their having made a good recovery from the operation, of having left the hospital in good condition in from four to six weeks, voiding urine well and being apparently cured. From that time on, the size of the stream would progressively diminish, and it would become more difficult to void. Finally the suprapubic wound would reopen and remain open, and the passage through the urethra become closed, or nearly so.

In the case in which I had done the original operation, the patient had been dilated with sounds up to 32 French, every few days up to the time of leaving the hospital. From after events and from experience with other cases, I am now convinced that the tip of the sound never entered the bladder, but that the beak could be rotated in the cavity of the prostate.

All five of the cases, with the exception of one in which a second operation had been performed previously without relief, presented the same general characteristics. In all of them the prostatic hypertrophy had been completely enucleated, and there was no tissue to be removed at the second operation.

To understand what had happened in these cases of secondary obstruction, it is necessary to review the pathologic anatomy of the hypertrophied prostate.

It has long been known, but yet is far from being universally known, that the word "prostatectomy," as generally used, is a misnomer. The work of Tandler and Zuckerkandl in Vienna, and Wilson and McGrath of the Mayo Clinic, has shown that the encroachment of the fibro-adenomatous growth in the prostate gland will crowd the surrounding normal prostatic tissue to the periphery, making of it the surgical capsule of the hypertrophied gland, containing also the ejaculatory ducts behind. This is the part of the gland that is normally left when a so-called prostatectomy is done.

When hypertrophy of the benign type has occurred, and more especially when the greater part of the enlargement is in the median lobe, the urethra is much elongated by reason of the protrusion of the mass through the sphincter vesicae and into the lumen of the bladder. The sphincter vesicae is stretched, but intact, as the growth pushes through it. This leaves the sphincter, not at the vesical orifice, as normally found, but somewhere at the outer side of the protruding mass.

In the cases under discussion, the prostatic hypertrophy had been enucleated without wounding the sphincter. The sphincter had then regained its tone and had come together, forming a sort of tympanum above the cavity of enucleation, and between it and the cavity of the bladder.

On opening the bladder in one of these cases, one finds the vesical orifice represented by a mere dimple on the internal surface of the bladder. With a sound in the urethra it is often quite difficult to push the tip through the opening, even with the aid of a finger in the bladder. The cavity below is frequently of such a size that a short-beaked sound may be rotated within it. The lower segment of the bladder, being drawn up by the contraction of the sphincter, has made no attachment to the lateral walls of the cavity of the prostate, nor any attempt to approximate the mucous membrane of the bladder to that of the cut urethra near the apex of the gland.

The questions arise why all prostatic enucleations are not followed by this result, and what the remedy is for it.

The reason it does not happen in every case is that the traumatism ordinarily incident to enucleation is sufficient to prevent the restoration of the sphincter until the lower bladder segment has become adherent in the prostatic cavity and its mucosa is becoming coapted to that of the urethra. This traumatism, while usually inadvertent, has thus served a good purpose.

The way to prevent this very undesirable sequel to an otherwise successful operation is, therefore, intentionally to divide the sphincter vesicae at the time of operation, preferably at the lower margin, and not to try to do a purely urethral enucleation, leaving the sphincter intact.

The remedy for the condition at secondary operation is the same, namely, to divide the sphincter. This division should be to the under or posterior side of the opening, as the orifice is usually drawn well forward toward the symphysis, and the posterior is the thickest side. I have used Young's prostatic punch in making this cut, but think division by cutting and divulsion to be as efficacious.

The secondary operation should be followed by systematic dilatation of the bladder neck for at least a year, first weekly, then semimonthly and monthly. This is preferably done with the Kollmann dilator with the Guyon curve, as the beak of this instrument will most certainly go into the bladder.

The patients on whom a second operation was performed are all in good condition, as far as I know, except one who had been operated on twice before coming into my hands. He healed up well above, but had a weak voluntary sphincter, and has incomplete control of the urethra. At times he retains well, but has spells of incontinence. This patient has also a syphilitic history, and although his reflexes are active, I suspect that syphilis is a factor in the poor result.

This short series of five cases is too few on which to base any conclusions, other than those already stated. The similarity of these cases is striking, and they seem to give a clear indication for the intentional division of the vesical sphincter at the time of operation.

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# CONDYLOMA OF THE BLADDER

## REPORT OF CASE

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The report of unusual cases, together with an acknowledgment of mistaken diagnosis, must always be a chief means in the advancement of our science. The rapid strides made in diagnosis of bladder tumors in the last three years through the aid of the modern cystoscope has tended to make us overconfident. For this reason I undertake to report a case of carcinoma of the bladder incorrectly diagnosed. I wish also to make a few suggestions which in the future may aid us in such cases.

### REPORT OF CASE

*History.*—Mrs. F., aged 30, Jewish, complained of painful and frequent urination accompanied by hematuria. The family history was negative. She had always been well till the present illness. The menstrual history was negative. The patient had had no leukorrhea.

She was married six years before I first saw her. At about this time she acquired gonorrhea and was treated with astringent bladder injections by a midwife. The following year, she had a miscarriage at the third month, as the result of a fall. No pregnancies had since occurred.

The patient was inclined to date the onset of her illness from the bladder irritation induced by the astringent bladder injections used in connection with the treatment for gonorrhea. The trouble became more pronounced after the miscarriage, for which she was in a hospital six days. Two months later, she had marked difficulty in voiding, and was catheterized for a short period by a midwife. At this time, she had severe burning pain in the bladder region. Five or six weeks later, she noticed a few drops of blood in the urine at infrequent intervals. This bleeding did not become persistent until January, 1917, when she began to pass some bright blood at each urination. Two years before I first saw her, she had a long course of bladder irrigations without benefit, except to control the tenesmus. A year ago she began to pass gravel and clots containing stone. She has noticed that free drinking of water improves her symptoms. Though bleeding more freely, she has gained in weight during the last few months.

*Physical Examination.*—This was negative. The blood and spinal fluid Wassermann reactions were negative. On two occasions the vaginal smear had a few pus cells with rare diplococci, very suggestive of gonococci, but none were found to be intracellular.

October 23, cystoscopic examination revealed a large coral-like mass obstructing the view of both ureters, with smaller patches lying free on the floor of the bladder, and one patch on the anterior wall. This polypoid growth was on a short pedicle, and was overlaid with a thin urinary salt deposit, which was not sufficient to grate against a metal instrument. There was no tendency to bleeding except as the salts were dislodged from the surface. The specimen of urine obtained showed a little pus with a considerable number of blood cells.

October 24, an attempt was made to remove some tissue for microscopic examination, through the cystoscope. The examination revealed the presence of pus clot with lime salts. A second specimen was obtained three days later, when clot and salts were again reported.

*Operation and Result.*—November 1, operation under ether was attempted as an exploratory measure, in the hope that some portion of the growth could be removed, the ureter transplanted, if necessary, and remaining portions left for fulguration. A thick wall of fat was encountered, hindering the operation considerably, but when the bladder was opened it was found that the tumor was very firm and that it completely encircled the urethral orifice, as well as both ureters, with hard nodules on the anterior wall of the bladder. The tumor did not project from the bladder wall, but seemed to be infiltrating so definitely that the wound was closed with suprapubic drainage, as in an inoperable case of carcinoma.

Convalescence was good until the fifth day, when a minor infection in the fatty wall set up a severe cystitis. At first this did not react to irrigation, and some bleeding was encountered until the irrigating solution was changed to one of dilute antipyrin. Quite suddenly the infection cleared, and the wound was completely healed on the twenty-second day. The patient claimed to be feeling normal, with no burning, voiding only once in three or four hours instead of every half hour, as before the operation.

At this time the correctness of the diagnosis was doubtful, and the examination for syphilis was repeated with a provocative arsphenamin (salvarsan) injection. The result was again negative, as was also the pelvic examination.

November 22, the urine was absolutely clear, containing no blood nor pus. Cystoscopic examination revealed a normal bladder mucosa even around the ureteral openings, which were clearly seen. All signs of the tumor had disappeared except a very small flat patch far back in the floor of the bladder.

The patient returned to the hospital within a week, denying all symptoms and absence of any frequency. A week later, the bladder was again examined and showed considerable diminution in the size of the area. Up to January 8, the patient was observed weekly. At the last two examinations there was absolutely no evidence of the former growth. Since her discharge from the hospital, she has had no treatment except the weekly bladder washings received during her visits.

### COMMENT

For lack of better classification, I have chosen to describe this case as one of condyloma. The accepted grouping of bladder papillomas into benign and malignant types is only arbitrary. Our criteria of diagnosis are still in their infancy. From the appearance of certain types and their multiplicity, we have assumed that all such tumors are malignant. Some authors may take exception to this statement. But is it not essentially true? Do not the men who see a cauliflower growth with multiple tumors treat these cases as malignant? This is the natural result of surgical experience with malignancy anywhere in the body. Because of this fact, we are compelled to read reports of unusual cures of cancer of the bladder.

When pathologic diagnosis can be obtained, we cannot doubt the validity of these reports. But in just such cases as the one I present we hear of cure by cautery or operation without this established diagnosis. It seems that there must be other similar cases of new growth excited by chronic irritation that may have been falsely diagnosed. Therefore the urologist must be cautious in his treatment unless the means are at hand to establish his convictions by the microscope.

### CONCLUSIONS

1. Diagnosis of cancer of the bladder must not be made without microscopic evidences.
2. Long-continued, chronic irritation may give rise to warty proliferation of the bladder mucosa, not unlike cancer.
3. The chronic irritation may have its origin in a gonorrheal infection, and takes a form not unlike the condylomata acuminata and deep urethral polyps of similar origin.

University Hospital.

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# PRIMITIVE SURGERY OF THE WESTERN HEMISPHERE *

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Two causes of surgical and medical ailments were universally recognized among the early inhabitants of the Americas, one natural and the other supernatural. If the cause was not easily perceived, as was often the case, it was regarded as supernatural. The supernatural diseases were supposed to originate in various ways: by the casting of spells, by contact with some objectionable person or thing, or by the presence of something in the system, such as an evil spirit, a stone, a piece of wood, a worm or an insect. Manifestly, they came just as near to the recognition of bacteria as they could without knowing anything about them.

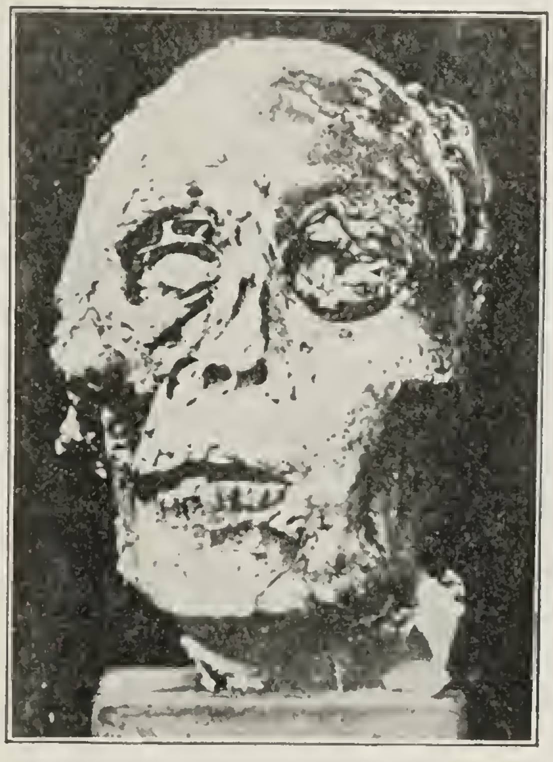

Fig. 1.—Head of Peruvian mummy, showing trephine opening in left temporal region, and an apparent right facial paralysis (U. S. Ethnological Reports).

It must not be thought, however, that real causes were not given their due significance, if they made themselves sufficiently apparent, as often happened in surgical lesions at least. The ancient members of our profession were by no means always as childish as they are sometimes represented to be. It goes without saying that supernatural ailments can be treated by supernatural means only, which accounts for the existence of the so-called medicine-man, with his impressive fetishes, antics and incantations. In this connection it should be understood that the word "medicine" was not confined originally to material remedies, but had in addition a magical and supernatural significance. Hence, a "medicine-man" was not only a physician in our sense of the word, but was also a sort of priest, prophet, magician and all-around dealer in the mysterious.

### THE MEDICINE-MAN

The medicine-man[1] was usually a person of more than ordinary tact, knowledge and intellect. In addition to being a surgical and medical authority, he also was consulted on many things concerning the spiritual and temporal welfare of his people. Although dealing extensively in the occult, he had a dignified and firm belief in himself and his methods, and was much in earnest in spite of the legerdemain and grotesque dress and actions that he employed to emphasize his doings and impress their importance on the observer. There is even reason to believe that his fantastic dances and gestures, facial contortions and weird chantings exercised a hypnotic influence on his patients, leading to relaxation and sleep, which may have facilitated the recovery of some who would have been given up to die by more civilized practitioners. In fact, when one comes to think of it, such things are merely an exaggeration of that "personal influence" which every physician is supposed to exercise in greater or less amount.

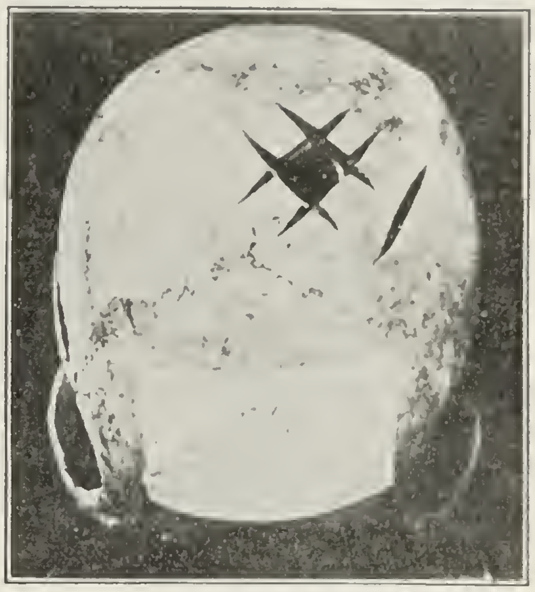

Fig. 2.—Square trephine opening (U. S. Ethnological Reports).

To a certain extent, the medicine-man was the protector of the persecuted, and the refuge of the fugitive. Even an enemy could find sanctuary in a medicine-

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* Presidential address delivered before the Western Surgical Association, Omaha, Dec. 14, 1917.

[1] Although the title is masculine, it is interesting to note that there were also "medicine-women," who held high places in the profession and no doubt deserved the confidence placed in them by their clientele. The costume and make-up of a typical medicine-man is well described by M'Clenachan: "The face is painted, usually red, with yellow trimmings about the eyes and mouth. The hair, always worn long, has a tuft of feathers braided in at the crown; and to braids of hair hanging about the shoulders are attached horsehairs, snake rattles, shells, etc.; over all is dusted red and yellow paint. The ears are pierced by numerous rings, and suspended from them hang shells, reaching to the shoulders. About the neck are strings of bright colored beads, with bird's claws, pebbles, buffalo teeth, etc. The wearing apparel consists of a shirt made of rawhide, leggins, breech clout, moccasins, and over all a blanket or buffalo robe. The shirt is daubed with paint, with some hideous image on the breast. The leggins are made to fit closely, but with a wide strip along the outside, to which is attached beads, bones, etc. The blanket or robe, in either case gaily adorned, is loosely thrown over the shoulders." Of the medicine-man's methods of treatment, Hrdlicka succinctly says: "The treatment varies according to the supposed necessities of the case, consisting of propitiation of broken tabus, repeated prayers to the elements or deities, the deposit of prayer sticks or countercharms in shrines, or appeal to the patient's personal protector or totem, the use of especially effective songs, rubbing or kneading (sometimes quite violent, though employed more commonly for supposed magic effects), rubbing liquid medicine into the skin, extraction of the objective cause of the disease, blowing air or tobacco smoke onto the patient, passes with fingers moistened with saliva, ceremonial observances or rites including painting of the body of the patient as well as that of the medicine-man and making sand paintings, noises (made with voice, rattle or drum), commands and exhortations to drive away bad spirits, assurances given the patient, various symbolic representatives, purification of the body by sweat baths, purging and emesis, strong sucking, cauterizing, scarifying, bleeding, external applications, the administration, externally or internally, of secret magic or other medicine, and various regulations of the behavior of the patient. In the larger curative ceremonies several medicine-men acted conjointly, or, if but one is present, he may have from one to several assistants."

lodge, where his wounds were dressed and his other needs attended to. We should indeed be proud that this same spirit has always characterized the medical profession of all times, and that it still exists among us. Looked at from this point of view, the Red Cross is a great medicine-lodge.

It was not much easier to become a "medicine-man" in those days than it is now. The usual method was to spend at least a year with a preceptor, paying him well for his instruction. There was much to be learned and remembered, for these preceptors all varied in their bewildering practices, and it was customary to study under more than one. As with the modern doctor, even after graduation the life of the medicine-men was not one of pampered ease. He was compelled to respond to every call, night or day; although the Pueblos permitted an exception to the rule, if the unwilling physician could catch the messenger within a given distance and kick him. How many of us wish we had the same privilege.

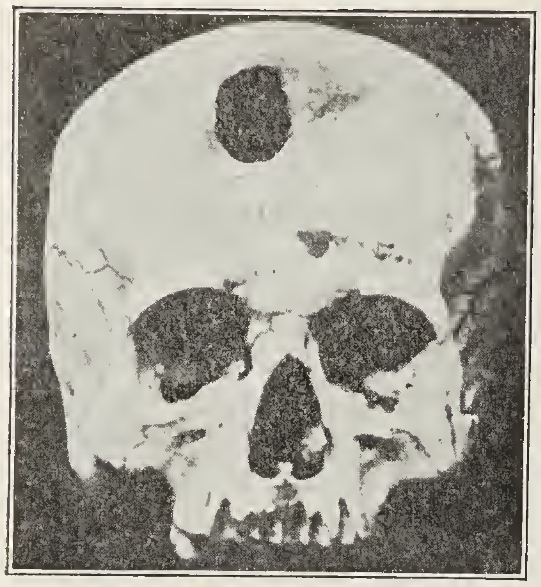

Fig. 3.—Large antemortem trephine opening (U. S. Ethnological Reports).

If the patient died, the doctor also ran the risk of death, at the hands of the relatives; and, at the very least, a number of failures to cure led to a loss of reputation and final dismissal from the profession. There was, however, a saving clause, at least among the Pueblos, for when the medicine-man's power began to wane he could rejuvenate it by rubbing his back against a certain sacred stone. The location of one of these stones is still known. The fees were of good size and paid promptly, often in advance. They consisted, not unlike those of a country doctor, of such things as blankets, horses, skins, weapons and various other personal effects. It should be emphasized, however, that to the credit of the profession much charity work was done then, just as it is now.

Curiously enough, there exists throughout the world a marked similarity in primitive medicine which suggests, perhaps, a common origin of the various races. In accordance with this, the methods of treatment were often identical among the prehistoric peoples of North, South and Central America, including the Indians, the Pueblos, the Aztecs and the Incas. The old Spaniards were in a position to observe these things and should have been able to tell us much about them; but unfortunately those aggressive pioneers were more interested in killing than in curing, so that their descriptions are unsatisfactory and meager. Enough has been handed down, however, to make it clear that considerable crude but efficient surgery was practiced, some of it being done in hospitals, at least in Mexico.

### PRIMITIVE AMERICAN SURGERY

Let us consider this primitive American surgery more in detail:

*Trephining.*—As is well known, this is one of the very oldest surgical operations, and was extensively practiced by prehistoric peoples everywhere. It is probable that it was done not only for therapeutic purposes, but for other reasons as well; for instance, to let out evil spirits, to obtain amulets for decorative and other uses, or merely as a religious rite. The wearing of amulets made from sections of skulls was a common custom among the earlier inhabitants of the world. They were mostly obtained postmortem, but some were evidently removed from living captives, possibly with the idea that they were more potent as talismans against disease, or that they conferred on the wearer the physical or mental powers of the original owner.[2] But there can be no question that much trephining was also done for therapeutic purposes — for fracture, epilepsy, insanity, convulsions, headaches, etc.— as it is among various primitive races today.

According to archeologists, trephining was done far more frequently in Peru and Bolivia than in any other parts of the Western Hemisphere. Among 12,000 skulls from Bolivia, for example, 5 per cent. had undergone this operation, and in Peru the percentage was not much less, showing that the procedure was much more common then than now. Less is known about trephining in the United States, although occasional skulls with the characteristic openings have been found in the tumuli of the mound builders. It was more frequent, however, in Mexico and Central America.

Although many of the operations were done postmortem, others were antemortem, as is shown by the growth of bone around the edges of the openings. It may be inferred that some of the patients died during the operation, the button having been outlined but not removed. We can well imagine that a "death on the table" must have been accompanied with the same bitter regret and disappointment as it is now.

We are justified in believing that these surgical interventions were frequently for therapeutic purposes, because fractures are often found in connection with them; and even when no fracture can be seen, it is not unreasonable to suppose that a puncture of the skull, such as must have been frequent from the spiked war clubs then in use, may have existed and been removed by the operation. And, in addition, the fact that the openings were sometimes at a distance from the break in the bone might well mean that the principle of decompression was recognized — perhaps learned from experience in trephining for headaches, epilepsy, insanity, etc. In fact, if we do not regard these operations as deliberate decompressions, they would seem to be purposeless.

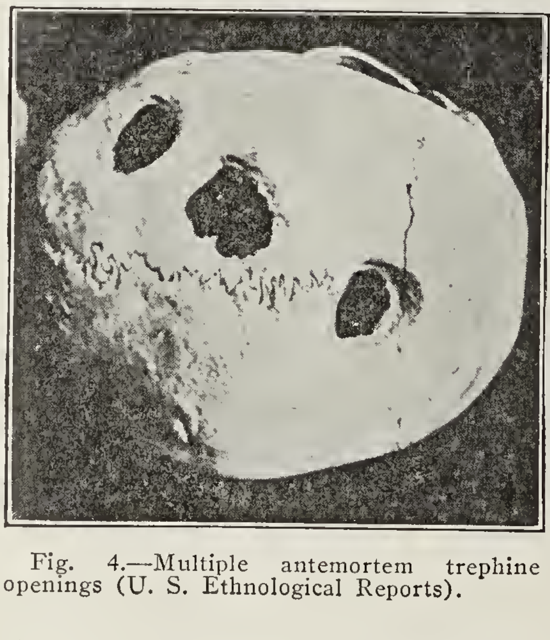

Fig. 4.—Multiple antemortem trephine openings (U. S. Ethnological Reports).

In the Smithsonian collection is the skull of a Peruvian mummy on which the dried soft parts are still in place. A trephining has been done at the seat of a fracture in the left temporal region, the interesting point being that the face is strongly drawn to one side, apparently the result of paralysis — a most uncanny phenomenon, to say the least (Fig. 1).

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[2] Even in the materia medica of more modern times, powdered human skull, especially the wormian bone (known as the os epilepticus) was used as a remedy for epilepsy.

Most of the trephining operations in America do not seem to have been done very skilfully. They were crude jobs with crude tools that often slipped during the laborious process, as shown by scratches on the adjacent parts of the skull. The shape of the opening was usually square or oblong, although sometimes round or oval. The square opening (Fig. 2) was peculiar to South America. It was made by cutting four rectangular intersecting grooves, almost but not quite through the bone, and then prying out the loosened piece of skull. The round openings (Figs. 3 and 4) were produced by gradual scraping, as shown by the characteristics of uncompleted operations.

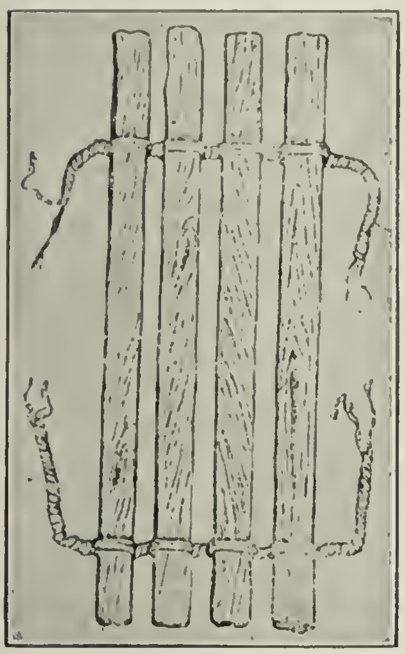

Fig. 5.—Splint made of sticks held together by strips of rawhide (Medical and Surgical Reporter, 1879, 2).

From the nature of the grooves and the lines on their sides, it is probable that they were cut with a stone instrument, like a spear head, set in a handle and possessing a rough and rather blunt point—a kind of single-toothed, stone saw, as it were, by means of which the bone was slowly worn away by a to-and-fro motion aided by strong pressure. It is likely that the round holes were scraped out with sharp flakes of flint or obsidian, as is still done by certain more or less uncivilized tribes in various countries.

For a number of reasons, it is supposed that the patient's head was held between the knees of the operator, who laid open the scalp with a crucial incision and then sawed, scraped and pried away at the unfortunate victim's calvarium, with many slips of his crude instrument, until an opening was made. The time required, as established by experiment, must have been at last an hour and often much longer.

It may have been that some sort of anesthetic was employed, such as was used by the Pueblo Indians; but if not, what a nightmare of an experience it must have been for the patient, to say nothing of the nervous strain on the surgeon; although, when one considers the matter calmly, it could not have been much worse than the torture occasionally inflicted on us by our dentists. After all, much depends on the point of view.

It should be mentioned that trephining is still practiced in the same primitive manner by native medicine-men in the mountains of Peru, although they now employ pocket knives, chisels, etc., instead of instruments of stone. The operation is generally done for fracture, and is surrounded by great secrecy and certain mystic rites. It is said to be quite successful.

*Fractures.*—In the treatment of broken bones, the results were often surprisingly good. It was customary to set them, more or less skilfully, by pulling and manipulation; but permanent extension was not often, if ever, employed. Splints of various kinds were in universal use. They frequently were made of bark, the natural curves of which facilitated adjustment to the limb, especially after soaking in hot water and cutting away portions to accommodate bony prominences about the joints. Grass, scrapings from tanned hides, and other soft substances were used for padding. Occasionally the splint was filled with moist clay, which enclosed the limb somewhat like a plaster cast, and must have been both comfortable and effective. A window was always left over the site of a compound fracture to permit of attention to the wound.

Other sorts of splints were made from sticks or pliable branches, such as green willows, held together by strips of bark or leather (Fig. 5). The Cliff Dwellers of the Southwest, who from their mode of life must have broken their bones often, knew how to manufacture splints that scarcely could be improved on. Specimens exhibited in the Museum of the State Historical and Natural History Society, Denver, are beautifully made from polished wood and correctly curved to fit the limbs for which they were intended, the edges being nicely rounded to prevent injury to the skin (Fig. 6). Similar splints were employed by the Aztecs.

Often the splints were removed and the limb massaged, a practice that gives good results and deserves more attention than is given to it by modern surgeons.

In the treatment of fractures, the Hopi Indians employ splinters of trees which have been struck by lightning; not, however, as splints, but merely as fetishes. For some reason or other, they believe that those who have themselves received a lightning stroke are possessed of special skill in the care of broken bones — rather a severe requirement for a specialist in fractures, one would think.

In the Field Museum, Chicago, is exhibited an excellent pair of well padded crutches from the cliff dwellings of southern Utah (Fig. 7).

*Dislocation.*—The reduction of many of the simpler forms of dislocation was quite generally practiced, both by extension and by manipulation, although the methods were of course empiric and without scientific foundation.

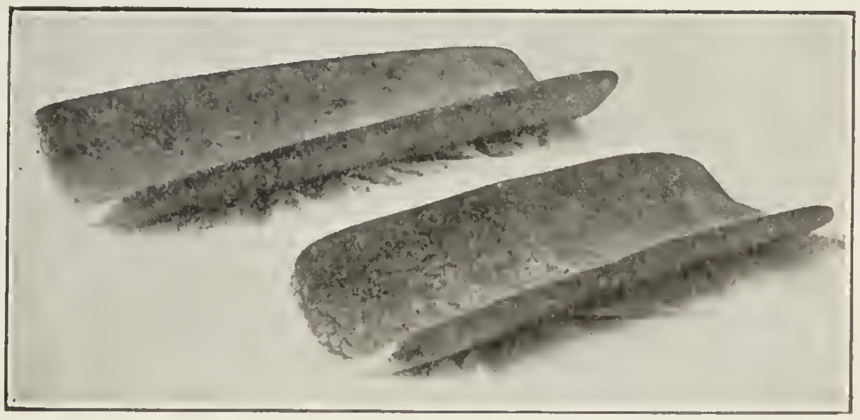

Fig. 6.—Splints found in ancient cliff dwellings of southwestern Colorado (Museum of the State Historical and Natural History Society, Denver).

*Treatment of Wounds.*—The suturing of incised wounds was a common procedure; but it was considered so necessary that free suppuration should occur that thin pieces of bark were sometimes placed between the edges in order to check primary union. The sutures were obtained from animal tendons, human hair or plant fibers. The tendons were smoked hard and dry and were not absorbed, but were removed in about a week. It was customary to provide for ample drainage, which was often facilitated by the insertion of strips of bark or other material.

The frequent washing of all sorts of wounds, perhaps several times daily, was universally practiced, and may have had much to do with the rapid, not to say astounding, recoveries that are said frequently to have occurred. The irrigations were made with simple cold water or with decoctions of certain things, such as basswood, willow, slippery elm, lichens and various herbs. In addition, the wounds were often packed with charcoal, ashes, piñon gum and other balsams, or sprinkled with these substances in the form of powder. Most of the balsams and decoctions probably had more or less of an antiseptic action, but it is questionable if this was sufficient to be of much value.

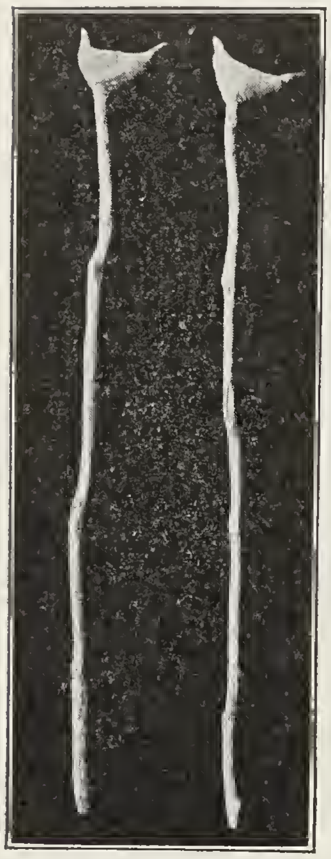

Fig. 7.—Crutches found in cliff dwelling of southern Utah (Field Museum, Chicago).

Saliva, both pure and mixed with other things, was very generally used; in fact, it was quite the proper thing for a physician to spit on a wound or into the materials used in its treatment. What consternation such a proceeding would produce in the operating room of a modern hospital! Nevertheless, we should not forget that animals always lick their injuries, and that lesions about the mouth heal even more readily than elsewhere. Another revolting custom, according to our point of view, was the sucking of pus out of wounds—a much valued method of treatment.

In Brazil, large open wounds of the extremities were sometimes handled in an extremely interesting manner. The part was wrapped in the inner bark of a tree, and suspended on a frame over a bed of glowing coals until nearly roasted. This method was painful, but is said to have been effective, primary union often resulting within a few days under the most unpromising circumstances.[3]

Although there is little evidence that actual laparotomies were ever performed, we at least know, from a description of an operation witnessed early in the seventeenth century by Bernabé Cobo, that they were sometimes "faked" for psychologic purposes. He says: "The sorcerers (medicine-men) did as if they would open him by the middle of the body with knives of crystalline stone, and they took out of his abdomen snakes, toads and other repulsive objects." However, when we remember with what dexterity the human body was opened for sacrificial purposes by the Aztecs, it should not be surprising if they sometimes performed operations on the internal organs.

*Punctured Wounds.*—Among the Pueblos, especially, no attempt was made primarily to remove foreign bodies, such as arrow heads; but they were gradually forced out by firm kneeding and pressure applied to the surrounding parts. It was sometimes necessary to continue this painful procedure for several days, although in the end it was generally successful; but if it failed, an operation was done, through a crucial incision. Irrigations with various decoctions were frequently practiced. These were sometimes squirted deep into the openings through a quill or a hollow bone by means of the mouth or a syringe made from a bladder. Some of these primitive surgeons used sticks wrapped with cotton to swab out punctured wounds, as part of the general program of cleanliness, which, although they lacked the Dakin's solution, nevertheless reminds one of the methods of Carrel. The cleaning of punctured wounds by sucking out the pus with the mouth was an ordinary and widely spread custom, which undoubtedly possessed merit in spite of its objectionable features.

*Treatment by Suction.*—This was done with the mouth, either directly or through a tube of stone, wood or bone (Fig. 8). In this way pus was removed from wounds, ulcers and abscesses, and the vascular circulation promoted, thus calling to mind the modern suction treatment advocated by Bier. Even the thought of using the mouth directly for such purposes is repulsive, but the danger to the physician was slight and the method was undoubtedly effective. After all, was it much worse than the many gruesome things done by medical students in the dissecting room? In Bolivia, at the present time, medicine-men have been seen to suck suppurating wounds and even syphilitic ulcers. Men who were thus willing to sacrifice themselves for the welfare of their patients should be respected and not ridiculed, just as we honor the young physician who heroically applies his mouth to a tracheotomy wound in a case of diphtheria.

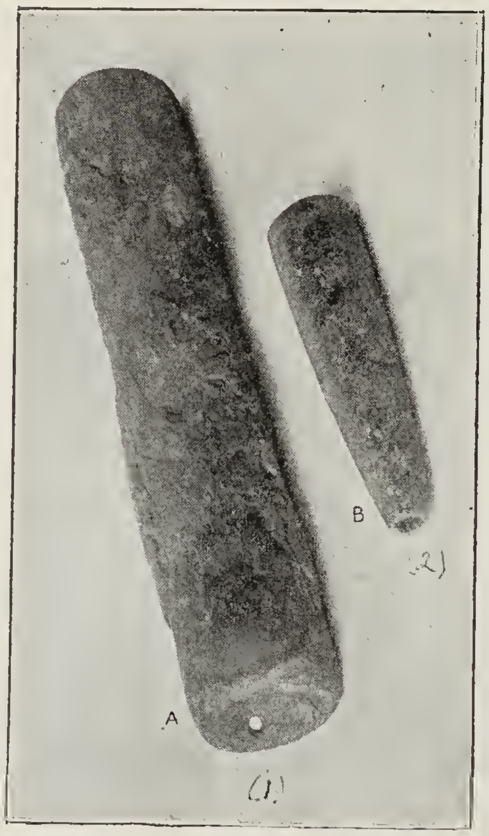

Fig. 8.—*A*, peculiar wooden instrument with cupped end (depth not well shown) and with a hole on one side slanted upward, into which a hollow reed could be inserted; possibly used for cupping, by pressing the hollowed-out end against the skin, and sucking out the air through the reed. *B*, Cliff Dweller's stone pipe, also used for cupping and in the suction treatment of abscesses and suppurating wounds (Museum of State Historical and Natural History Society, Denver).

The imaginary foreign bodies supposed to cause many diseases were also removed by sucking, being first located by the supernatural vision of the medicine-man—a sort of roentgen-ray eye, as it were. The results were made more tangible by previously placing something in the mouth, such as a stone, thorn, worm or insect, and producing it at the proper psychologic moment.

Numerous ailments were held to be due to the presence of bile in the affected part. This was sucked out directly with the mouth or through a tube, the surgeon apparently expectorating bile frequently during the process, being enabled to do so by chewing a species of yellow root in preparation for the occasion.

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[3] That the North American Indians occasionally did quite good surgery is evidenced by an operation, witnessed by Cushing, on an inflamed and gangrenous foot. The trouble was supposed to be due to a mysterious maggot, and the procedure was carried out for the purpose of dislodging it. A crucial incision was made, the dead tissue excised, and the bone scraped. The wound was then repeatedly irrigated, packed with piñon gum, powdered and bandaged. The final result was satisfactory. Could a modern surgeon have done more?

Such procedures were of course nothing but blatant charlatanism, but they had a certain justification in the psychologic effect which they must have produced.

*Cupping.*—This was a common remedy. It was done by suction through a buffalo horn or a tube of wood or stone, or even by the mouth alone. Enough force could thus be exerted to cause much congestion, and an expert in the art could even raise a blister. Wet cupping was achieved by a preliminary scarification of the skin. In the Museum of the State Historical and Natural History Society, Denver, are some peculiar wooden instruments from the Colorado cliff-dwellings, labeled "use unknown," which might very well have been employed for cupping. They have a hole on one side into which a stem could be inserted to suck through, the body of the instrument being used as a handle to press it firmly against the skin (Fig. 8 *A*).

*Scarification.* — This was an almost universal practice, both for local troubles and those of a more general nature. It was often done with a flake of flint, although more elaborate instruments were in use, provided with many sharp points made of fish spines, flints, etc. A method employed in Brazil was to make a number of cuts in the skin through which was inserted a stone instrument like a spear head, which was moved about in the subcutaneous tissues — a mode of treatment that could not have been popular among primitive patients.

*Cauterization.* — This was much used. It was accomplished with a coal of fire, a hot stone, or by burning a little ball of cotton or other inflammable substance on the cutaneous surface. Among other things, indolent wounds and ulcers were often stimulated by cauterization, and it was also employed as a counter irritant in various painful affections. A favorite method was to burn tobacco or some other material in a tube made of stone (Fig. 8 *B*), and then blow the hot smoke through the tube on the area to be treated, decided virtues being attributed to the kind of smoke employed.

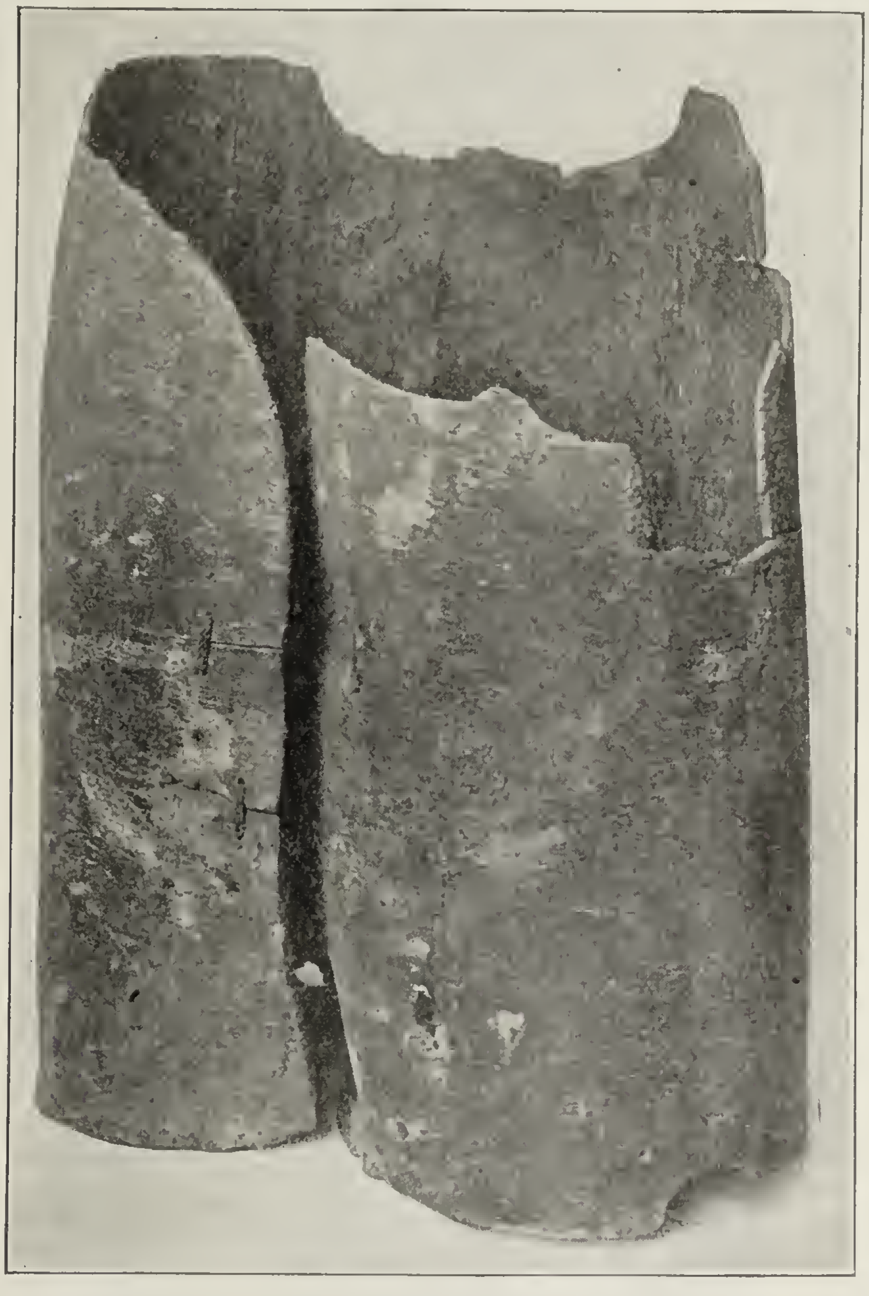

Fig. 9.—Corset made of bark, with eyelets and cord for lacing it around the body; possibly used for some orthopedic purpose (Museum of State Historical and Natural History Society, Denver).

*Phlebotomy.*—This was extensively used in the treatment of local inflammation as well as many general diseases, being considered almost as much of a cure-all as it was with our medical forefathers. The vein selected was generally in the leg or arm, but occasionally in the neck or temporal region. The instrument employed in opening the vessel was made from a sharp flake of flint or obsidian, a thorn, a fish spine, or a tooth of some sort set in a handle. It was driven with a quick stroke into the vein. In Brazil, a little arrow, made for the purpose, was shot into the vein by means of a diminutive bow, thus coming as near to a "shotgun prescription" as was possible under the circumstances.

*Inflammations.*—These were treated commonly by poultices made from plants, leaves or barks (slippery elm, etc.), by cupping, and by counterirritants, such as the cautery. When an abscess resulted, incision was often resorted to, and the contents were aspirated with the mouth, directly or through a tube.

*Amputation.*—Although not extensively practiced, amputation was undoubtedly done at times, the bleeding being checked, perhaps, by the application of hot stones, as has been observed among the Indians. An image on an ancient vase found in Peru distinctly shows the stump of a leg due to an amputation.

*Hemorrhage.* — The use of the tourniquet was undoubtedly understood by some, but the more common method of checking bleeding was by the actual cautery (a heated stone) or by local pressure aided often by such coagulants as spiderwebs and the fine fibers of plants.

*Hernia.*—Many medicine-men knew how to hold a rupture in place quite skilfully with various forms of pads and bandages; but the most remarkable procedure was that resorted to by the Pueblos, who treated umbilical hernia by placing on it a number of large black ants, the bites of which were supposed to have a curative effect. It would be interesting to know the origin of such an astonishing idea.

*Pterygium.* — Operations for pterygium were done in both North and South America, the growth being more or less skilfully removed with sharp stone knives. It was probably this operation that gave rise to the erroneous idea that cataracts were removed by these ancient ophthalmologists.

*Artificial Skull Deformities.*—The production of these may be considered as a sort of orthopedic surgery[4] extensively practiced by various North American Indians, as well as those of Mexico and Peru. Sometimes a board was bound against the forehead of an infant and kept there during early growth, resulting in a hideous flatness of the front of the cranium (Flathead Indians). Other tribes, such as the Vancouvers, Incas and Aztecs, applied pads and tight bandages to the head in such ways as to render the skull conical, enormously elongated, or deformed in other monstrous ways. Although producing an outward semblance of idiocy, these peculiarities of form did not seem in any way to influence the mentality. Flattening of the occipital region, so commonly observed in collections of prehistoric skulls, was probably more or less accidental and due to pressure of the infants' skulls against the boards on which they were habitually strapped and carried.

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[4] The Museum of the State Historical and Natural History Society of Denver possesses an interesting appliance of bark made to fit the torso and provided with eyelets as though to lace it together in front (Fig. 9). It closely resembles the modern orthopedic corsets used in the treatment of lesions of the spine, and may have been used by the Cliff Dwellers for this purpose or for fracture of the ribs.

*Anesthetics.*—Although it cannot be questioned that some of our primitive peoples possessed more or less reliable methods of anesthesia, it is hardly probable that these were very generally known or employed. For instance, the Zunis and some other tribes used for the purpose a substance obtained from the jimson weed (*Datura meteloides*), containing stramonium. It was administered in sufficient amount to produce indifference to pain or even complete unconsciousness, and in this condition abscesses were opened, fractures set, dislocations reduced, and other surgical procedures accomplished. In spite of heroic dosage, no serious harm seemed to result. It is quite possible that this and similar methods were also in use among the Aztecs and Incas, who were so closely related in many ways to the Pueblos.

In this connection should not be overlooked the strong hypnotic influence undoubtedly exercised by the medicine-men, with their bizarre make-ups, weird incantations, and fantastic antics, which were well calculated to make a profound impression on their credulous patients.

Metropolitan Building.

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**Housing Conditions and War Workers.**—The necessity for adequate and better housing conditions for men and women workers in the war industries in this country has arisen in an acute form, not only in towns and cities of considerable size where these industries are located, but also in localities where munitions plants, for instance, have been built remote from places of sufficient size to afford any possibility of housing the employees. It has been the experience of England since the beginning of the war that the usual agencies for providing housing for industrial workers have fallen down, in that greater returns on capital have been possible from other sorts of investment. After experimenting with various plans of encouraging the building of houses, including loans of increasing proportions of the capital required, the government has been compelled to assume completely the job of providing houses. At first, cottages or hutments of a more or less temporary nature, community cottages and barracks were constructed, but the experience has culminated in the planning of complete housing communities and the erection of permanent houses of a very good and substantial class, with wide streets, pleasant outlook, good sized gardens, and the conveniences and comforts of modern, healthful ways of living. A writer in the *Journal of the American Institute of Architects* has described the evolution of the British government housing problem during wartime, and while he feels that in this country the problem is not identical, and that the whole matter should be studied from a different point of view, yet he reluctantly concludes that "if English experience has any value at all for us in this matter, it seems clearly to point in the direction of the nation itself shouldering a burden which has become too heavy to be carried by employers and individual communities alone."

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# OBSTRUCTIVE STERILITY IN THE MALE

## TREATMENT BY DIRECT VASO-EPIDIDYMOSTOMY *

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CHICAGO

Obstructive sterility in the male is easily diagnosed by microscopic examination of the semen. The semen shows a complete absence of spermatozoa. The only treatment in these cases is surgery. We must make an anastomosis around the obstruction to permit the passage of the sperm. The particular operation necessary to be performed depends on the location of the obstruction, thus:

1. If the obstruction is in the epididymis, the operation will be direct vaso-epididymostomy.
2. In the scrotal vas, resection of the obstruction and union of the vas, either end to end or lateral.
3. In the pelvic vas or ejaculatory duct, author's sac operation.
4. In the pelvic vas on one side and epididymis or scrotal vas on the other side, anastomosis of the vas on one side to the vas on the other side above the obstruction; crossed anastomosis.
5. There may be combinations of any of the foregoing.

Diagnosis of the point of obstruction (when in the epididymis) is made by inspection at the time of operation (Fig. 1). When the obstruction is in the vas, the diagnosis is made by injecting colored salt solution into the central end of the opened vas and noting its appearance or nonappearance in the urethra.

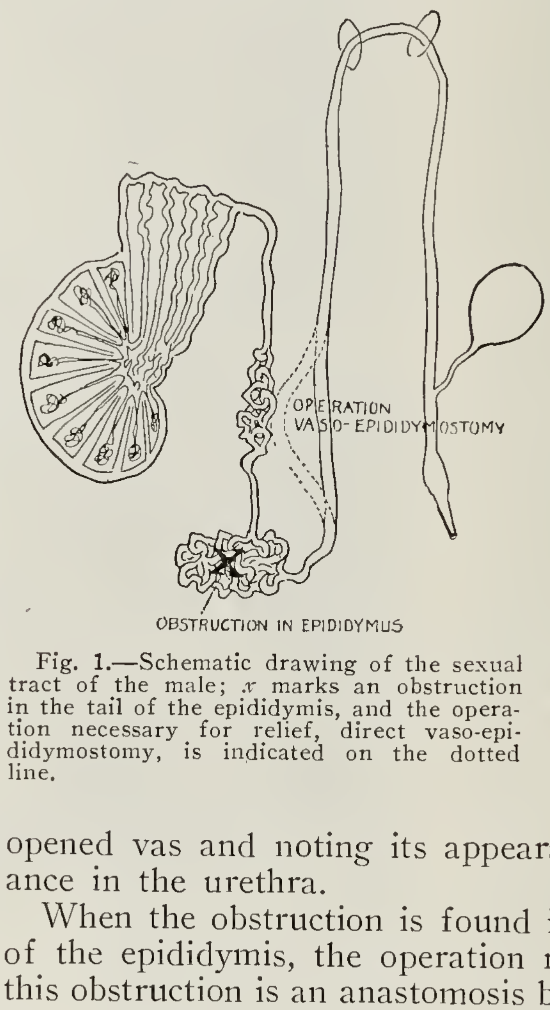

Fig. 1.—Schematic drawing of the sexual tract of the male; *x* marks an obstruction in the tail of the epididymis, and the operation necessary for relief, direct vaso-epididymostomy, is indicated on the dotted line.

When the obstruction is found in the globus minor of the epididymis, the operation necessary to relieve this obstruction is an anastomosis between the epididymis tubule (Fig. 1) above the point of obstruction and the vas deferens below any obstruction that may be present in it. All the present operations (Martin's operation) designed to join the vas to the epididymis tubule are indirect; that is, after the epididymis capsule has been incised, a small portion of the protruding epididymis tubule is cut off, then the vas is split longitudinally, and the open incision in the vas is sewed to the epididymis capsule over the raw surface of the epididymis; hence there is a considerable distance that must be bridged by epithelium between the functional end of the epididymis tube and the vas. Unfortunately, this bridge often fails to develop, and consequently the operation is a failure.

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* Awarded silver medal, Scientific Exhibit, Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

* From the Laboratory of Experimental Surgery, Northwestern University Medical School.

The two chief causes of failure are (1) the overgrowth of connective tissue, choking the epididymis tubule, and (2) the organizing of the blood clot that forms on the cut surface of the epididymis, whereby the epididymis tubule is closed. To circumvent these difficulties I devised an operation for direct anastomosis between the epididymis tubule and the lumen of the vas. I have called this operation direct vaso-epididymostomy. As it brings the epithelium of the vas into direct union with the epithelial lining of the epididymis tubule, the danger of hemorrhage is absolutely eliminated, and the danger of choking by connective tissue is practically eliminated.

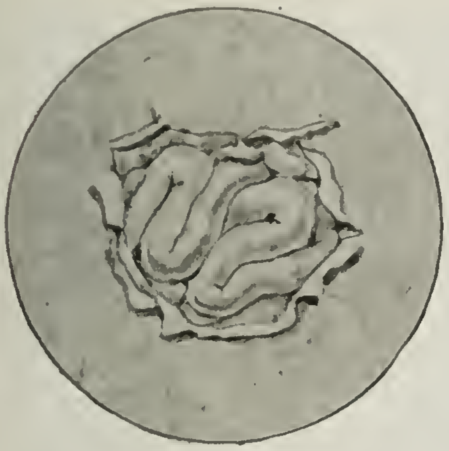

Fig. 2.—Capsule of the epididymis cut through and reflected, exposing the epididymis tubule characteristically coiled on itself.

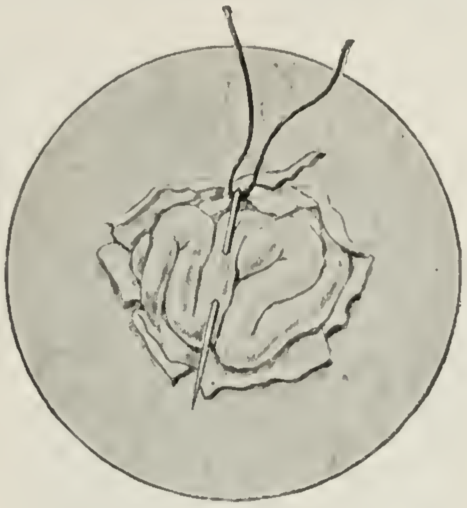

Fig. 3.—Special bayonet pointed sterility needle entering the tubule lumen, then passing along the lumen for a short distance, then out again. The needle is armed with 00000 silk.

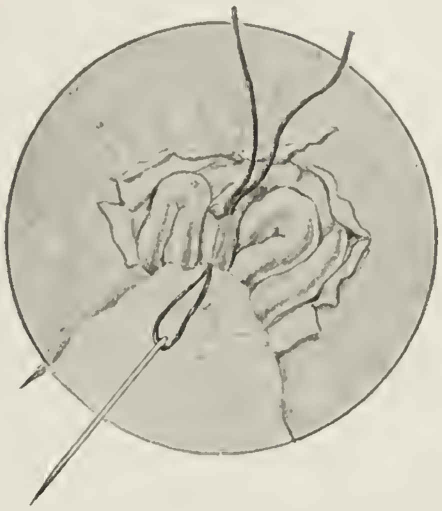

Fig. 4.—Needle pulled through and the threads now in the lumen of the epididymis tubule. Note the escape of the contents of the tubule. This suture is now drawn through, and its ends passed into the lumen of the vas. The little rounded mass where the suture enters the epididymis tube wall is petrolatum that has been stripped off from the thread.

### TECHNIC OF DIRECT VASO-EPIDIDYMOSTOMY

An incision is made into the scrotum down to and into the tunica vaginalis testis. The epididymis is exposed, and the point of obstruction is noted. The lumen of the vas is now opened by a short longitudinal incision, and a colored fluid is injected into the central end of the vas. If the fluid appears in the urethra, we know positively that the vas is open from the point of incision to the urethra. Next, the epididymis capsule over the epididymis compartment immediately above the obstruction is incised carefully down to the tubules, great care being taken (1) that all the different layers of the capsule are removed from the epididymis tubule, and (2) that the epididymis tubule itself is not nicked or cut into at any point. The epididymis tubule will protrude through the opening thus made in the epididymis capsule (Fig. 2). A tubule is now selected whose direction is the same as the long axis of the body of the epididymis.

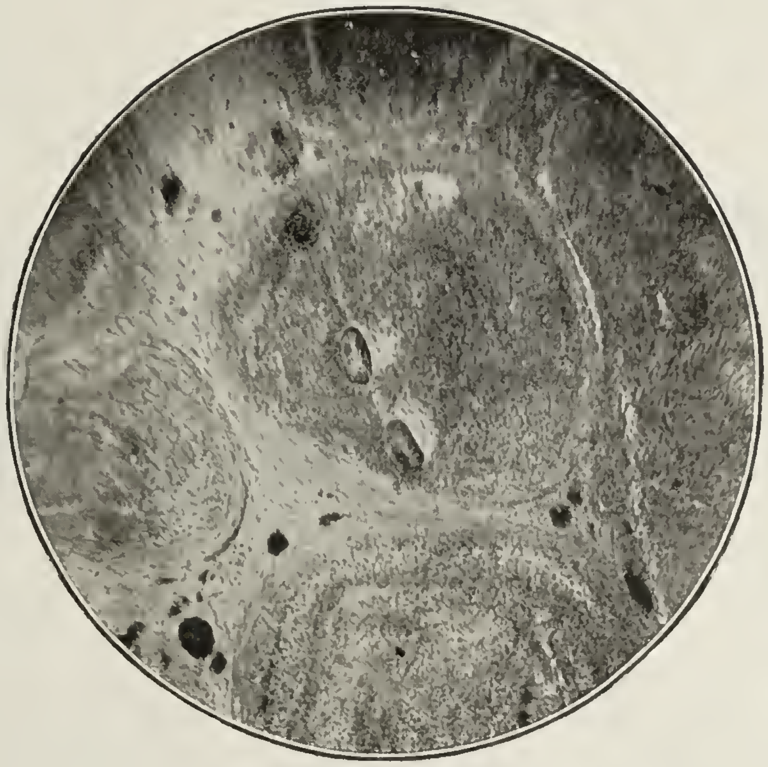

Fig. 5.—Low power photomicrograph of the epididymis tubule into whose lumen has been passed a suture of human hair. The two oval bodies are the cross-section of the hair.

A suture of 00000 silk mounted on a No. 19 bayonet pointed needle is now passed through the wall of the epididymis tubule (Fig. 3), then down the lumen of the tubule and out again through the wall of the epididymis tubule, from 2 to 4 mm. from its point of entrance (Figs. 3, 4 and 5).

In Figure 4 we see the needle drawn through, and the outpouring of the epididymal secretion. This secretion is aspirated into a small syringe, and then placed on a microscopic slide and examined for spermatozoa. The ends of this crown or epididymal stitch are now passed through the longitudinal incision into the vas, down the lumen of the vas, and out through the wall of the vas. When both ends of the crown suture have been inserted into their appropriate ends of the vas incision, the appearance is as shown in Figure 6.

Sutures of extraordinarily fine catgut, made especially for this purpose by Mr. Hollister, are now passed, one on each side of the longitudinal incision in the vas. These sutures (Fig. 7 *C* and *D*) includes both the wall and the epithelial lining of the vas in its grasp. These sutures are designed to hold the incision in the vas open. Sutures (Fig. 7 *A* and *B*) are now passed into the wall of the vas a short distance from each end of the incision. These sutures include only the wall of the vas, and do not enter the lumen of the vas at all. They are designed to fix the vas to the epididymis and carry the weight of the testicle, and are so spaced on the length of the vas that when they are tied down they leave the intervening vas slack, so as to remove all tension from the union between the epididymis tubule and the vas.

When the four sustaining sutures are passed and the vas is turned over, the appearance is as shown in Figure 7. The central or upper end of the crown stitch is now threaded on a long Hagedorn needle and after the testicle has been replaced into the scrotum, this needle transfixes the scrotum from inside out, bringing the crown thread with it. In from one to two weeks, when a necrosis of the wall of the epididymis tubule which has been in the grasp of the suture has taken place, this suture can be removed by slow gradual traction.

In order to visualize the amount of material that passes through one of these anastomoses, the spermatozoa were recovered from the entire amount of semen ejaculated. This has been done from different individuals and from the same individual at different times. The amount varies with the vigor and passion of the intercourse. A large lumen is not necessary. The size of the lumen obtained by this operation is shown in Figure 8, a specimen on which the operation of direct vaso-epididymostomy had been performed two months before. The vas has been torn from the epididymis, and in the center of the vas can be seen the little opening that connected the vas lumen with the epididymis tubule.

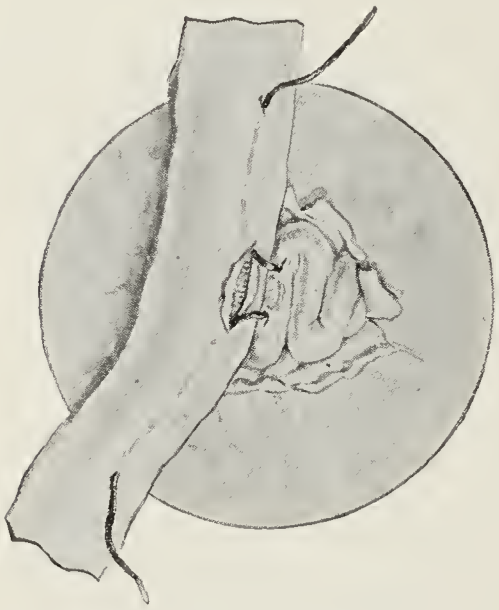

Fig. 6.—Crown stitch in place, its two ends entering the longitudinal slit in the vas. These ends enter the lumen of the vas and then transfix the wall of the vas. If traction is made on the ends of this thread, it will draw the epididymis tubule into the cut in the side of the vas.

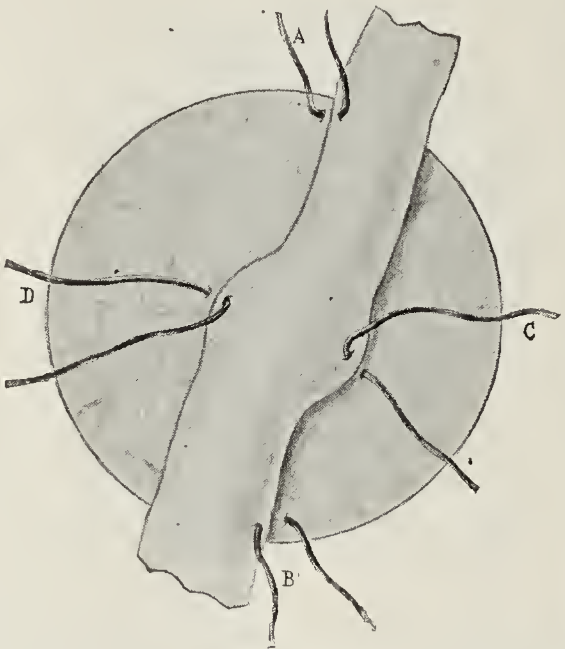

Fig. 7.—Two stitches, *A* and *B*, which fix the vas to the capsule of the epididymis and carry the weight of the testicle. They are so placed that the vas between them is slightly flaccid. The two stitches *D* and *C* hold open the longitudinal slit in the vas.

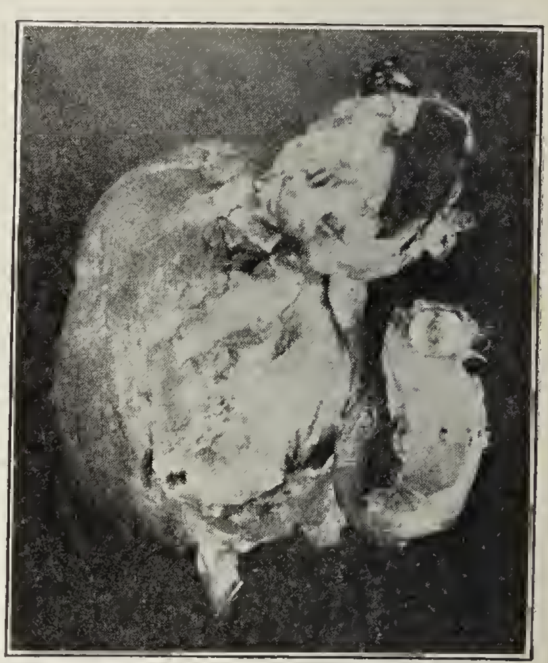

Fig. 8.—Vas on which the operation of direct vaso-epididymostomy had been performed two months previously, torn from the epididymis and viewed from the epididymal side. The lumen shows as a small black dot in the center of the picture.

The anastomosis made by the operation is illustrated in Figures 9, 10 and 11.

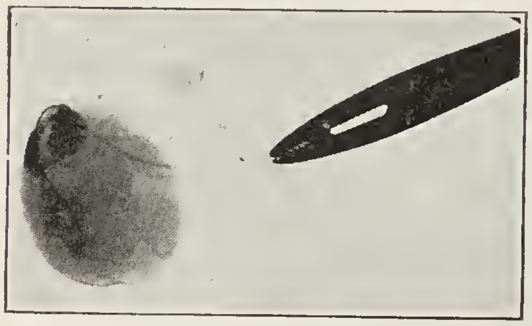

Fig. 9.—Injected vas and injection in first compartment of epididymis tubule, demonstrating that the anastomosis is patent. The crown stitch in this instance was of silver wire.

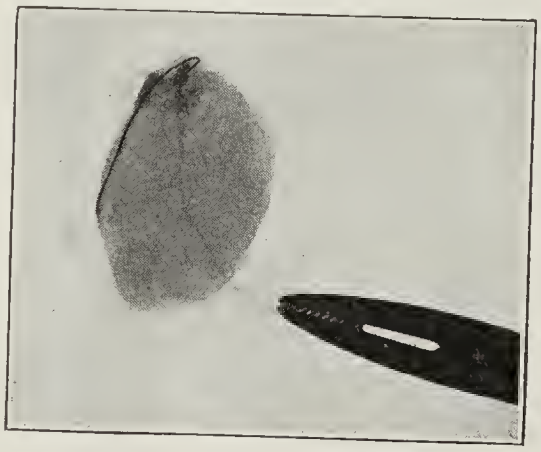

Fig. 10.—Another specimen, similar to Figure 9.

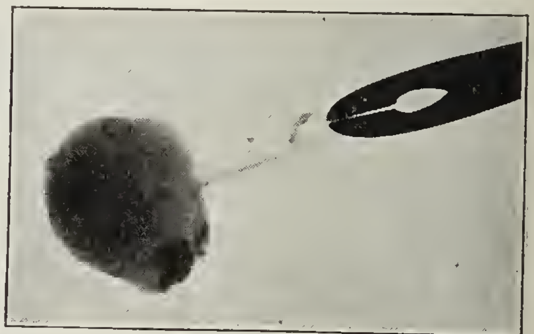

Fig. 11.—Exact location and size of the connecting lumen between the vas and the epididymis tubule. The crown stitch is of silk, and consequently it does not show.

Usually when we incise the vas we find that the lumen is empty. Occasionally we find that it is filled with a thick creamy material which, on examination, is found to be composed practically entirely of spermatozoa. In three instances in which the vas had been occluded for many years, the vas was filled with this creamy material; on examination it was found to contain no spermatozoa whatsoever, but simply round amorphous material which had the microscopic appearance of fat globules. They do not take the fat stain, however, and their exact chemical composition is not certain. In all of the cases in which this material has been found, the vas was obstructed in the pelvis. I consider this material diagnostic of a vas that has been obstructed at least ten years.

After this technic was fully developed, I performed direct vaso-epididymostomy on one side only of eleven dogs. These animals were killed two months after the operation. The vas of the side not operated on was stripped, and spermatozoa were demonstrated in each instance. The vas coming from the epididymis operated on was similarly stripped, and spermatozoa were demonstrated in ten of the eleven operations. The patency of the anastomosis is shown by the epididymograms (Figs. 9, 10 and 11).

### REPORT OF CASE

A patient with bilateral epididymitis showed slight thickenings in the globus minor of both epididymides, and absence of spermatozoa from the semen. The left testicle was explored under local anesthesia, and an obstruction demonstrated in the globus minor. A direct vaso-epididymostomy, with silk for the crown stitch, was performed, with the result that spermatozoa are now present in the semen.

7 West Madison Street.

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**War Amenorrhea.**—The *Norsk Magazin for Lægevidenskaben* reviews collectively a number of articles with this title which have been published in different parts of Germany, Austria and the parts of France occupied by the German troops. All comment on the great prevalence of amenorrhea during the last year or two, in otherwise apparently healthy nonpregnant women.

## Military Medicine and Surgery

## MEDICAL EDUCATION, MEDICAL INTERNS AND THE WAR

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[At the Conference on Medical Education last week, the chairman of the Council on Medical Education of the American Medical Association, Dr. H. D. Arnold of Boston, now on active service in the Surgeon-General's Office, at Washington, devoted the major portion of his chairman's address to this subject. The following is an excerpt from this address. In the introduction Dr. Arnold stated that while some of the statements he would make could be regarded as having official authority, at the same time he wished it understood that he was expressing his personal views.—Ed.]

### NO LESSENING OF EDUCATIONAL REQUIREMENTS

I wish to emphasize again one point briefly mentioned in my opening remarks, namely, the importance of not lowering the standards of medical education during this period of war. This does not preclude the readjustment or rearrangement of courses, or the omission of nonessential details. But it does mean that the modern thorough training, with its broad scientific basis, must be fully maintained, if we are to make of our medical students officers who are competent to give proper care to our soldiers. We must not relax the thoroughness or the essential content of that training. The fact that the number of teachers is reduced is merely a reason for those who are left to work longer and harder. It is not a justification for weakening the instruction given.

The spirit of this war time — the cry for efficiency on the part of every individual of this nation — must not go unheeded by the medical teacher. No medical teacher is doing his full duty who is content merely to continue his teaching as it existed before the war. The newer knowledge and methods developed in this war must be taught; those aspects of every subject which will be useful for Army purposes must be emphasized; and above all, the teacher should make sure that the student masters the real essentials of his subject. In our teaching there has been a tendency to place undue emphasis on that which is new, or on that in which the teacher happens to be personally interested; and too little attention has been paid to the routine drill in fundamentals — too little thought to determine what is really essential for every medical student to know in a given subject. Critical self study should lead many teachers to drop many items of instruction which their confrères — and their students too — recognize as personal fads. The voluntary conforming to uniform, simple methods that are agreed to be efficient in Army service would be a very important step toward the more efficient training of medical officers.

### MEDICAL STUDENTS AS ENLISTED MEN

Owing to the provisions of the Selective Service Regulations, it has come about that nearly all our medical students are enlisted men in the reserve corps of the Army or Navy. Since, by agreement, the regulations for those in the reserve corps of the Navy will be essentially the same as for those in the reserve corps of the Army, we may, for the sake of simplicity, speak as if all medical students were enrolled in the Army. Medical schools have in reality become Army training schools.

We should keep one point clear in our minds — and make it clear to the students. Medical students are not exempted from the draft law. They are actually in military service in accordance with the regulations under that law. They are too apt to remember simply that they are in Class V — the class that is exempt from induction into service under the draft — but to forget the wording of the regulation that gave them this classification, that "the registrant shall be placed in Class V on the ground that he is in the military service of the United States. There is no other ground on which such persons (as such) may be placed in a deferred classification."

As an enlisted man in the reserve corps of the Medical Department, a medical student is subject to call to active duty at any moment, at the discretion of the Surgeon-General. If he is left on inactive duty, it must be either because his services are not needed, or because he is to remain on inactive duty for special Army purposes. Every one of these men could be used advantageously now in the hospital corps of the Army; consequently the sole reason for leaving them on inactive duty is that they may become better trained for medical service in the Army later. Provided they show sufficient aptitude and application, this training may be continued until they are qualified to become medical officers in the Army; but it is not the inherent privilege of a medical student, as such, to continue his studies to this extent.

It follows logically that the student must have the preliminary education and training that fit him to pursue his medical studies successfully; that his course of study must be sufficiently thorough and complete to prepare him to become a satisfactory medical officer, and that he must show a capacity and application that enable him to keep pace with the progress of his class. The moment it is clear, from his failure to progress with his class or his failure to graduate, that he will not make a satisfactory medical officer, it becomes the duty of the Surgeon-General to call him to active duty in the enlisted service of the Medical Department. Here lies an incentive for the medical student to do his best work — none the less effective because it is an artificial spur.

It is the intention of the Surgeon-General—because it is for the best interests of the Army — to allow medical students one year of training after receiving the degree of M.D. This time must be spent either in gaining practical experience, as an intern, in the care of the sick; or in such advanced scientific study, in hospital or medical school, as will fit him for special scientific medical work in the Army. Students will not only be permitted to take this year of training after graduation—unless some unforeseen contingency demands their services in the ranks — but they are strongly urged to take such service if it can possibly be arranged.

The Surgeon-General feels a moral obligation to the men who have been drafted into active service, and are fighting for our country, to administer the regulations in regard to medical students strictly and conscientiously. The cooperation of the medical school authorities is expected in the same spirit. This will mean in some instances a more strict enforcement of requirements and standards than has hitherto obtained. It means the prompt removal of all entrance conditions of those already enrolled as students; the strict enforcement of entrance requirements; a uniform standard of marking, and a fair test of the student's qualifications for promotion, and uniform usage on the question of conditions as affecting admission and promotion.

The problem of conditions is a most important one, on which the advice of the medical educators is earnestly sought. Let us state it clearly once more: We have no moral right to continue one of these enlisted men on inactive duty after it is clear, from failure to pass his examinations, that he will not make an efficient medical officer. We have no right to allow the course of training to be unnecessarily prolonged. We certainly must prevent the "slackers" from delaying their entrance into active service. And yet we may be hard pressed for trained medical men, if the war lasts much longer, and we should not hastily deprive partially trained medical students of the chance to complete their training. My personal opinion is that the practical solution of this question would be to allow backward students, as a maximum, one term, or semester, extra in the whole medical course.

### TEACHING THROUGHOUT THE YEAR

It seems to me that we have no moral right, in deference to the drafted men in the fighting line, to give medical students the usual summer vacation of three or four months. There is the added consideration that, if this war should last two or more years longer, we are sure to be hard pressed for medical officers for our own Army and for our allies. It may be necessary to speed up the training of our medical students. Now is the time to make plans for this, for it can be accomplished now without lowering the standards of medical training.

It would be possible to give three terms in twelve months, instead of two terms as at present, without any material detriment to the course of instruction. These terms should begin approximately on October 1, February 1 and June 1.

During the past year, 80 per cent. of the medical schools reported a school year of from thirty-three to thirty-six weeks. This is supposed to be "actual work exclusive of holidays," but this requirement is not generally fully complied with.

The plan of three terms in twelve months could be arranged on a basis of sixteen weeks to each term, with an allowance of four weeks for vacation distributed through the year — not an unreasonable requirement for enlisted soldiers. One week in each term may be allowed for examinations, leaving fifteen weeks for actual teaching—or thirty weeks of actual teaching for the school year. This is not a radical departure from actual present usage, and should be accepted, as a war measure, in view of the great advantages to be gained.

If this plan were adopted now, the present first class would be ready for service twelve months earlier than under the present plan, the second class eight months earlier, and the third class four months earlier. The senior class would not be affected.

I know that the question of summer sessions of the medical schools was discussed last spring at a meeting of the deans called by the General Medical Board of the Advisory Commission of the Council of National Defense, and that the decision was adverse. But conditions have changed since then. It seems more probable that this war may be prolonged; it is more evident that we must put larger armies in the field; the need of medical officers and of physicians for civilian practice, both for ourselves and for our allies, during and immediately after the war, is more evident than it was then; and, finally, the new draft regulations introduce a factor that could not then be taken into account.

The desirability of the general idea of speeding up medical education, without sacrifice of its quality, has the approval of the Surgeon-General. An expression of opinion from the medical educators here assembled as to its practicability and desirability would be welcomed. My own opinion is that it should be recommended to medical schools now, but should not be required of all well recognized schools for the coming summer, but should be required thereafter. In some schools it may not be practicable to inaugurate this system for the coming summer, on such short notice. In others, the next summer term would better be allowed for students to clean up conditions and back work, so as to make a fair start in the fall.

The objection that the letter of the law in some states could not be met by such a plan does not seem to be a serious one. A state licensing board which felt obliged to enforce such a regulation ought not to find it difficult to get permission from the legislature to accept this plan temporarily, as a war measure.

### REORGANIZATION OF CURRICULUM

In one respect the curriculum should be changed, so as to make it possible to have a graded intern service in the hospitals. Twelve months is considered as long a period as can regularly be allowed for intern service after graduation. If all medical students graduated at the same time, entered at once into intern service, and entered active service in the Army one year later, the system of graded interns in the hospitals would be impossible. The Surgeon-General did not feel warranted in extending the period of internship in general to a year and a half, as suggested by some institutions. The following compromise plan has been approved by the Surgeon-General, by which the hospitals can secure a graded service for interns, if the appointments are made to begin July 1, November 1 and March 1. These dates are suggested for the purpose of allowing a month—or part of a month —of vacation between graduation and the beginning of intern service.

The service beginning July 1 will naturally be supplied from the graduates in June. A certain number of those graduating in June—not to exceed one third of such graduates—may be allowed to begin a service of one year as intern as late as November 1, provided that the time between graduation and the beginning of the recognized internship, with the exception of one month allowed for vacation, is spent in a way that will improve the training of the graduate for Army purposes. A supply of candidates for internships beginning March 1 will come in part from those who graduate in February, but the remaining positions must be filled by senior medical students.

This plan will have the approval of the Council on Medical Education, and should have the approval of other authoritative bodies such as state boards, under the following conditions:

1. The curriculum of the medical school should be so arranged that the last semester consists entirely of clinical work.

2. The work of these interns should be of such a character that it may be accepted by the medical schools

as equivalent to the clinical work in the school during the last semester.

3. The medical school must agree to accept such clinical work, if satisfactorily performed, as counting toward the degree.

4. This privilege should be limited to students whose school record up to that time places them in the upper third of their class.

### QUALITY OF INTERN SERVICE

The Surgeon-General must insist that the opportunities afforded interns shall be such that they will receive a satisfactory experience and training in preparation for their professional duties as medical officers in the Army. Work exclusively as clinical clerks will not be acceptable. The mere care of patients without careful study of the cases, including laboratory investigations, will not be acceptable. The opportunity to take charge of patients without adequate supervision and training by the visiting staff will not be acceptable.

It is realized that many internships, as now arranged, will not meet these requirements. For the moment, internships must be approved that do not fully meet these conditions; otherwise the organization of important hospitals would be disrupted, and the proper care of the patients would be impossible. But, if a hospital does not adjust itself to these requirements within a reasonable time, approval of the institution as an authorized place for intern service will be withdrawn, and the allotment of interns will be cut off. The experience gained in these hospitals should be at least as good as the graduate would get at an Army base hospital. We are not justified in leaving him as an intern in a civilian hospital, when he may be given a better training in an Army hospital.

### MEDICAL TEACHERS

The problem of the teaching force in our medical schools has become a serious one, because so many have already volunteered for active military service, and the action of the draft threatens to remove other teachers who are regarded as essential to the satisfactory continuance of the present methods of instruction.

While we cannot but admire the patriotic response to the call of duty of those teachers who have entered active military service, we must not forget that many who remain are actuated by fully as patriotic motives, and are often performing a more difficult duty in remaining for the purpose of serving the country by continuing their teaching.

The medical teachers of draft age play a most important part in the methods of medical education adopted in recent years. The induction of these men into military service would seriously impair the efficiency of medical teaching, unless they could be at once replaced by equally satisfactory teachers. As far as is possible, such men should be replaced by others who are above the draft age; and the schools should conscientiously endeavor to meet the situation in this way as far as they can. But it is recognized that there are not enough competent men above draft age available for this purpose, and that this plan offers only a partial solution of the difficulty.

Medical teachers, as such, are not granted any privileges under the Selective Service Regulations; nor can special privileges be given to them fairly. The spirit of the draft law requires that they enter military service, when their turns come according to the draft regulations. Since very few of them are likely to be reached by the draft during the present school year, the immediate danger to the schools is not so great as has been generally thought to be the case.

Since the requirements of the draft will be met from Class I for a long time to come, we may for the present disregard those teachers who have a deferred classification. The following arrangements apply to those who are placed in Class I.

Those who have the degree of M.D. should apply for admission into the Medical Reserve Corps, if they have not already done so. They should at once accept their commissions, when offered, so that certificates may be issued under Section 151 (c), S. S. R., which will authorize their local boards to place them in Class V on the ground that they are in the military service. If the services of such a teacher are essential for the efficient instruction in the department of the medical school to which he belongs, the dean of the school should make this fact known to the Surgeon-General. This reserve officer will then be held on the inactive list, at least until the end of the present school year. If necessary, he can be kept on the inactive list for a reasonable period beyond this time, until a substitute can be found. It is not the policy of the Surgeon-General, however, to create a class of medical teachers who will be excused from active duty throughout the war.

Medical teachers who are not graduates in medicine, and are essential to the school, can be provided for until the end of the present school year, and if necessary until their places can be filled by other suitable teachers. Such teachers may be referred to the Surgeon-General for consideration by the dean of the school, and will be dealt with as the individual case warrants. Action in such cases should not be requested, however, until it is clear that the teacher in question is liable to be drafted in the near future, and the facts in regard to such liability should be clearly set forth.

It is becomnig more and more evident that the services of medical teachers in the various branches of medicine will be needed in the Army as well as in the medical schools, and that the present supply of such trained teachers is not sufficient to meet this double demand. This is especially true in the laboratory subjects. It will, therefore, be necessary to provide for the training of more teachers. For this purpose, the schools should encourage those students who are interested in the scientific branches of medicine, or who show an aptitude for such work, to accept positions in the school or hospital laboratories instead of positions as clinical interns for one year after graduation. At the end of the intern year a sufficient number of clinical interns and laboratory assistants may be retained on inactive duty to replace the medical teachers who will be called to active service in the Army. These men will in turn be called to active service as soon as their places can be satisfactorily filled by the promotion of the next set of interns and assistants; and by this system we can provide a constant supply of highly trained men for the Army both in clinical and laboratory subjects. We shall at the same time provide teachers for the medical schools.

### COMBINATION OF MEDICAL TEACHERS IN MEDICAL CENTERS

It seems quite possible to me that even these plans may not provide enough teachers for all departments of medical instruction in the schools. The scarcity of teachers is more likely to be felt in the laboratory subjects. A possible solution of this difficulty may be found in the combination of the teaching force of two or more schools in a medical center for the joint instruction of medical students. The schools should consider the feasibility of such combinations, and should be prepared to make such arrangements if they become necessary.

### GREATER UNIFORMITY OF CURRICULUM DESIRABLE

In the past we have discussed the desirability of greater uniformity in the schedule of the curriculum in the several medical schools with a view to facilitating the transfer of students, or of encouraging the migration of students. In looking ahead to the possible drain on the medical profession, and more especially on the medical teachers, it seems at least possible that some of the schools, especially the smaller ones or those located in the smaller communities, may be obliged to discontinue teaching for a time. Should such a contingency arise, the possibility of transferring the students to other schools, without the loss of standing or of time, should be provided for. A sufficient uniformity of schedule, year by year, to permit such transfer seems a wise provision to make at this time, and it is recommended that the schools give this matter serious consideration. Attention is called to the probability that during the war the summer vacations will no longer be available for readjustment in this respect, as has been the case in the past.

### PREMEDICAL STUDENTS

By a ruling of the Provost Marshal General, it is not possible to include premedical students under the provisions of the regulations for medical students. Up to the present time this ruling has not been a serious matter, because comparatively few of these students were 21 years of age, June 5, 1917, and they are in consequence not subject to the draft law.

Even if the law is changed to include men as soon as they attain the age of 21, these students will in all probabiliity not be reached by the draft before they complete their premedical course of training. If the medical schools will adopt the plan of accepting a first-year class on the first of next June, these students could then be matriculated and allowed to enlist in the Medical Enlisted Reserve Corps. Since they began their preparation for the study of medicine two years before this, such action could hardly be regarded fairly as an evasion of the spirit of the draft regulations. Some such arrangement is necessary, or else the supply of medical students will be cut off.

If the colleges will also adopt the plan of a summer term for the premedical students, they will enable subsequent classes to enter on their medical course before they attain the age of 21, and so the problem of the premedical students and of a supply of medical students will be settled.

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**Tetanus after Preventive Injection of Serum.**—A. Lumière has encountered fifty-four cases of tetanus occurring in men who had been given preventive injections of antitetanus serum, and tabulates these with minute detail under eight headings in the *Annales Pasteur.* He urges the necessity for repeating the serotherapy before attempting any operation later, and relates that sodium persulphate seems to be more effectual in relieving established tetanus than magnesium sulphate, while it is only slightly toxic.

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# STOCK SODIUM SULPHITE SOLUTION FOR ENDO MEDIUM

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With the assistance of Mr. J. E. Jacob, I have shown that a 10 per cent. solution of crystalline sodium sulphite can be heated for twenty minutes at 15 pounds pressure with practically no change, and that the 10 per cent. sodium sulphite solution covered with a layer of liquid petrolatum about 1 cm. thick and sterilized in the autoclave can be kept at room temperature for three weeks and probably much longer with but very slight change.

Such a sterilized stock solution of sodium sulphite might render the preparation of Endo agar a somewhat simpler procedure in field hospitals and base hospitals. If the liquid petrolatum carried over into the agar with the pipet is considered a disturbing element, more than the amount of the sulphite to be used should be pipetted into a sterile vessel, and the necessary portion of this should be immediately transferred to the agar with a second pipet.

The results of the titrations of the sulphite solution, before and after sterilization and after standing for various intervals of time are appended. The titrations were all done by Mr. Jacob.

### TITRATIONS OF SODIUM SULPHITE SOLUTIONS

Experiment 1.—Fifteen gm. of crystalline sodium sulphite were added to 150 c.c. of distilled water in an Erlenmeyer flask, and the latter was immediately covered with a layer of liquid petrolatum about 1 cm. thick. After the sodium sulphite had gone into solution, 5 c.c. were removed for titration. The flask was then heated in the autoclave for twenty minutes at 15 pounds pressure and allowed to cool, when a second series of titrations was made. After a second heating, further titrations were made.

TABLE 1.—TITRATIONS OF 5 C.C. AMOUNTS OF THE SOLUTION (EXPERIMENT 1)

| | Tenth-Normal Iodin C.c. | | Crystalline Sodium Sulphite |
|---|---|---|---|
| Before sterilization | 36.1 | equivalent to.... | 9.10 per cent. |
| After first sterilization | 36.75 | equivalent to.... | 9.26 per cent. |
| After second sterilization | 36.3 | equivalent to.... | 9.15 per cent. |

Hence practically no change takes place in the sodium sulphite solution during sterilization.

Experiment 2.—Fifty gm. of sodium sulphite were dissolved in 500 c.c. of distilled water, and 200 c.c. of the solution were added to each of two 500 c.c. Erlenmeyer flasks. A layer of liquid petrolatum 1.2 cm. thick was poured on the surface of the fluid in one of the flasks. Both flasks were loosely corked, heated in the autoclave twenty minutes at 15 pounds pressure, and then allowed to stand at room temperature. Five c.c. of the solution were withdrawn for each titration. The solutions were prepared, Dec. 24, 1917, and titrated at once and on the dates noted in Table 2. The figures recorded represent an average of two or three titrations.

TABLE 2.—TITRATION AFTER STANDING

| | With Petrolatum | | Without Petrolatum | |
|---|---|---|---|---|
| Date | N/10 Iodin C.c. | $Na_2SO_3.7H_2O$ Per Cent. | N/10 Iodin C.c. | $Na_2SO_3.7H_2O$ Per Cent. |
| Dec. 24 | 33.3 | 8.39 | 33.3 | 8.39 |
| Dec. 27 | 33.1 | 8.34 | 27.1 | 6.83 |
| Dec. 31 | 32.7 | 8.24 | 13.7 | 3.45 |
| Jan. 7 | 32.4 | 8.14 | 6.0 | 1.51 |
| Jan. 14 | 32.5 | 8.16 | .... | .... |

It is seen that in the flask without petrolatum, more than half the sulphite disappeared in one week's time, and almost all of it in two weeks. The flasks with petrolatum showed only a very slight loss after standing for three weeks.

# THE ETIOLOGY AND TREATMENT OF TRENCH FOOT *

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AND

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FRANCE

The usual classification of the disease known as "trench foot" is based entirely on a clinical picture. From this clinical picture also the attempt is made to deduce the etiology, and the nature of the most severe type of case is such as to seem to warrant the conclusion that the disease starts from the outside of the foot. Therefore the most common form of treatment is a purely local one.

We purpose to advance evidence which shows that the disease in all its forms starts from the interior; that the infections which often mark the course of the disease are but the natural secondary manifestations of the reaction of devitalized tissues to infective agents; and that therefore the treatment of the condition should be directed to the skin only so far as these secondary infections have resulted in surgical conditions.

We beg permission to present the line of reasoning that has led us to our conclusions. It will be evident that this reasoning is not based on known facts of physiology, in extenuation of which we point to the necessity in order to advance our present knowledge of supposing that some things we know are not true and that the rest need revision.

There is a disease of civil practice which bears a certain resemblance to trench foot. This disease is, or these diseases are, known as Raynaud's disease, intermittent claudication, erythromelalgia and thrombo-angiitis obliterans, perhaps best grouped under the generic name of the angiotrophoneuroses. Nothing is known of the etiology, much has been written, no treatment is accepted.

Some of the enthusiasts in the surgery of the blood vessels have claimed good results in this disease after performing an arteriovenous anastomosis of the femoral vessels. There is no known fact of physiology which would explain how the shifting of the blood stream from artery to vein — provided the operation really accomplishes such a result — could possibly influence the disease. Yet, when men insist on clinical results, it is often wise to consider that they may be attaining results, and that, in this instance, while their explanation does not conform to the teaching of physiology, the operation may do good in some way other than by influencing the course of the blood stream. If one assumes that the condition be due to a vasomotor spasm of the arterioles — not a new assumption — then sympathetic paralysis would overcome this spasm, and the operation of arteriovenous anastomosis would produce such paralysis because in the process of freeing the vessels for the anastomosis, the great sympathetic trunks, which run in the blood vessel sheaths, would be cut.

This line of reasoning — or guesswork — led us to attempt to discover if there is any clinical evidence of vasomotor disturbance in trench foot; and the astonishing results below appear. There is a marked increase of blood pressure in the leg in trench foot as compared with the arm.

Whether this increase in pressure is due to an excess of vasoconstrictor substance in the blood, or whether it is due to a loss of vasodilator substance, the result being the same, it would seem that increase of blood pressure reducing substance is indicated.

The opposite picture to peripheral vasoconstriction is seen in hyperthyroidism, as evidenced by the sweats, the sudden diarrheas, the flushings, perhaps also the tachycardia; therefore we have resorted to the administration of potassium iodid, which is known to stimulate the thyroid; thyroid extract is the first thought, but we had none at hand.

It may be asked why, when the edema and diapedesis of red cells comes from the capillary walls, we blame the arterioles rather than the capillaries. The reason is our finding of increased blood pressure and the spasmodic nature of the attacks of pain. Physiologists are not yet agreed as to the point in the vascular system at which the blood stream encounters the greatest resistance; but the majority opinion seems to be that it must be in the arterioles, because the blood passing the arterioles enters an area in which the total cross section is enormously increased; further, the arteriole is the only peripheral vascular structure that possesses a mechanism intrinsically capable of change. At least, no such mechanism has been demonstrated in the capillaries or in the small veins. Any change in the pressure in the arteriole would be expressed by change in the capillary blood; for as long as there is any circulation at all, there must be a plus pressure on the arterioles; even after death there must be a residuum of plus pressure in the arterial side, for the arteries are empty in the cadaver.

The circulation of blood in the veins of the foot is dependent on several factors: the driving pressure of the heart beat, the consequent filling of the system, and the resultant vis a tergo, and the action of the skeletal muscles—perhaps the most important factor in the peripheral circulation of lymph and venous blood—a factor too completely forgotten in various surgical conditions. This factor is of such importance that it is said that mere standing still will impede and may suspend the flow of blood through the feet; the value of rubbing the feet, of moving while in the trenches, is based on this consideration of physiology.

The standing still in the cold and wet may be the causal factor in trench foot, as it must be the exciting factor, in which event, however, all men should be susceptible. Since not all men under the same conditions fall victims, and since, in the men who are affected, these facts of blood pressure which we herewith demonstrate are to be found, we feel compelled to the conclusion that trench foot is a disease incited by the effect of cold and inaction on a foot whose vasomotor system is physiologically impaired; and therefore also more rarely we encounter a "trench hand" and "trench knees."

Our explanation of trench foot, based on our reasoning and our findings, is that there is in the arterioles of the foot an incomplete spasm; if the contraction were complete, the pressure would be thrown back to the heart and be immediately equalized or

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* From No. 16 (Philadelphia, U. S. A.) General Hospital, B. E. F.

compensated. An incomplete spasm would afford a resistance to the pulse wave, which would be expressed as a localized increase of blood pressure. The first result of this arteriole spasm is ischemia with numbness, tingling and burning pain; the second result is a disturbance of capillary circulation, perhaps due to back pressure from the veins, perhaps due to the loss of rhythmicity of the driving force, perhaps to mere stagnation, with swelling of the foot from edema and diapedesis of red cells. This results in devitalization of the skin and the favoring of infectious processes, and may extend to actual gangrene.

It is evident that much work is needed to clarify the problem. We venture this preliminary report because of the importance of the facts shown, and because we are convinced that potassium iodid is a most important addition to the treatment of trench foot, for the prompt alleviation of pain, if for no other reason. We anticipate that the first reaction on the part of every one who has seen a trench foot or who is familiar with the prophylactic treatment in use will be one of amusement. We ask only that our results be controlled — blood pressure estimations are simple, potassium iodid is a harmless drug — before the reader starts to sharpen the barbs of the arrow of criticism.

In normal persons lying horizontally, blood pressure in the arm and leg is practically equal. On assuming the standing posture, blood pressure in the arteries of the lower extremity rises in exact proportion to the weight of the hydrostatic column of blood. This increase is approximately 2 mm. for each inch.

In many cases of aortic insufficiency, especially in those in whom compensation is good, the leg pressure definitely exceeds the arm pressure, even in recumbency. So far as we are aware, this is the only condition heretofore known in which such a pressure difference is commonly if not constantly present.

Our readings were made with two different types of aneroid sphygmomanometer. They were made with the patient recumbent and relaxed, first on the leg and then on the arm. The usual clinical precautions were taken to eliminate avoidable errors. The auscultatory method was used, the systolic pressure being read at the first regular appearance of sound, and the fifth phase being chosen as the diastolic criterion. The fifth phase rather than the fourth was chosen, owing to the difficulty of identifying the onset of the fourth phase in an artery so small, and accessible to the stethoscope with so much difficulty, as the posterior tibial. In a few cases readings had to be made from the dorsalis pedis, owing to the topography of the posterior tibial artery. We attach far less weight to our diastolic readings in the leg, as some of them were obtained with difficulty and occasionally uncertainty. The systolic readings, however, we believe to be clinically accurate.

Clinical and experimental investigation has shown that the iodids exert no direct action on blood pressure. Although frequently prescribed in cases of arterial hypertension, they are beneficial chiefly in syphilitic persons, and even in these, their action is indirect, and their blood pressure lowering effect slight.

The number of cases of trench foot in which we have made blood pressure estimations to date is fifty-three. Pressures were also taken on eight other persons not suffering with trench foot, these to be used as controls.

With but one exception, an inequality of the leg and arm pressure was found in the fifty-three cases of trench foot, consisting in a very definite increase of the leg over the arm pressure. In the one exception the arm pressure exceeded the leg pressure, after forty-eight hours reverting to the condition found in the other fifty-two cases. In the eight cases used as controls, the pressure was found equal in the arm and leg.

The leg pressure was also found increased in direct proportion to the severity of the case.

As the patient's condition improved, the pressure was found to drop, or in some instances, few in number, the arm pressure would rise, and by the time the patient had recovered, the arm and leg pressure had become equal; thirteen cases so far have been observed which show this phenomenon. These thirteen cases, together with the eight that had other conditions, justify the conclusion that the differences observed in trench foot cannot be ascribed to some technical fault in our blood pressure readings. The differences in arm and leg pressures are as follows: the maximum, 30 mm.; the medium, from 15 to 20 mm.; the minimum, from 8 to 10 mm. In thirty-one cases, potassium iodid in 20 grain doses three times daily was given, with the result that there was a decided relief of pain in twenty-four hours after the first dose had been given. There was also coincidently with the relief of pain in many of the cases a fall of pressure, an average drop of the leg pressure of from 10 to 15 mm.

In all of the thirty-one cases the potassium iodid was withheld for twenty-four hours on three occasions. The complaint from the patient, the following morning, was increased pain and insomnia. In some cases the dose of potassium iodid was increased to 30 grains three times daily, as 20 grains did not seem sufficient to control the pain.

We have not used sodium bromid, Dover's powder, morphin sulphate or any other form of hypnotic in twenty-nine out of the thirty-one cases. The potassium iodid seemed more beneficial in the relief of pain than any of the above mentioned drugs. The two remaining patients were given 5 grains each of Dover's powder at night for four consecutive nights. Both of these patients were severely affected; one had a gangrenous degeneration of the small toe and the other case marked discoloration and blisters of both feet. One of the twenty-nine cases in which potassium iodid alone was given was also a severe type with marked discoloration and blebs of both feet. The potassium iodid was sufficient in this case to control the pain.

It must not be understood that the relief from pain is absolute, but we feel thoroughly convinced from comparing the causes treated with potassium iodid with others treated by the ordinary methods that the relief is greater in the cases in which the potassium iodid alone has been given, and that the duration of the attack is markedly shortened.

The only other treatment used in these cases has been hot water bottles to the soles, boric powder dusted on the feet, and flannel bandages.

### REPORT OF CASES

Case 1.—Private Riley, aged 20, trench foot, severe; blood pressure, systolic and diastolic: leg, 158, 80; arm, 132, 62.

Case 2.—Private Donin, aged 27, trench foot, moderate; blood pressure: leg, 145, 90; arm, 126, 65.

Case 3.—Private McVoy, aged 35 trench foot, well; blood pressure: leg, 142, 70; arm, 138, 40.

Case 4.—Sergeant Rhoades, aged 26, trench foot, slight numbness; blood pressure: leg, 125, 60; arm, 123, 65.

Case 5.—Private Berry, aged 27, trench foot, well; blood pressure: leg, 130, 65; arm, 130, 70.

Case 6.—Private Houghton, aged 21, trench foot, moderate; blood pressure: leg, 132, 80; arm, 105, 50.

Case 7.—Private Grieves, aged 26, trench foot, very severe; blood pressure: leg, 160. 90; arm, 120, 85; Captain K's service.

Case 8.—Private Sawton, aged 23, trench foot, severe; blood pressure: leg, 165, 90; arm, 120, 85; Captain K's service.

Case 9.—Private English, aged 23, trench foot, severe; blood pressure: leg, 150, 85; arm, 120, 70.

Case 10.—Private Danks, aged 24, trench foot and pyrexia of unknown origin, mild; blood pressure: leg, 130, 80; arm, 115, 75.

Case 11.—Private Lang, aged 19, trench foot, mild; blood pressure: leg, 130, 80; arm, 125, 60.

Case 12.—Private Partridge, aged 23, trench foot, severe; blood pressure: leg, 152, 90; arm, 120, 80.

Case 13.—Private Coates, aged 31, trench foot, moderately severe; blood pressure: leg, 122, 85; arm, 105, 55.

Case 14.—Private Cain, aged 19, trench foot, slight; blood pressure: leg, 120, 70; arm, 120, 60.

Case 15.—Private Cartright, aged 26, trench foot, severe; blood pressure: leg, 148, 80; arm, 130, 80.

Case 16.—Private Goodleman, aged 29, trench foot, moderately severe; blood pressure: leg, 142, 80; arm, 115, 60.

Case 17.—Private Walters, aged 27, trench foot, moderately severe; blood pressure: leg, 142, 80; arm, 110, 60.

Case 18.—Private Smith, aged 22, trench foot, moderately severe; blood pressure: leg, 120, 70; arm, 110, 60.

Case 19.—Private Porter, aged 26, trench foot, well; blood pressure: leg, 110, 60; arm, 110, 60.

Case 20.—Private Fielding, aged 31, trench foot, moderately severe; blood pressure: leg, 140, 80; arm, 105, 60.

Case 21.—Private Lewis, aged 22, trench foot, mild; blood pressure: leg, 110, 60; arm, 100, 70.

Case 22.—Private Cornwell, aged 27, trench foot, mild; blood pressure: leg, 130, 70; arm, 120, 55.

Case 23.—Private Huckins, aged 23, trench foot, moderately severe; blood pressure: leg, 130, 60; arm, 125, 58.

Case 24.—Private McMann, aged 20, trench foot, mild; blood pressure: leg, 130, 80; arm, 120, 70.

Case 25.—Private Chambers, aged 24, trench foot, mild; blood pressure: leg, 138, 80; arm, 128, 70.

Case 26.—Private Jackson, aged 24, trench foot, well; blood pressure: leg, 120, 65; arm, 120, 63.

Case 27.—Private Porter, aged 24, trench foot, well; blood pressure: leg, 130, 80; arm, 126, 70.

Case 28.—Private Lovett, aged 23, trench foot, well; blood pressure: leg, 130, 70; arm, 130, 70.

Case 29.—Private Jenkins, aged 25, trench foot. Dec. 8, 1917, moderately severe; blood pressure: leg, 130, 80; arm, 105, 70.

Case 30.—Private Allford, aged 25, trench foot. Nov. 7, 1917, mild; blood pressure: leg, 140, 78; arm, 138, 75. November 9, better; blood pressure: leg, 135, 80; arm, 130, 75.

Case 31.—Private Potter, aged 20, trench foot. Nov. 7, 1917, mild; blood pressure: leg, 132, 80; arm, 130, 80. November 9, worse; blood pressure: leg, 138, 90; arm, 118, 70. November 14 better; blood pressure: leg, 120, 75; arm, 108, 68.

Case 32.—Private Martine, aged 20, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 130, 80; arm, 115, 70. November 14, same; blood pressure: leg, 135, 85; arm, 115, 80. November 16, potassium iodid, twenty-four hours; no pain; blood pressure: leg, 135, 70; arm, 120, 65.

Case 33.—Private Patterson, aged 21, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 120, 84; arm, 112, 60. November 9, worse; blood pressure: leg, 130, 85; arm, 120, 65. November 14, potassium iodid, twenty-four hours; improved; blood pressure: leg, 108, 80; arm, 110, 60.

Case 34.—Private Wells, aged 26, trench foot. Nov. 7, 1917, severe; blood pressure: leg, 152, 90; arm, 120, 80. November 9, improved; blood pressure: leg, 143, 70; arm, 120, 65. November 10, same; blood pressure: leg, 143, 90; arm, 128, 75.

Case 35.—Private Snowden, aged 23, trench foot. Nov. 7, 1917, moderate; blood pressure: leg, 130, 75; arm, 115, 60. November 9, greatly improved; blood pressure: leg, 122, 75; arm, 108, 75. November 14, much better; up; blood pressure: leg, 110, 60; arm, 110, 70.

Case 36.—Private Lincoln, aged 26, trench foot. Nov. 7, 1917, moderate; blood pressure: leg, 122, 60; arm, 108, 60. November 14, better; blood pressure: leg, 125, 70; arm, 110, 70. November 23, well; potassium iodid, four days; blood pressure: leg, 130, 80; arm, 130, 80.

Case 37.—Private Moorhead, aged 25, trench foot. Nov. 18, 1917, severe; potassium iodid; moderate; blood pressure: leg, 130, 80; arm, 98, 50. November 20, better (T. B.); blood pressure: leg, 115, 70; arm, 115, 30.

Case 38.—Private Fuller, aged 27, trench foot. Nov. 18, 1917, mild; potassium iodid; blood pressure: leg, 110, 80; arm, 100, 60. November 20, well; blood pressure: leg, 110, 80; arm, 112, 80.

Case 39.—Private Lambert, aged 30, trench foot. Nov. 18, 1917, moderately severe; potassium iodid; blood pressure: leg, 140, 80; arm, 130, 70. November 19, pain less; blood pressure: leg, 130, 95; arm, 128, 80.

Case 40.—Private Gittings, aged 25, trench foot. Nov. 18, 1917. moderately severe; potassium iodid; blood pressure: leg, 125, 65; arm, 100. 70. November 20, better; blood pressure: leg, 118, 60; arm, 98, 50.

Case 41.—Private Ray, aged 26, trench foot. Nov. 19, 1917, moderately severe; blood pressure: leg, 130, 90; arm, 100, 60. November 23, better; potassium iodid, twenty-four hours; blood pressure: leg, 128, 80; arm, 110, 65.

Case 42.—Private Fielding, aged 23, trench foot. Nov. 20, 1917, moderately severe; potassium iodid; blood pressure: leg, 140, 80; arm. 105, 60. November 30, great improvement; blood pressure: leg, 125, 80; arm, 120, 80.

Case 43.—Private Carter, aged 25, trench foot. Nov. 18, 1917, moderately severe; potassium iodid; blood pressure: leg, 160, 100; arm, 130, 75. November 19, less pain; blood pressure: leg, 150, 100; arm, 130, 70. November 20, same; blood pressure: leg, 150, 100; arm, 128, 70. November 27, worse; increased potassium iodid; pyrexia of unknown origin; complications; blood pressure: leg, 157, 90; arm, 140, 80. December 2, better; blood pressure: leg, 135, 80; arm, 130, 70.

Case 44.—Private Gee, aged 26, trench foot. Nov. 18, 1917, mild; potassium iodid; blood pressure: leg, 120, 80; arm, 115, 65. November 21, well; blood pressure: leg, 100, 50; arm, 100, 50. November 24, cough and pyrexia of unknown origin; complications; blood pressure: leg, 110, 60; arm, 110, 60. November 27, fever; pyrexia of unknown origin; increased pain in ankle; blood pressure: leg, 125, 80; arm, 118, 80. December 3, worse; England; blood pressure: leg, 125, 90; arm, 116, 80.

Case 45.—Patient Collier, aged 29, trench foot. Nov. 7, 1917, mild; blood pressure: leg, 138, 80; arm, 118, 62. November 9, pain more pronounced; blood pressure: leg, 138, 80; arm, 125, 60. November 10, pain greatly increased; blood pressure: leg, 155, 95; arm, 128, 65. November 16, potassium iodid, twenty-four hours; intense headache; nausea; vomiting; blood pressure: leg, 180, 90; arm, 180, 80. Urine examination, trace of albumin; otherwise negative; England.

Case 46.—Private Martin, aged 26, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 140, 90; arm, 128, 80. November 9, pain more severe; blood pressure: leg, 151, 85; arm, 138, 85. November 10, nitroglycerin, 1/100 grain; same; blood pressure: leg, 150, 85; arm, 128, 85. November 11, nitroglycerin, 1/50 grain; blood pressure: leg, 150, 90; arm, 118, 75. November 14, better; blood pressure: leg, 140, 90; arm, 120, 80. November 16, potassium iodid, twenty-four hours; blood pressure: leg, 140, 80; arm, 130, 80.

November 19, up; no pain; blood pressure: leg, 132, 60; arm, 132, 70.

Case 47.—Private Dove, aged 25, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 135, 65; arm, 120, 60. November 9, better; blood pressure: leg, 100, 30; arm, 90, 50. November 14, same; blood pressure: leg, 110, 80; arm, 100, 50. November 16, potassium iodid, twenty-four hours; no pain; blood pressure: leg, 125, 65; arm, 122, 60. November 19, no pain; up; blood pressure: leg, 110, 65; arm, 110, 60. November 23, well; up; blood pressure: leg, 110, 60; arm, 110, 60.

Case 48.—Private Dawson, aged 22, trench foot. Nov. 7, 1917, severe; blood pressure: leg, 150, 80; arm, 125, 65. November 9, worse; more pain; blood pressure: leg, 150, 90; arm, 125, 65. November 14, much better; blood pressure: leg, 138, 60; arm, 130, 70. November 16, potassium iodid, twenty-four hours; no pain; blood pressure: leg, 130, 80; arm, 130, 80. November 19, slight pain in legs; up; blood pressure: leg, 140, 80; arm, 140, 80. November 23, some stiffness in ankle; blood pressure: leg, 120, 80; arm, 130, 70.

Case 49.—Private Brownhall, aged 20, trench foot. Nov. 7, 1917, severe; blood pressure: leg, 150, 80; arm, 120, 60. November 9, improved; potassium iodid; blood pressure: leg, 140, 90; arm, 120, 60. November 14, better; blood pressure: leg, 120, 80; arm, 110, 70. November 16, better; blood pressure: leg, 123, 70; arm, 122, 70. November 19, no pain; up; blood pressure: leg, 130, 80; arm, 130, 70.

Case 50.—Private Watson, aged 23, trench foot. Nov. 18, 1917, severe; potassium iodid; blood pressure: leg, 140, 80; arm, 138, 70. November 20, better; blood pressure: leg, 140, 70; arm, 128, 60. November 24, potassium iodid increased; gangrene worse; blood pressure: leg, 170, 100; arm, 138, 70. December 1, better; blood pressure: leg, 158, 100; arm, 120, 70. December 2, better; thyroid extract, 5 grains; blood pressure: leg, 170, 110; arm, 130, 80. December 3, better; up; blood pressure: leg, 150, 110; arm, 130, 80. December 10, gangrene improved; walking; blood pressure: leg, 150, 90; arm, 135, 80.

Case 51.—Private Shatwell, aged 20, trench foot. Nov. 18, 1917, severe; potassium iodid; blood pressure: leg, 100, 50; arm, 80, 40. November 24, worse; blood pressure: leg, 160, 80; arm, 120, 60. November 27, better; blood pressure: leg, 145, 100; arm, 120, 69. December 1, potassium iodid stopped; better; blood pressure: leg, 138, 90; arm, 110, 60. December 3, thyroid extract, twenty-four hours; no pain; blood pressure: leg, 140, 100; arm, 117, 65. December 10, no pain; walking; blood pressure: leg, 120, 70; arm, 120, 70. December 11, walking; shoes; blood pressure: leg, 120, 70; arm, 120, 80.

Case 52.—Private Cain, aged 19, trench foot. Nov. 18, 1917, severe; potassium iodid; blood pressure: leg, 130, 50; arm, 150, 70. November 19, pain better; blood pressure: leg, 145, 90; arm, 150, 70. November 20, better; blood pressure: leg, 152, 100; arm, 150, 80. November 23, better; blood pressure: leg, 150, 100; arm, 138, 80. November 24, better; blood pressure: leg, 148, 100; arm, 130, 70. November 27, improved: thyroid extract; blood pressure: leg, 150, 95; arm, 130, 65. December 1, better; blood pressure: leg, 135, 90; arm, 120, 60. December 2, improving; blood pressure: leg, 128, 80; arm, 130, 50. December 3, sleeping all night; up; blood pressure: leg, 125, 90; arm, 127, 60.

Case 53.—Private Dunning, aged 26, trench foot. Nov. 20, 1917, moderately severe; potassium iodid; blood pressure: leg, 140, 85; arm, 110, 65. November 26, same; blood pressure: leg, 130, 70; arm, 100, 60. December 1, less pain; blood pressure: leg, 138, 80; arm, 100, 50. December 2, better; thyroid extract, 2 ds.; blood pressure: leg, 128, 80; arm, 110, 70. December 3, better; blood pressure: leg, 110, 80; arm, 98, 60. December 7, up walking; blood pressure: leg, 110, 75; arm, 105, 70.

CONTROLS

Case 54.—Private Jones, aged 27, myalgia. November 7, 1917, blood pressure: leg, 148, 80; arm, 148, 80.

Case 55.—Private Mitcham, aged 25, gunshot wound; spinal cord paralysis. Nov. 7, 1917, blood pressure: leg, 80, 42; arm, 80, 42.

Case 56.—Private Isted, aged 27, arthritis; blood pressure: leg, 135, 75; arm, 132, 75.

Case 57.—Private Horth, aged 24, neurasthenia; shell shock; blood pressure: leg, 110, 80; arm, 112, 68.

Case 58.—Private Brown, aged 26, phthisis; blood pressure: leg, 130, 70; arm, 130, 70.

Case 59.—Private Holmes, aged 23, gunshot wound of leg; blood pressure: leg, 120, 70; arm, 120, 70.

Case 60.—Private Cooper, aged 27, Raynaud's disease. November 27, 1917, affecting feet; blood pressure: leg, 145, 80; arm, 130, 80. November 30, no attack; blood pressure: leg, 130, 80; arm, 130, 80.

Case 61.—Private Newton, aged 23, dermatitis exfoliativa of feet and leg; blood pressure: leg, 128, 80; arm, 128, 80.

# EPIDEMIC CEREBROSPINAL MENINGITIS AT CAMP McCLELLAN

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The preliminary report by Major Herrick[1] on the epidemic of meningitis at Camp Jackson calls attention to the incorrectness of the generally accepted view that epidemic cerebrospinal meningitis is primarily a meningitis. His view, that it is a secondary involvement of the meninges, appears to be the correct conception, and it is my purpose here to emphasize, from observations made at Camp McClellan, the importance of his conclusions.

As far as is known, all meningitis, exclusive of traumatic meningitis and brain abscess, is secondary to hematogenous infection. This is common knowledge with regard to tuberculous, pneumococcic, streptococcic, staphylococcic, influenzal, typhoidal and anthrax meningitis. That meningococcic meningitis should also fall into this class is but a logical deduction because of the fact that blood cultures are often positive early in the disease, while later they are very rarely positive. It is probable that if seen early enough, all cases of meningococcic meningitis would give positive blood cultures.

A point of interest relative to the increase of carriers among the soldiers here in camp has been noted. In the month of November and December, from 3 to 6 per cent. of carriers were found. During the month of January, this has risen to from 12 to 20 per cent. in about 3,000 cultures made. While there has been this large increase of carriers, there has been no appearance of an epidemic, although there has been an increase of sporadic cases. In only one instance has more than one case of meningitis developed in one company, while from some of the companies as high as forty carriers have been found. Though it has not been possible to follow up accurately, it has been noted that there has been an epidemic of sore throats synchronous with the increase of the numbers of carriers. In at least half a dozen cases it has been observed that men with severe pharyngitis showed on culture large numbers of meningococci, and that on the pharyngitis clearing up they quickly became free from the organisms. In other words, it is probable that the initial meningococcic infection is a nasopharyngitis, which may be mild or severe in character. It is likely that, just as in streptococcic throat infections, the large majority remain local infections, while a few develop systemic infections. And it is likely that the cases of meningeal infection arise from these. It may also be true that not all cases that develop hematogenous infection develop meningitis, just as not all cases of pneumococcic systemic infection develop infection of the meninges.

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[1] Herrick, W. W.: The Epidemic of Meningitis at Camp Jackson, The Journal A. M. A., Jan. 26, 1918, p. 227.

Cultures of the nasopharynx of the cases of meningitis treated at the base hospital at Camp McClellan have shown that some harbor the meningococcus in their throats and that others do not. The fact that in some cases the meningococcus could not be recovered from the throat lends support to the belief that the original infection was a sore throat which cleared up before the meningitis developed. Two cases having a direct bearing on this point have been observed at the hospital. Both patients had an acute pharyngitis from which cultures were made for diphtheria. No diphtheria bacilli were found on culture, but it was noted at the time that there was a large predominence of gram negative diplococci. At the time not a great deal of attention was paid to this observation. The throat condition cleared up, and a few days later both patients developed meningococcic meningitis, as was proved by the laboratory findings. These two cases emphasize the point that the probable primary focus of infection was the acute pharyngitis, which cleared up before the meningeal involvement occurred. It also lends support to the early use of antimeningococcic serum early in the disease, as suggested by Major Herrick.

It is probable that the study of the meningococcus carriers will develop facts now known with regard to diphtheria carriers — that there are temporary and also chronic carriers. This has been noticed in the work done here. It has also developed that it is difficult to free the meningococcus carriers from meningococci, just as it is hard to free the diphtheria carriers. From an epidemiologic point of view, it is essential to have these chronic carriers placed in quarantine and kept there until they are entirely free from meningococci. To isolate these carriers effectually, cultures of the whole command should be made carefully and systematically, regardless of whether or not there is any meningitis in camp; for, once the carriers are removed, the danger of having an epidemic is over.

As it is definitely known that meningococcus infection spreads by contact, there are four classes of men in the Army of whom cultures should be systematically made at least once every two weeks:

1. Those coming in direct contact with known cases of meningitis, that is, ward surgeons, nurses and orderlies.

2. All oral, nose and throat surgeons, because of their intimate dealings with the tissues that harbor the organism.

3. Dental surgeons, because of their proximity to the patient in doing their work.

4. All anesthetists, for the same reason as that which obtains for the dental surgeons.

The reasons for such cultures are twofold: First, to prevent the spread of the meningococcus from one patient to another, and, second, to protect the individual personally. It is also suggested that all of the foregoing persons be required to spray the nose and throat with a suitable disinfectant to prevent their becoming harborers of the meningococcus.

# *New and Nonofficial Remedies*

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

**BARBITAL.**—Diethyl-barbituric Acid.—Acidum Diaethyl-Barbituricum.—Diethyl Malonyl Urea.—Malo-Urea.—2, 4, 6-trioxy-5-diethyl pyrimidin, $CO(NH-CO)_2C(C_2H_5)_2$.

*Actions, Uses, Dosage, Physical and Chemical Properties.*—The same as those of veronal (see New and Nonofficial Remedies, 1917, p. 86).

**Barbital-Abbott.**—A brand of barbital complying with the N. N. R. standards.

Manufactured by the Abbott Laboratories, Chicago, under U. S. patent No. 782,739 (Feb. 14, 1905; expires 1922) by license of the U. S. Federal Trade Commission.

**MERCURIC BENZOATE.**—Hydrargyri Benzoas.—Hydrargyrum Benzoicum. — $Hg(C_6H_5COO)_2+H_2O$. — The mercuric salt of benzoic acid.

*Actions, Uses, Dosage, Physical and Chemical Properties.*—See New and Nonofficial Remedies, 1917, p. 188.

**Mercury Benzoate-Merck.**—A brand of mercuric benzoate.

Manufactured by Merck and Company, New York. No. U. S. patent or trademark.

**CHLORCOSANE.**—A liquid obtained by chlorinating solid paraffin. It contains about 50 per cent. of chlorine in stable combination.

*Actions and Uses.*—Chlorcosane is used as a solvent for dichloramine-T. With it solutions containing up to 8 per cent. may be prepared.

Manufactured by the Abbott Laboratories, Chicago. No U. S. patent or trademark.

Chlorcosane is prepared according to the process of H. D. Dakin: paraffin, having a melting point of 50 C. or higher, is melted and, while the liquid is maintained at a temperature between 125 and 140 C., chlorine is passed in until the weight of the paraffin has increased from 45 to 55 per cent. The resulting liquid, while still warm, is agitated with 5 per cent. of its weight of dry sodium carbonate and filtered.

Chlorcosane is a yellowish, oily liquid, odorless, tasteless and neutral to litmus. Its specific gravity is 1 to 1.04 at 15 C.

The chlorine of chlorcosane is not readily removed by treatment with boiling solutions of alkalies and does not react with metallic magnesium suspended in ether. When heated with soda lime to 250 C. unsaturated hydrocarbons and a small proportion of fatty acid are produced. When chlorcosane is boiled with anilin, most of its chlorine is removed.

**BETANAPHTHYL SALICYLATE.—Betanaphtholis Salicylas.**—$C_6H_4.OH.CO.O.(C_{10}H_7)$.—The salicylic acid ester of betanaphthol.

*Actions, Uses, Dosage, Physical and Chemical Properties.*—See New and Nonofficial Remedies, 1917, p. 198.

**Betanaphthyl Salicylate (Calco).**—A brand of betanaphthyl salicylate.

Manufactured by the Calco Chemical Company, Bound Brook, N. J. No U. S. patent or trademark.

**ACETYLSALICYLIC ACID** (See N. N. R., 1917, p. 265).

**Acetylsalicylic Acid-Merck.**—A non-proprietary brand complying with the standards for acetylsalicylic acid.

Manufactured by Merck & Co., New York.

**CHLORAZENE** (See New and Nonofficial Remedies, 1917, p. 140).

The following dosage form has been accepted:

**Chlorazene Surgical Powder.**—An impalpable powder composed of chlorazene 1 per cent., zinc stearate 10 per cent. and sodium stearate 89 per cent.

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**Support the Modern Physician.**—We have a science of hygiene, but we live by the health code of the middle ages. The enlightened physician of today would broaden his field of individual "cure;" would give skilled service in the common interest for the common good; would prevent, not cure; would substitute health for sickness, vigor for weakness. Is he supported even by the intelligent?—Oscar Dowling.

THE JOURNAL OF THE
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SATURDAY, FEBRUARY 16, 1918

Last week a blue slip was inserted in The Journal for dues and subscription. In the same issue we stated that by inserting this slip we were again trying to save the expense of sending out bills, that a good percentage had already responded to a former similar notice, and that this slip was inserted with the hope that many more would remit without waiting for the usual individual bill. We emphasize again that those who have already remitted should disregard the slip.

## INFECTION WITH THE ROUNDWORM ASCARIS

The usually accepted conception of the origin of ascariasis, or eelworm infection, in man and the pig attributes it to ingestion of the egg of the parasite *Ascaris lumbricoides*. Stiles[1] stated ten years ago that the eggs escape in the feces, and slowly (in from one to several months, according to conditions) develop embryos. No intermediate host is believed to be required, at least for *Ascaris lumbricoides* or the canine eelworm *Toxocara canis*, as it is in the case of certain other well known zooparasitic infections. It was maintained that when the developed eggs are swallowed, either in contaminated food or in water, or from hands soiled with dirt containing the eggs, the embryo develops directly to the adult stage. Drinking water and fruits, especially, are blamed for carrying the parasite to man. Stiles states that he has bred common house-flies in a dish containing eggs of the eelworm of hogs, a parasite closely allied to that of man, and later found the eggs in the intestine of the adult flies. According to Stiles, therefore, it would seem that flies, by breeding in privies, might act as disseminators of the lumbricoid worm in man.

In a series of notable papers on the life history of *Ascaris lumbricoides,* the common intestinal roundworm of man, and the closely related if not identical parasites (*A. suum* or *A. suilla*) occurring in the intestine of pigs, Capt. F. H. Stewart[2] of the Indian Medical Service has come to a conclusion somewhat at variance with current opinion. He failed in his attempts to infect pigs, but found that if rats or mice were fed *Ascaris* eggs, the eggs hatched in the alimentary tract, and the embryos migrated to the liver, spleen and lungs. In the course of their migrations they increased in size and passed through certain developmental changes, many of them finally reaching the alimentary tract again by way of the lungs, trachea and esophagus. The young worms that succeeded in regaining the alimentary tract did not continue their development, and soon passed out of the body in the feces, so that rats or mice surviving the pneumonia commonly caused by the invasion of the lungs became free of the parasite as early as the sixteenth day after infection. Stewart concluded that it is necessary in the life cycle for the eggs to be swallowed by rats or mice, and that in these animals the embryos hatching from the eggs undergo certain migrations and developmental changes, after which they may be transferred in the feces or saliva of the rats or mice to food or other materials likely to be ingested by human beings or pigs, and thus ultimately reach their final hosts.

The importance of an accurate understanding of the mode of infection with *Ascaris* is obvious. It is one of the most common parasites of man, and may occur at any age. In an examination of more than 3,000 persons, Stiles found *Ascaris* in about 0.5 per cent. A repetition of the essential features of Stewart's work has been undertaken in the Bureau of Animal Industry at Washington by Ransom and Foster.[3] They too find that the development of *A. lumbricoides* and closely related forms is direct, and that no intermediate host is required. The eggs, when swallowed, hatch out in the alimentary tract; the embryos, however, do not at once settle down in the intestine, but migrate to various other organs, including the liver, spleen and lungs. Within a week, in the case of the pig *Ascaris,* the migrating larvae may be found in the lungs, and have meanwhile undergone considerable development and growth. From the lungs the larvae migrate up the trachea and into the esophagus by way of the pharynx, and this migration up the trachea may already become established in pigs, as well as in artificially infected rats and mice, as early as a week after infection. On reaching the alimentary tract a second time after their passage through the lungs, the larvae, if in a suitable host, presumably settle down in the intestine and complete their development to maturity; if in an unsuitable host, such as rats and mice, they soon pass out of the body in the feces. Heavy invasions of the lungs by the larvae of *Ascaris* produce a serious pneumonia which is frequently fatal in rats and mice, and apparently caused the death of a young pig one week after it had been fed with numerous *Ascaris* eggs.

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[1] Stiles, C. W.: Osler's Modern Medicine, 1907, **1**, 597.

[2] Stewart, F. H.: On the Life-History of Ascaris Lumbricoides, Brit. Med. Jour., 1916, **2**, 5; The Life-History of Ascaris Lumbricoides, ibid., p. 474; Further Experiments on Ascaris Infection, ibid., p. 486; On the Life-History of Ascaris Lumbricoides, ibid., p. 753; On the Development of Ascaris Lumbricoides Lin. and Ascaris Suilla Duj. in the Rat and Mouse, Parasitology, 1917, **9**, 213.

[3] Ransom, B. H., and Foster, W. D.: Life History of Ascaris Lumbricoides and Related Forms, Jour. Agric. Research, 1917, **11**, 395.

Ransom and Foster venture to believe, further, that ascarids are frequently responsible for lung troubles in children, pigs and other young animals. The fact that the larvae invade the lungs as well as other organs beyond the alimentary tract and can cause a serious or even fatal pneumonia indicates that these parasites are endowed with greater capacity for harm than has heretofore been supposed.

The relative greater frequency of *Ascaris* infection in childhood and youth is well known. The susceptibility greatly decreases as the host becomes older, so that in adult man the infection is comparatively much rarer.

## THE CAUSE OF DEATH

The dictionary defines death as the cessation of all vital phenomena without capability of resuscitation. It is a manifestation in which every physician is inevitably interested, because he is frequently brought face to face with its seemingly invincible character; yet one will search the textbooks of medicine and physiology in vain to find an exposition of the precise and immediate cause of death. It has often been remarked, let us admit, that in ultimate analysis life has only two legs to stand on, namely, the heart and the lungs. This applies as well to the body as a whole, which demands appropriate circulation and ventilation of its blood to permit the continuance of its functions. But the scientific mind demands a more profound answer to the question of death. What sort of biologic change determines the cessation of the heart beat? What local alterations in the tissues occasion the omission of those nervous impulses that emanate from the respiratory center and control the indispensable act of breathing?

Perhaps we shall not go far astray if we seek the essential feature characterizing the death of the body as a whole in a single factor, the death of the respiratory center. The reason for giving preeminence to this seemingly small and restricted area is now patent to students of physiology. No tissue of the body is so sensitive to lack of oxygen as is the nervous tissue. The muscles can survive the effects of a deficient circulation and consequent impaired tissue respiration for hours and perhaps days. Even the excised heart that has ceased to contract for some time may be made to resume its rhythmic muscular performance on restoration of a suitable perfusion fluid, which need not even be blood. Not so with the nervous system, of which the respiratory center is a part. At best it can survive the lack of oxygen for only a few minutes before an irreversible failure of function sets in. The outcome is fatal; recovery is impossible. Asphyxiated nerve cells have lost the power of recuperation forever.

A recent investigator of the immediate cause of death, Dr. Whitney[1] of the Department of Medicine at the University of California, has pointed out, in emphasizing the primal importance of the respiratory center, that although respiration fails in the great majority of cases many minutes before the heart stops beating, this is not invariably the precise sequence. In certain cases, as he reminds us, circulatory conditions may be the primary cause of death, with failure of the respiration following immediately from lack of blood supply to the center. Thus, trauma to the heart, ventricular fibrillation, and perhaps other abnormalities of the heart-beat mechanisms may bring death, as well as peripheral causes.

Without considering the primary failure in blood supply to the respiratory center, the obvious lack of oxygen in various types of asphyxia, or an actual trauma of the center through mechanical injury, we may still ask, How is the failure of respiration brought about? It is natural to think of the result as due to some poison acting on the respiratory center. Drugs are known to stimulate or depress it. May not the genesis of unusual substances or the abnormal abundance of normal cell constituents be the decisive factor in permanently inhibiting this vital tissue? The accumulation of subtle poisons in the body in certain morbid states has often been postulated. Whitney[1] has given a more concrete trend to this belief by associating the moment of death with a very marked acidosis.

The effect of acids on the respiratory mechanism has formed the theme of numerous investigations in recent years, and the interrelations concerned have repeatedly been reviewed in The Journal.[2] The mechanism for the regulation of the acid-base equilibrium is usually so efficient that a rise in hydrogen ion concentration in the blood—an effective stimulus to the respiratory center—is rarely more than a transitory phenomenon. When acidosis becomes far more marked, however, owing to a failure in elimination of acid radicals or an undue production of them, the compensatory mechanism may ultimately break down. The primary stimulating effect of a certain degree of acidity ends in the paralysis produced by a higher concentration. The parallel between the symptoms of death in experimental acidosis, brought about by greatly increasing the hydrogen ion content of the blood, and in many clinical cases, has been drawn by Whitney. As death approaches, the breathing becomes more rapid and deeper, until dyspnea is violent; then rather suddenly there follows a break into a gasping, irregular respiration, less and less effective in keeping down the rapidly mounting carbon dioxid of the blood, and eventually respiratory paralysis.

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[1] Whitney, J. L.: Studies on Acidosis, Arch. Int. Med., December, 1917, p. 931.

[2] Responses of the Respiratory Center, editorial, The Journal A. M. A., Dec. 11, 1915, p. 2089; Alveolar Air and Acidosis, March 18, 1916, p. 896; The Estimation of Acidosis Under Clinical Conditions, May 5, 1917, p. 1327; The Newer Conception of Acidosis, Aug. 25, 1917, p. 646; Carbon Dioxid and the Regulation of Respiration, Sept. 1, 1917, p. 735.

It remains to be ascertained whether in cases of natural death there actually occurs an acidosis measurable in amount and comparable with what is necessary to evoke the similar symptoms of experimental acidosis. According to Whitney's studies, this need no longer be debated. An accurate examination of the blood carbonates by Van Slyke's method in many persons at the time of death showed that in a large number of instances an acidosis of such marked degree was present that it may well have caused the death. Since however, this was not invariably the case, it must be concluded that other toxic factors as well as acidity may operate to stop life. Among the group that failed to evince a fatal acidosis are included certain obscure toxemias seen with intestinal obstruction, malignant tumors, and pernicious anemia. Infections, on the other hand, seem to have a marked influence in causing acidosis. Perhaps this will explain the fact, so familiar to the clinician, that death does not attend many severe chronic cases, including kidney incompetence, circulatory failure and malignant conditions, until a so-called terminal infection sets in. As Whitney explains it, perhaps these abnormalities cannot unaided furnish the toxin that is necessary to paralyze the respiratory center; this poison must be furnished in the majority of cases by an infection for which the underlying chronic process has prepared a favorable soil. An excess of acid then arises; hence the fatal end.

## PTOMAIN POISONING VERSUS FOOD-BORNE INFECTIONS

The decline in popularity of the expression "ptomain poisoning" is a happy omen. It represents a transition, gradual though it may be, from a poorly supported hypothesis as to the etiology of a state of disease to more concrete and more readily verified conceptions. As we review the evidence from our present position, gained by the advances of scientific investigation and an unrelentingly critical attitude, the suggestion of a close connection between the products of bacterial decomposition in tissues and the occasional outbreak of gastro-intestinal upsets in man is no longer so compelling. In the first place, the majority of the basic derivatives found in mediums in which bacteria are growing have proved not to be highly poisonous. These "ptomains" are for the most part amins formed from the amino-acids that are yielded by the proteins of disintegrating tissues. As they were among the first of the products of bacterial change in nitrogenous mediums to be recognized and dealt with by the chemist, it is not surprising that attention was centered on them as holding out the prospect of something definite in the explanation of the obscure intoxications following food ingestion. Often their actual existence has been postulated rather than demonstrated. Many an item of food has undoubtedly been unjustly charged in the past with containing unknown or undiscovered products of bacterial spoiling.

In the second place, in his vice presidential address on food-borne infections before the American Association for the Advancement of Science at the Pittsburgh meeting last December, Jordan[1] of the University of Chicago pointed out that ptomains are formed in the later stages of protein decomposition. He contends that by the time they are present, food containing ptomains would without much doubt almost invariably be condemned by the senses as nauesating and unfit to eat. But, as Jordan especially suggests, other and more tenable explanations can now be advanced to explain the genesis of food poisoning. Those outbreaks that have been most thoroughly investigated, says Jordan, have been found to be due not to the use of spoiled food containing ptomains, but either (1) to the presence of true bacterial toxins comparable to those of the diphtheria and tetanus bacilli and not to be regarded as the simple products of decomposition, or (2) to infection with specific bacteria borne in or on the implicated food article.

It may be objected that a toxin is today scarcely less vague in its significance than were the ptomains of a generation ago. It is true that the chemical nature of the so-called toxins remains to be elucidated. They are currently described as the chief poisonous products of bacteria, and are conceived to be manufactured specifically by synthetic processes. At any rate, emphasis is thus placed on specific micro-organisms rather than on food, per se, as the significant factor in the harmful situation.

Not long ago, the subject of botulism was discussed in The Journal.[2] It is worthy of emphasis that foods serve in a peculiar way as culture mediums for certain bacteria that produce highly poisonous toxins. Instead of perishing as they do in the air, water or soil, the micro-organisms multiply, so that, to quote Jordan, a very large proportion of the recorded outbreaks of food-borne intoxications have been traced to foods that have been prepared for the table and then allowed to stand before being eaten. Cooking, so far from surely destroying all bacteria, may, in some cases, provide a favorable temperature for their multiplication, if the heat is not made to penetrate all parts of the medium thoroughly. Milk is a well recognized carrier of danger. Less well known is the fact that meat may be the source of infection with the micro-organisms of the paratyphoid-enteritidis group. It is these that so often give rise to acute gastro-intestinal symptoms characteristic of so-called ptomain poisoning.

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[1] Jordan, E. O.: Food-Borne Infections, Science, Jan. 25, 1918, p. 80.

[2] Food Poisoning, with Special Reference to Botulism, editorial, The Journal A. M. A., Aug. 11, 1917, p. 472.

# Current Comment

## INFLUENCE OF NATIONALITY ON MORTALITY

In spite of the complications of the problem presented by the crowding together of many races in the national melting pot, the Department of Health of New York City has undertaken to throw light on the influence of nationality on mortality by a comparative study of mortality conditions within the territory under its own jurisdiction. The report[1] emphasizes the fact that the crude or ordinary death rate of a community is not an accurate measure, in the comparison of that community with others. Too often a city, with a mortality far below that of more crowded Eastern cities, advertises its low rate with a reasonable certainty of having it accepted without question by an unthinking public. As a matter of fact, its low death rate is largely the result of a favorable age grouping of the population, which produces a reduced mortality, irrespective of surrounding health conditions. Other important factors that influence the death rate, and should therefore be considered before comparisons are made, include sex and its distribution, occupations dangerous to health, social and economic surroundings, climate and civil conditions. For instance, it is a matter of record in all civilized countries that the death rate among women is much lower than among men, the surplus mortality being due to hazardous occupations, suicide, and the excessive use of alcohol. It is also generally conceded, and verified by statistics, that an abnormally high death rate prevails in congested tenement districts, and that, generally speaking, the higher the poor man's wage, the better will be the health of his family and the smaller the amount of illness and death. Again, in discussing the influence of civil conditions, the report points out that the death rates among the married of both sexes are lower than among the single, widowed or divorced. All these conditions are taken into consideration in the writer's study of the mortality returns, and on this basis a standardized rate is determined, which is far more accurate than the crude rate. The report, which includes a comprehensive statistical survey of mortality among children under 5 years of age, shows that the lowest rate occurs among children of Russian, Austro-Hungarian and Swedish parents. On the other hand, a high mortality prevails among the children of English, German, Irish and Italian parents. The highest rates from congenital diseases are found among American, Irish and German infants. The rate for respiratory diseases among Italian children is double and treble that of the children of all other nationalities. Emphasis is laid on the fact that, in many respects, native stock seems less sturdy than foreign stock of recent acquisition. The children of native parents, for example, furnish the highest rate in malformations (47 per 10,000), in marasmus (222 per 10,000), and in tuberculosis (21 per 10,000). Among persons more than 5 years old, Irish, German, English and American males display the highest mortality, whereas the rates among Italians, Russians and Austro-Hungarians are considerably below the standard. Acute bronchitis, pneumonia and cancer greatly increase the mortality among Irish, German and English adults of both sexes. The mortality from accidental causes is higher among Irish males, and the rate from suicide is highest among German males, being 72 per 10,000.

## A TEST OF THE HEART'S FUNCTIONAL CAPACITY

Progress in clinical medicine has brought about the invention of a variety of so-called functional tests designed to ascertain the capacity of different organs to perform the physiologic tasks with which they are normally confronted. Thus we have become familiar with functional tests for the stomach, the pancreas and the kidneys; and in a sense the estimation of the basal metabolism of individuals likewise forms a basis for judging the character of the body's response to its fundamental need of energy. Departures from the average or normal responses of the functions concerned in the respective tests give an opportunity to determine the existence of pathologic conditions, and to judge of the efficacy of remedial measures. When the functional tests become comparatively easy of mastery and application in their technical details, they are more than likely to win a deserved place in diagnostic procedure. No organ requires the application of suitable tests of capacity more conspicuously than the heart, the seat of indispensable physiologic activities, and frequently the location of serious working defects. Methods of measuring its capacity for performance have repeatedly been proposed. At the New York session of the American Medical Association, last June, Barringer[1] presented evidence for the usefulness of successive measurements of systolic blood pressure and the pulse at frequent intervals after graduated exercise. In a person with a normal heart, shortly after work these factors in the circulation are increased, and are found to return rapidly to the figures noted before the work was begun. If successively increasing amounts of work are done, the same reactions will be observed. The greater the work the higher are the subsequent systolic pressure and pulse rate. Finally, an amount of work is reached which is followed by a different type of blood pressure curve. It does not reach its height, as normally, within thirty seconds after completion of the work, but at a later period (from fifty to ninety seconds) when the pulse rate has dropped back to normal. At this stage the heart has evidently overtaxed its reserve power, which Barringer has proposed to measure as an index of its functional capacity. The simplicity of the scheme proposed commends it for further consideration. It requires no unusual outfit or technical skill. Barringer remarks that it makes no difference what kind of work is used, stair climbing, walking, dipping exercises or dumb-bell work. Any one of these permits of a comparative measure of the cardiac reserve power. The delayed rise in systolic pressure is always obtained in normal persons whenever the task done exceeds a certain amount, and it makes no difference what group of muscles is employed. Clinically, it has been noted that patients with varying grades of cardiac insufficiency are able to perform much smaller quantities of work than normal persons before a delayed rise ensues. Even a minimal exertion brings this evidence of lack of reserve power in cases of marked insufficiency, edema, dyspnea when resting, etc. When the general condition of the health improves, the amount of work that can be done before a delayed rise of systolic pressure ensues becomes greater and greater. By a study of the character of the response, it thus becomes possible to measure in some tangible way the effects of drugs or various forms of physical therapy on cardiac patients. The kind and amount of exercise which may benefit them likewise becomes subject to more intelligent supervision.

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[1] Guilfoy, W. H.: The Influence of Nationality on the Mortality of a Community, with special reference to the City of New York, Pub. 18, Department of Health of the City of New York, 1917.

[1] Barringer, T. B., Jr.: Studies of the Heart's Functional Capacity, Arch. Int. Med., December, 1917, p. 829.

### THE COMPOSITION OF EDEMA FLUIDS

Studies of the detailed composition of the blood, as ascertained by the technic of microchemical analysis, have demonstrated the value which information thus secured may have in the domain of diagnosis. The nonprotein nitrogenous compounds, such as urea, uric acid, creatin and creatinin, have been determined with considerable precision for a variety of clinical conditions. The sugar content of the blood has been the subject of exhaustive investigations, with the result that chemical analysis of the circulating fluid has become a highly important supplementary procedure in addition to the routine examination of the urine, in conditions in which the carbohydrate metabolism is concerned. Of late, the fats and lipoids of the blood have also come within the range of accurate analytic estimation for diagnostic purposes. As might be expected, as a result of these studies, other body fluids than the blood are beginning to be studied by the procedures that have been found so useful. We are likely, therefore, in the immediate future to acquire important additions to the all too scanty knowledge of the composition of various secretions, transudates and exudates. Facts derived in this way ought to be helpful in solving some of the still debated questions as to the mode of origin of these fluids. Until very recently, one could scarcely expect to learn more about a transudate, for example, than that it was richer or poorer than usual in solids, that its protein content showed an approach to certain types, that it contained or lacked certain enzymes, and perhaps that it exhibited physicochemical properties described in terms of osmotic pressure.

A new series of analytic data has recently been contributed from the chemical laboratory of the Massachusetts General Hospital by Denis and Minot.[1] They show that many of the nonprotein constituents of various types of edema fluid occur in the same concentration in exudates and transudates as in blood. Fat and cholesterol ordinarily occur in transudates in relatively small amounts. So far as we are aware, the effect of diet on the nonprotein constituents of body fluids other than blood has never been determined in any systematic way. In observations on ascitic fluids obtained in the case of cirrhosis of the liver at intervals, Denis and Minot have found a prompt response to changes in the food intake. The protein content was not altered by diets rich or low in protein; but the responses of the nonprotein nitrogen, the urea, uric acid and cholesterol showed that, like the blood, a transudate can easily be influenced in composition by variations in the diet.

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[1] Denis, W., and Minot, A. S.: The Nonprotein Constituents of Edema Fluids, Arch. Int. Med., December, 1917, p. 879.

### THE DASHEEN AS FOOD

The Office of Home Economics at the United States Department of Agriculture in Washington has recently called attention to an addition to the dietary in the dasheen, a root at present little known in the United States, but forming a staple article of food for millions of people in the tropics. The dasheen is a starchy vegetable resembling the potato more nearly than any other familiar article of food used in this country. It is reported to be suited to the warm localities where white potatoes do not grow well. It can be cooked in much the same way as these highly prized vegetables, and is reputed to be relished by those who are familiar with the suitably prepared product. In a series of digestion experiments conducted on men by Langworthy and Holmes,[1] the subjects of their own volition ate as much as 1½ pounds of dasheen daily without any observed physiologic disturbances, so that the government experts conclude that considerable amounts of the vegetable may be used safely in the dietary, and that they are palatable. In the digestion trials in which the dasheen formed practically all of the carbohydrate present, the digestibility of the latter was over 97 per cent., thus comparing favorably with the best utilized starchy products. The results were good alike for the mature and immature dasheens.

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[1] Langworthy, C. F., and Holmes, A. D.: The Digestibility of the Dasheen, Bull. 612, U. S. Dept. Agric., Nov. 8, 1917.

**The Italian Medical Profession During the War.**—The physicians of Lombardy and Liguria in Italy have taken the lead in forming what they call the Unione dei Medici Italiani per la Resistenza Nazionale. Its aim is to stimulate physicians throughout the country to aid and encourage the general public "in these tragic hours since the close of October." Public lectures and private talks are being held at various centers, and one by E. Morselli is reproduced in the *Policlinico,* Dec. 2, 1917, p. 1429. Among other things he said: "Medicine, rich with its noble traditions, should be the high priest of civilization and progress and especially in these dark days of war physicians should be elements and factors of energy . . . spurring their rich clients to give much and give often; encouraging the working classes to greater efforts, to save their wages and put up with the privations brought by the war; combating cowardice and treachery and enemy propaganda; striving to raise the neuropsychic tone of the whole community; spurring the authorities, the government to more energetic action for the salvation and the honor of the country." He regards it as the duty of the profession to combat the liquor trade, prostitution, and all causes tending to debase, including the display of luxury by the very rich, which tends to rouse base instincts.

# Medical Mobilization and the War

### Personnel of the Medical Department

The week ending February 8 there were 764 officers in the Medical Corps, 16,771 in the Medical Reserve Corps, of whom 13,401 were on active duty, 1,198 in the Medical Corps of the National Guard and 12 in the Medical Corps of the National Army. There were 760 officers in the Sanitary Corps and 136 officers in the Ambulance Service.

### Increased Rank for Medical Officers

Last week Senator Owen introduced into the Senate, and Representative Dyer into the House of Representatives, the following bill regarding rank of the Medical Reserve Corps of the Army:

"That hereafter the commissioned officers of the Medical Corps, and of the Medical Reserve Corps of the United States Army on active duty shall be distributed in the several grades in the same ratios heretofore established by law in the Medical Corps of the United States Navy.

"The Surgeon-General shall have authority to designate as 'consultants' officers of either corps and retire them as the interests of the service may require."

### Selective Service Regulations for Medical Advisory Boards

At the request of the Provost-Marshal General, the Surgeon-General of the Army appointed a board of physicians specializing in particular subjects, to prepare regulations on physical examination for the medical advisory boards. This board has prepared exhaustive and detailed regulations for the guidance of the advisory boards. They are being published in the form of a manual and will be sent out in a few days. Incorporated in the manual also will be the regulations for local boards, prepared by the same committee, thus making the complete regulations available in one manual.

### New Assignments in the Public Health Service

During the week ending February 6 the following important changes were made in the administrative organization of the United States Public Health Service:

Surgeon J. W. Schereschewsky has been relieved at Pittsburgh and assigned for duty as assistant surgeon-general in charge of the Division of Scientific Research. Assistant Surgeon-General J. W. Kerr, who formerly held this position, has been assigned to the director of the Hygienic Laboratory for temporary duty.

Surgeon B. S. Warren has been relieved from duty with the United States Employees' Compensation Commission and has been assigned as assistant surgeon-general in charge of the Division of Sanitary Reports and Statistics. Assistant Surgeon-General J. W. Trask, who held the latter position, has been assigned to the position vacated by Surgeon Warren.

Assistant Surgeon-General W. C. Rucker, in charge of domestic quarantine, has been assigned for special temporary duty with the War Department in the British Isles and on the continent of Europe in connection with maritime quarantine for the prevention of the introduction of quarantinable diseases into the United States.

### Red Cross Information Regarding Soldiers in Training Camps

In reply to a letter of the Secretary of War, to the American Red Cross, suggesting that the service of the Red Cross in keeping families in America in personal touch with soldiers ill or wounded in the field, which is already established in France, be extended to the training camps in the United States, Henry P. Davison, chairman of the Red Cross War Council, announces that it will gladly extend this service to the camps in America, and will immediately appoint responsible men as searchers in the various camps, that this work may be put into operation as quickly as possible. The work will of course be done under regulations made by the War Department. Orders will be issued promptly after the details have been arranged by the Surgeon-General and Adjutant-General of the Army.

### The American Red Cross in Italy

The work of the American Red Cross in Italy in supply emergency relief during and immediately following the invasion of Italy in October and November, and the later splendidly organized system of salvage of the remains of the disorganized armies and the dispossessed populace of the invaded regions, is another monument to the efficiency of this great organization. In a series of articles Paul U. Kellogg, editor of the *Survey*, and a member of the investigating committee on refugees, has described that great work, and the plans for the housing, hospital and medical care, feeding and general rehabilitation of the destitute populations.

Kellogg says that before the permanent organization of the Red Cross commission had yet sailed for Italy following the declaration of a state of war with Austria, the existing organization in France, at the very peak of its load for American and French troops and French civilians, was able to send to Italy experienced men to open offices in Rome early in November, canvass the situation by wire through the American embassy and consular service, despatch an ambulance section and two trains of supplies, make wholesale purchases in Italy while supplies were en route from France, wire money to spend on the spot to consuls, committees and local agencies, send out north and south the nucleus of a field staff and commission two ranking American experts in emergency relief to make a rapid survey of the whole field as the basis for a long plan of help. The American Relief Clearing House, an organization already on the ground having as its object originally the organization and transportation of supplies for hospitals, merged with the Red Cross, and with large sums granted by the Red Cross used its organization in furthering the emergency work.

In preparing for permanent relief, districts were experimentally organized as follows: For the war zone, with headquarters at Padua; for Lombardy, at Milan; for Piedmont, at Turin; for Liguria and the Mediterranean coast of Tuscany, at Genoa; for Tuscany and Emilia, at Florence; for the Venetian colonies along the Adriatic, at Rimini; for Central Italy and Sardinia, at Rome; for Campania, Basilicata and Puglia, at Naples, and for Sicily and Calabria at Palermo. It is the plan that the refugees must be distributed throughout the whole of Italy in order not to burden unduly any one community, for the work of relief and rehabilitation must go on for months and perhaps for years.

To the Red Cross is not due all the credit, of course, for relief work, for in addition to the well organized work of the governmental agencies were the activities of the Italian welfare and relief societies, the American Clearing House already mentioned, volunteers among the people and Americans present in Italy, and prominently, the efforts and assistance of the American consuls throughout the country, and particularly in the zone of disturbance, who were appealed to first for information regarding the requirements. The details of the amazingly rapid furnishing of food, clothing, blankets, medical supplies and provision for housing the refugees are too voluminous to be given here. Not the smallest portion of the tremendous task was the establishment and refitting of military hospitals to take the place of the hospitals and equipment which had to be abandoned in the hasty retreat, many of which were in the invaded region, and most of which were near the very front at the time the movement began.

The future work of the organization in caring for the refugees and those incapacitated for military duty will be matters of distribution to centers where rehabilitation may be brought about by finding work for those able to work, by proper housing arrangements, recreational activities, looking after health and sanitation, etc. In this work the efforts of the Red Cross will be divided, as in France, into two departments, that relating to the soldiers and that relating to the civilian population. That work is already well in hand and at the time of writing the articles, seven weeks after the retreat, wonderful progress had been made on all these lines. The health of the refugees in all the cities visited was, in view of all the hardships encountered, said to be on the whole very good. Careful inquiry among physicians, officials and relief workers indicated that with few exceptions there was no marked prevalence of digestive, nervous or infectious disease.

## NEWS OF THE CANTONMENTS

### Twenty-Eight Division, Camp Hancock, Augusta, Ga.

PERSONAL

Mrs. John Fell of Philadelphia and her sister, Miss Randolph, together with Mrs. Ullern, wife of Captain Ullern of the French Mission, are at the Parkridge Inn. They are conducting classes in French for the medical officers of the Twenty-Eighth Division at camp.——Mr. Walter Camp, who has been assisting in the physical education work of the division, has been made a captain.——The base hospital connected with this division has now about forty-five female trained nurses.——Professor Stiles of the Public Health Service is arranging to give the surgeons of the division a lantern demonstration on some of his recent work, including hookworm.

### Thirty-First Division, Camp Wheeler, Macon, Ga.

Feb. 9, 1918.

Much to our satisfaction the division surgeons have attended the last two staff meetings of the base hospital.

Last night a practical demonstration of the Carrel-Dakin method with the presentation of illustrative cases was given by Major Lund's staff. This proved to be both interesting and instructive.

The roentgen ray department considers it a day lost when some unusual or interesting condition does not show up. Today it was a fracture of the neck of the scapula.

The basketball court is completed and the baseball grounds will soon be in shape. We expect to turn out championship teams in both sports. There is a rumor that the Georgia Peach, Tyrus Cobb, is to be assigned to our unit.

Major Sailer is convalescent from a submucous resection of the nasal septum.

The number of patients in the hospital has been steadily decreasing for some time, there being under treatment today, 868.

No new cases of meningitis have been admitted for more than twenty-one days, and the number of pneumonia cases continues to decline.

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Feb. 1, 1918

1. Annual admission rate per 1,000 (disease only):

| | |
|---|---|
| All Troops | 1,713.6 |
| National Guard Camps | 1,506.2 |
| National Army Camps | 1,995. |
| Regulars—Divisions and Departments | 1,485.7 |

2. Noneffective rate per 1,000 on day of report:

| | |
|---|---|
| All Troops | 51.1 |
| National Guard Camps | 49.6 |
| National Army Camps | 55.7 |
| Regulars—Divisions and Departments | 41.3 |

3. Camps and Departments showing admission rates for disease higher than average—

National Guard: Camps Wheeler, Bowie, Doniphan, Beauregard, Shelby, Sevier and Kearny.

National Army: Camps Travis, Pike, Dodge, Zachary Taylor, Jackson, and Lee.

Regulars: Divisions and Departments—Central Department and Southeastern Department.

4. Camps and Departments showing noneffective rates higher than average:

National Guard: Camps Beauregard, Bowie, Wheeler, Shelby, Sevier and Kearny.

National Army: Camps Travis, Pike, Dodge, Zachary Taylor, Funston (89th), Jackson, Lee and Camp Funston (92d).

Regulars: Southeastern, Central and Southern Departments.

5. Venereal Diseases:

Annual admission rate per 1,000—

| | |
|---|---|
| National Guard Camps | 60.7 |
| National Army Camps | 116.4 |
| Regulars—Divisions and Departments | 73.5 |

Camps and Departments having rate above average:

National Guard: Camps Logan, Doniphan, Wheeler and Bowie.

National Army: Camps Zachary Taylor, Pike, Gordon and Jackson.

Department: Southern.

6.

| | |
|---|---|
| Number of cases of pneumonia | 795 |
| Highest number in any one camp (Pike) | 64 |
| Number of cases of meningitis | 79 |
| Highest number in any one camp (Jackson) | 19 |

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING FEB. 1, 1918

| Camps | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffective per 1,000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 15 | ... | ... | 27 | .. | .. | ... | 1 | .. | 2 | 29.1 |
| Hancock | 15 | ... | ... | 23 | .. | .. | 14 | 3 | .. | 2 | 32.0 |
| McClellan | 5 | ... | ... | 24 | .. | .. | 37 | 2 | 3 | 1 | 38.0 |
| Sevier | 19 | ... | ... | 23 | .. | .. | 9 | .. | .. | 6 | 55.6 |
| Wheeler | 36 | 3 | 2 | 45 | .. | .. | ... | .. | .. | 10 | 78.0 |
| Logan | 11 | ... | ... | 102 | .. | .. | 34 | .. | 3 | 2 | 33.5 |
| Cody | 50 | ... | 1 | 14 | .. | .. | 26 | .. | .. | 12 | 45.2 |
| Doniphan | 22 | ... | ... | 29 | .. | .. | 8 | 3 | 1 | 6 | 47.1 |
| Bowie | 30 | ... | 1 | 37 | .. | .. | 1 | 2 | .. | 4 | 78.8 |
| Sheridan | 15 | ... | ... | 7 | .. | .. | 29 | 1 | .. | 6 | 32.2 |
| Shelby | 12 | ... | 2 | 27 | .. | .. | 1 | 1 | .. | 2 | 60.7 |
| Beauregard | 23 | ... | 9 | 22 | .. | .. | ... | 8 | .. | 8 | 79.9 |
| Kearny | 13 | ... | ... | 8 | .. | .. | 9 | .. | 14 | 1 | 50.0 |
| Devens | 7 | ... | ... | 19 | .. | .. | 19 | 1 | .. | 2 | 36.7 |
| Upton | 6 | ... | ... | 21 | .. | .. | 2 | .. | 1 | 4 | 31.7 |
| Dix | 3 | 1 | ... | 23 | .. | .. | 22 | .. | 6 | 0 | 46.4 |
| Meade | 17 | ... | ... | 43 | .. | .. | 19 | 2 | 10 | 7 | 32.7 |
| Lee | 21 | ... | ... | 59 | .. | .. | 75 | 1 | 1 | 13 | 65.7 |
| Jackson | 17 | ... | 3 | 53 | .. | .. | 15 | 19 | 1 | 4 | 67.9 |
| Gordon | 18 | ... | ... | 131 | .. | .. | 65 | 1 | .. | 12 | 34.3 |
| Sherman | 4 | ... | ... | 33 | .. | .. | 62 | 1 | 30 | 4 | 42.9 |
| Taylor | 30 | ... | ... | 285 | .. | .. | 23 | 2 | .. | 2 | 79.5 |
| Custer | 10 | ... | ... | 12 | .. | .. | 59 | 1 | 5 | 2 | 44.3 |
| Grant | 12 | ... | ... | 36 | .. | .. | 66 | 1 | 12 | 0 | 40.5 |
| Pike | 64 | 1 | 6 | 195 | .. | .. | 20 | .. | 31 | 19 | 88.5 |
| Dodge | 20 | ... | ... | 23 | .. | .. | 34 | .. | 11 | 3 | 81.5 |
| Funston | 11 | ... | ... | 8 | .. | .. | 11 | 3 | 2 | 3 | 73.1 |
| Travis | 54 | ... | ... | 22 | .. | .. | 6 | 4 | .. | 9 | 98.5 |
| Lewis | 8 | ... | ... | 15 | .. | .. | 18 | 2 | 5 | 3 | 48.9 |

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

| | Regulars, U. S. Army, in U. S. only, 1916* | Regulars in U. S., Week Ending Feb. 1, 1918 | National Guard, All Camps, Week Ending Feb. 1, 1918 | National Army, All Camps, Week Ending Feb. 1, 1918 |
|---|---|---|---|---|
| Pneumonia | 2.59 | 32.8 | 42.6 | 36.1 |
| Dysentery | 3.97 | 0.4 | 0.4 | 0.2 |
| Malaria | 12.52 | 0.9 | 2.3 | 1.1 |
| Venereal | 91.23 | 73.5 | 60.7 | 116.4 |
| Paratyphoid | 0.31 | 0.0 | 0.0 | 0.0 |
| Typhoid | 0.21 | 0.0 | 0.0 | 0.0 |
| Measles | 20.28 | 135.1 | 26.2 | 61.4 |
| Meningitis | 0.29 | 2.9 | 3.3 | 4.5 |
| Scarlet fever | 0.59 | 23.3 | 3.3 | 13.7 |

* Enlisted men only, both white and colored.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Camp Meade,* Annapolis Junction, Md., for duty in connection with the Medical Department of the Army, and on completion *to his proper station,* Col. PERCY E. ASHBURN.

*To Camp McClellan,* Anniston, Ala., for duty, Col. CHARLES WILLCOX.

*To Washington, D. C.,* Aviation Section, Signal Corps, for duty, Lieut.-Col. SAMUEL M. DE LOFFRE.

*To Camp Beauregard,* Alexandria, La., as Division Surgeon, Lieut.-Col. LARUS D. CARTER.

*To Newport News, Va.,* for duty, Lieut.-Col. WILLIAM H. SMART.

*To Columbus Barracks, Ohio,* for duty, Lieut.-Col. HARRY G. HUMPHREYS.

*To Lake City, Fla.,* to inspect and report on properties, and on completion *to his proper station,* Lieut.-Col. JOSEPH Y. PORTER.

*To Camp Greene,* Charlotte, N. C., to make a special inspection of the Medical Department, and on completion *to his proper station,* Lieut.-Col. CHARLES F. MORSE.

*To Fort Riley,* Kansas, for duty, Major JOSEPH A. WORTHINGTON.

*To Muncie, Ind.,* to inspect certain properties, and on completion *to his proper station,* Major JOHN R. McKNIGHT.

*To Portland, Me.,* Coast Defenses of Portland, for duty, Capt. WILLIAM L. HASKELL, Lieut. HAROLD M. ALLEN.

*To Camp Hancock,* Augusta, Ga., for temporary duty, Capt. THEODORE C. FEGLEY.

*To Camp Doniphan,* Fort Sill, Okla., for duty, Lieut. ARTHUR J. KAMPMEIER.

*To Camp Sevier,* Greenville, S. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HASKETT L. CONNER.

*To Camp Greene,* Charlotte, N. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HAROLD D. ROGERS.

*To Fort Totten, N. Y.*, for duty, Lieut. SETH H. MILES.

*To San Antonio, Texas,* Kelly Field, with the neuropsychiatric board for the purpose of acting with the board in examining the command in his specialty, Lieut. GORDON F. WILLEY.

*To Camp Upton*, L. I., N. Y., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HARVEY E. WEBB.

*To Camp Wadsworth,* Spartansburg, S. C., for duty, Lieut. JOSEPH H. MURPHY.

*To San Francisco, Calif.*, for duty, Lieut. HERMAN G. MAUL.

*To Douglas, Ariz.*, for duty and by letter to the commanding general, El Paso; Texas, Lieut. JAMES McALLISTER.

*To Fort Monroe, Va.*, to make special sanitary inspection, and on completion *to his proper station,* Senior Surgeon JOSEPH H. WHITE.

*Honorably discharged,* Capt. CHARLES M. SEIVERS, Lieuts. GEORGE F. HOLLER, ROBERT L. BARROW, LOUIS P. LANE, Jr., FORD A. BARNES.

*Honorably discharged* from the Medical Corps, National Guard, on account of physical disability incident to service, Lieut. ISAAC G. COOK.

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## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Army Medical School,* Washington, D. C., for instruction, Lieut. JOHN T. CALLAWAY, Birmingham.

*To Camp Wheeler,* Macon, Ga., for temporary duty, from New York City, Lieut. FRANCIS M. INGE, Mobile.

*To Fort Oglethorpe*, for instruction, Capt. JOHN McI. WHITESIDE, Anniston; Lieut. WILLIAM R. ROUSSEAU, Huntsville.

*To Montgomery, Ala.*, Taylor, Field, Signal Corps, Aviation School, for duty, Lieut. GEORGE A. CRYER, Anniston.

*To New York City*, Roosevelt Hospital, for instruction, and on completion *to Camp Upton,* for duty, from Fort Oglethorpe, Lieut. JOSEPH M. WELDON, Tallassee.

*To Philadelphia, Pa.*, Evans Dental Institute, for instruction, and on completion *to his proper station,* from Camp Gordon, Lieut. ANDREW C. CAMERON, Birmingham.

*To San Antonio, Texas,* Kelly Field, to examine the command in his specialty, from Camp Travis, Lieut. ROBERT H. HOWARD, Tuskegee.

*Honorably discharged,* on account of physical disability which existed prior to his entrance into the service, Lieut. EDWARD DAY, Orville; Corps, WILLIAM McMAHAN BOGART, Stevenson.

### Arizona

*To Camp Cody,* Deming, N. M., for duty, Lieut. AUSTIN C. WRIGHT, Ajo.

*To Fort Oglethorpe*, for instruction, from Baltimore, Md., Lieut. HILARY D. KETCHERSIDE, Yuma.

### Arkansas

*To San Antonio, Texas.*, Kelly Field, Aviation Section, Signal Corps, for duty, Lieuts. MAX O. USREY, Blythesville; JOSEPH M. CLARK, Furth; JAMES M. BEST, Monticello; JAMES F. HAYS, Russellville; OSCAR A. JAMISON, Tuckerman; THOMAS E. GRAY, Winslow.

*Honorably discharged* on account of physical disability which existed prior to his entrance into the service, Lieut. ALEXANDER E. HARRIS, Little Rock.

### California

*To Camp Cody*, Deming, N. M., for duty, from Camp Kearny, Major WALTER V. BREM, Los Angeles.

*To Camp Kearny,* Linda Vista, Calif., for temporary duty, Capt. RALPH HAGAN, Los Angeles.

*To Camp Meade,* Annapolis Junction, Md., on completion of his course at New York City, Major ALANSON WEEKS, San Francisco.

*To Camp Stanley,* Leon Springs, Texas, as orthopedic surgeon, and as consultant in such cases as may be referred to him by proper authority, from Camp Meade, Capt. JOHN M. HENCH, Pacific Grove.

*To Camp Travis,* San Antonio, Texas, for duty, from San Antonio, Capt. HENRY ABRAHAM, San Francisco.

*To Fort Oglethorpe,* for duty, from Allentown, Pa., Major LAVIN POWELL, Oakland.

*To Fort Riley,* for instruction, Lieut. ROBERT A. POWERS, Oreville.

*To Philadelphia, Pa.,* Evans Dental Institute, for instruction, from Camp Fremont, Major WILLIAM A. BRYANT, San Francisco.

*To Western Department,* for duty, Lieuts. CHARLES A. MACKEY, Oakland; ORRIS R. MYERS, Sacramento.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Capt. ROBERT M. JONES, Jr., Fresno.

### Canal Zone

*To Camp Hancock*, Augusta, Ga., Motor Mechanics Regiments, from Washington, D. C., Capt. EDWARD P. BEVERLY, Balboa.

### Colorado

*To Camp Gordon,* Atlanta, Ga., for duty, from Camp Gordon, Capt. WILL H. SWAN, Colorado Springs.

*To Fort Oglethorpe,* for instruction, Lieut. JOHN E. HOWARD, Denver.

*To Fort Riley,* for instruction, Lieut. WALTER K. HOTCHKISS, Brighten.

*To New York City,* Neurological Institute, for intensive training, from Fort Oglethorpe, Capt. CYRUS L. PERSHING, Denver.

*To Washington, D. C.*, for consultation, from San Antonio, Capt. ALEXIUS M. FORSTER Colorado Springs.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Capt. CHARLES E. ELLIOTT, Victor.

### Connecticut

*To Camp Sheridan,* Montgomery, Ala., on completion of his course at New York City. Capt. DANIEL G. PATTERSON, Bridgeport.

*To Mineola,* L. I., N. Y., Hazelhurst Field, Aviation Section, Signal Corps, for duty, Lieut. EUGENE M. BLAKE, New Haven.

*To New York City*, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Capt. JOHN E. GRIGGS, Hartford; Lieut. FRANK J. RONAYNE, Hartford. Fort duty, from Fort Oglethorpe, Lieut. ALEXANDER B. TIMM, New Haven.

*To Philadelphia, Pa.*, Evans Dental Institute, for instruction, Capt. AUGUSTIN A. CRANE, Waterbury.

### Delaware

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. RICHARD R. TYBOUT, New Castle.

### District of Columbia

*To Camp Meade,* Annapolis Junction, Md., for duty, Lieut. HARRY A. BISHOP, Washington.

*To Camp Wadsworth,* Spartanburg, S. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, from Camp Meade, Lieut. JOEL A. TILTON, Washington.

*To Fort Oglethorpe f*or instruction, from Baltimore, Lieuts. CLAUDE C. CAYLOR, JAMES P. KERBY, Washington.

*To Rockefeller Institute, N. Y.*, for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, for duty, from Fort Riley, Capt. FRANCIS M. MUNSON, Washington.

### Florida

*To Arcadia, Fla.*, Dorr Field, Signal Corps, Aviation School, for duty, Lieut. ROBERT E. GILBERT, Monticello.

*To Camp Wheeler,* Macon, Ga., for duty, from Camp Wheeler, Lieut. WILLIS H. WATSON, Lakeland.

*To Fort Oglethorpe,* for instruction, Capt. JAMES H. HARPER, Fort Myers.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. WILLIAM W. HOGGATT, Bradentown.

### Georgia

*To Arcadia, Fla.,* Carlstrom Field, Signal Corps, Aviation School, for duty, Lieuts. DAN H. DUPREE, Athens; JOHN W. EDMONDSON, Dublin; WARREN E. BENSON, Marietta.

*To Camp American University,* Washington, D. C., for duty, from Fort Oglethorpe, Lieut. JOHN W. DURDEN, Oak Park.

*To Camp Gordon*, Atlanta, Ga., for duty, Lieuts. GROVER C. COLE, MURDOCK S. EQUEN, Atlanta.

*To Camp Sherman,* Chillicothe, Ohio, as member of a board for the purpose of examining the command for nervous and mental diseases. from Philadelphia, Lieut. MALCOLM D. CLAYTON, Milledgeville.

*To Fort Totten, N. Y.*, for duty, from Fort Totten, Lieut. ROBERT F. McLEOD, Pineview.

*To Governor's Island, N. Y.*, Coast Defenses of Southern New York, from Fort Oglethorpe, Lieut. SIGE EHRLICH, Bainbridge.

### Hawaii

*To Cape May, N. J.*, for duty, on completion of his present leave from Camp Kearny, Major JOHN B. LUDY, Honolulu.

*To Governor of Hawaii* for duty as medical advisor, Major CHARLES B. COOPER, Honolulu.

### Illinois

*To Baltimore, Md.*, Hopkins Medical School, for temporary duty, from Fort McPherson, Major DEAN D. LEWIS, Chicago.

*To Camp Doniphan,* Fort Sill, Okla., for temporary duty, Lieut. EMIL A. SCHLAGETER, Chicago.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Capt. THOMAS S. CROWE, Lieut. FRANZ H. HARMS, Chicago.

*To Camp Hancock, Augusta, Ga.,* for temporary duty, Lieut. WILLIAM J. RIDEOUT, Freeport.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Camp Travis, Capt. HERMAN H. BASSLER, Chicago.

*To Chicago, Ill.,* for orthopedic instruction, Lieut. SAMUEL L. STEVENS, Dalton City.

*To Fairfield, Ohio,* Wilbur Wright Field, Aviation Section, Signal Corps, for duty, Lieut. PETER G. PETERSON, Chicago.

*To Fort Des Moines,* Iowa, for duty, Lieut. RICHARD J. BEDFORD, Dahinda.

*To Fort McPherson, Ga.,* for duty, Lieut. FRANCIS D. FLETCHER, Springfield; from Fort Riley, Lieut. EDWIN J. BARNETT, Chicago.

*To Fort Oglethorpe,* for instruction, Lieuts. CLINTON L. MONTGOMERY, Blue Mound; WILBER P. FRAZIER, Carthage.

*To Fort Riley*, for instruction, Capt. GEORGE A. DARMER, Aurora; Lieut. RANDOLPH C. STITES, Chicago; from Camp Grant, Lieut. ROYAL W. DUNHAM, Chicago. For temporary duty, Lieut. GILBERT E. BRERETON, Chicago; from Camp Doniphan, Lieut. CLIFFORD W. WELLS, Chicago.

*To Milwaukee, Wis.,* Milwaukee County Hospital, for duty, Capt. HERBERT WALKER, Chicago.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Capts. CLARENCE U. GEYER, Aurora; HUGH L. MARSHALL, Stronghurst; Lieut. ARTHUR L. MUREN, Patterson.

*To Rochester, Minn.,* Mayo Clinic, for instruction and on completion *to Camp Dodge,* for duty, Lieut. JOHN O'CONNELL, Chicago.

*To Rock Island, Ill.,* for duty, and on completion *to his proper station,* Major PAUL B. MAGNUSON, Chicago.

*To San Antonio, Texas,* Kelly Field, with the Examining Board, from Douglas, Ariz., Capt. THOMAS F. NEIL, Moline.

*To Washington, D. C.,* Surgeon-General's Office, Lieut. WILLIAM W. GAILEY, Bloomington; from Fort Sheridan, Lieut. WILLIAM A. CLARK, Chicago.

*To their homes* and honorably discharged, Capt. GEORGE M. FRENCH, Springfield; on account of physical disability which existed prior to entrance into the service, Lieuts. EDWARD E. HANSON, Chicago; ALONZO M. EDWARDS, Marion.

## Indiana

*To Ann Arbor, Mich.,* Psychopathic Hospital, for intensive training, Lieut. CLYDE C. BITLER, Newcastle.

*To Camp Grant,* Rockford, Ill., for instruction, Capt. NOAH W. CLARK, Rossville; Lieuts. ROYAL W. DUNHAM, Angola; DORSEY D. METCALF, Fort Wayne.

*To Fort Bliss, Texas,* for duty, from Fort Riley, Lieut. IRA E. BOWMAN, Odon.

*To Fort Des Moines, Iowa,* for duty, Lieut. ARTHUR L. LEEDS, Michigan City.

*To Fort Oglethorpe,* for instruction, Lieuts. SAM W. HOOKE, Noblesvllie; DUFFIELD D. MacGILLIVRAY, Pine Village; ADAM F. PANEK, South Bend.

*To Fort Riley,* for instruction, from Camp Grant, Capt. NOAH W. CLARK, Rossville; Lieut. FORSEY D. METCALF, Fort Wayne.

*To Governor's Island, N. Y.,* Coast Defenses for duty, from Fort Oglethorpe, Capt. GEORGE T. WILLIAMS, Crawfordsville.

*To Portland, Me.,* Coast Defenses from Fort Oglethorpe, Lieut. HENRY W. IRWIN, Indianapolis.

## Iowa

*To Army Medical School,* Washington, D. C., for instruction, Lieut. HENRY C. ALLEN, Independence.

*To Camp Grant,* Rockford, Ill., for temporary duty, from New York City, Lieut. FREDERICK W. SALLANDER, Fort Madison.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, on completion *to Camp Sherman,* for duty, from Fort Riley, Capt. HERBERT W. PLUMMER, Lime Springs.

*To Dallas, Texas,* State Fair Grounds, from Fort Riley, Capt. CHARLES H. COGSWELL, Cedar Rapids.

*To Fort Des Moines, Iowa,* for duty, Capt. THOMAS E. McCAUGHAN, Ireton; Lieut. EVART C. HARTMAN, Algona; FRANK L. GRIFFIN, Baldwin; MARTIN T. BREWER, De Soto; JOHN J. BOWES, Livermore; JAMES F. BATTIN, Marshalltown; HARRY E. CARVER, Rose Hill.

*To Fort Leavenworth, Kansas,* Department Laboratory from Camp Pike, Major GUTHRIE McCONNELL, Waterloo.

*To Rockefeller Institute, N. Y.,* for instruction, and on completion *to Camp Sherman,* for duty, from Fort Riley, Capt. GEORGE A. PLUMMER, Cresco.

## Kansas

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Riley, Lieut. KIRK P. MASON, Cawker City.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on complesion *to his proper station,* from Camp Dodge, Lieut. FOY J. M. ERNEST, Topeka.

*To Fort Des Moines, Iowa,* for duty, from Camp Dodge, Lieut. CHARLES M. FITZPATRICK, Salina.

*To Fort Oglethorpe,* for instruction, from Fort Monroe, Lieut. JACOB H. HALDEMAN, Paola.

*To Fort Riley,* for duty, from Fort Riley, Capt. CHRISTIAN H. KOENTZ, Onaga.

## Kentucky

*To Camp Lee,* Petersburg, Va., for duty, Lieut. MILTON B. COHEN, Louisville.

*To Fort Oglethorpe,* for instruction, Lieut. JUDSON P. BOULWARL, Louisville.

*To New York City,* Neurological Institute, for instruction, Capt. OSCAR E. BLOCH, Louisville.

*To Philadelphia, Pa.,* Evans Dental Institute, for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. WILLIAM T. BRUNER, Louisville.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to Camp Sherman,* for duty, Capt. ELMER L. HENDERSON, Louisville.

*To Washington, D. C.,* for duty, Lieut. ERMIN L. RAY, Louisville.

*Honorably discharged,* Capt. EDWIN T. BRUCE, Louisville.

## Louisiana

*To Camp American University,* Washington, D. C., for duty, from Fort Oglethorpe, Lieut. EDWARD E. ARCHIBALD, Alberta.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, on completion of his instruction at New York City, Capt. WILLIAM M. PERKINS, New Orleans.

*To Fort Oglethorpe* for instruction, Capt. ARTHUR R. CHOPPIN, Alexandria; Lieut. DELANE S. CALHOUN, Ruston.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to Camp Doniphan,* Fort Sill, Okla. For duty, from Fort Oglethorpe, Lieut. ALBERT C. JACKSON, New Orleans.

*To San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Lieut. EDWARD B. PRIES, New Orleans.

## Maine

*To Fort Oglethorpe,* for instruction, Capt. HARRY F. MORIN, Bath.

*To his home* and honorably discharged, on account of physical disability which existed prior to his entrance into the service, Capt. HARVEY H. ROBERTS, South Poland.

## Maryland

*To Camp McClellan,* Anniston, Ala., for duty, from Camp Devens, Lieut. GEORGE B. WISLOCKI, Baltimore.

*To Camp Meade,* Annapolis Junction, Md., for duty, Lieut. ERNEST M. G. REIGER, Baltimore.

*To Edgewood, Md.,* for duty, from Fort McHenry, Lieut. JOHN F. LUTZ, Baltimore.

*To Fort Oglethorpe* for instruction, Lieuts. GIDEON TIMBERLAKE, Baltimore; NEAL F. TWIGG, Cumberland; from Baltimore, Lieut. HUMPHREY D. WOLFE, Baltimore; from Fort Monroe, Lieut. ISRAEL J. FEINGLOS, Baltimore.

*To Newport News, Va.,* for duty, Lieuts. PAUL N. FLEMING, Hagerstown; HENRY MERKEL, Irvington.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieut. WILMER M. PRIEST, North East.

*To the inactive list,* from Baltimore, Major FREDERICK H. BAETJER, Baltimore.

## Massachusetts

*To Army Medical School,* Washington, D. C., to give instruction in orthopedic surgery, and on completion *to his proper station,* from Boston, Major ROBERT W. LOVETT, Boston.

*To Boston, Mass.,* Charitable Eye and Ear Infirmary, Aviation Section, Signal Corps, for duty, from Boston, Lieut. EDWARD F. W. BARTOL, Molton.

*To Camp Devens,* Ayer, Mass., for temporary duty, Major ELLIOTT P. JOSLIN, Boston; Lieut. HOLLIS G. BATSHELDER, Dedham.

*To Camp Grant,* Rockford, Ill., for instruction, Lieut. WILLIAM C. JENSEN, Worcester.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp Hancock, Major CHARLES DUDLEY, Kingston.

*To Camp Sherman,* Chillicothe, Ohio, as a member of a board to examine the command for nervous and mental diseases, from Camp Sherman, Capts. HENRY L. STICK, Baldewinville; EDWARD S. ABBOT, Waverly.

*To Fort Oglethorpe,* for instruction, Capt. WESLEY T. LEE, Boston; Lieuts. HENRY A. R. KRAUTMAN, Boston; HAROLD W. RIPLEY, Braintree; ROLAND O. PARRIS, Brookline; LOUIS F. SALERNE, East Boston; MIRKE L. ALEXANDER, Orange.

*To Fort Riley,* for instruction, from Camp Grant, Lieut. WILLIAM C. JENSEN, Worcester.

*To New Orleans, La.,* for duty, and upon completion *to Fort Oglethorpe,* to confer with the commandant regarding the establishment of a course of training in Military Orthopedic Surgery, and on completion, *to his proper station,* Major ELLIOTT C. BRACKET, Boston.

*To New York City,* Neurological Institute, for intensive training, from Camp Devens, Lieut. DANIEL J. GENNELLY, Fall River.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Beauregard, Capt. CHARLES F. CANEDY, Greenfield; on completion *to Camp Dodge,* for duty, Lieut. JEROME J. McCAFFREY, Attleboro.

*To the inactive list* of the Medical Reserve Corps, Capt. ISAAC S. F. DODD, Pittsfield.

## Michigan

*To Camp Wheeler,* Macon, Ga., for duty, from Camp Wheeler, Lieut. ALBERT H. ROSS, Battle Creek.

*To Fort Oglethorpe,* for instruction, Lieut. RICHARD H. JAERS, Detroit.

*To Fort Riley,* for temporary duty, Lieut. GEORGE D. TREADGOLD, Port Huron.

*To Mount Clemens, Mich.,* Selfridge Field, Aviation Section, Signal Corps, for duty, Lieuts. ARA B. HEWES, Adrian; FRANK C. ANDERSON, Detroit.

*To Philadelphia, Pa.,* Evans Dental Institute, for instruction, Capt. NELSON MAC ARTHUR, Detroit.

*Honorably discharged* from the Medical Reserve Corps, Lieut. CHARLES F. KUHN, Detroit.

## Minnesota

*To Camp Dodge,* Des Moines, Iowa, and *Fort Riley,* for inspection, and on completion *to his proper station,* from Rochester, Minn., Major LOUIS B. WILSON, Rochester Aviation Section, Signal Corps; as junior member of Physical Examining Unit, Medical Member of Examining Board and Recruiting Officer, Lieut. WALTER D. LEE, Madison.

*To Camp Doniphan,* Fort Sill, Okla., for temporary duty, Lieut. CHARLES B. DRAKE, St. Paul.

*To Camp MacArthur,* Waco, Texas, Aviation Mobilization Camp, for duty, from Rantoul, Ill., Capt. CHESTER M. CLARK, Duluth.

*To Camp Taylor,* Louisville, Ky., for temporary duty, Lieut. ALBERT F. RYAN, Hibing.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to Camp Sherman,* for duty, Lieut. JOHN J. DONOVAN, Litcheld.

*To Del Rio, Texas,* for duty, from Fort Riley, Lieut. ALBERT M. LARSON, St. Paul.

*To Fairfield, Ohio,* Wilbur Wright Field, Aviation Section, Signal Corps, for duty, Lieut. REUBEN A. JOHNSON, Minneapolis.

*To Fort Leavenworth, Kansas,* for duty, Lieut. HENRY ODLAND, Minneapolis.

*To Fort Oglethorpe and Fort McPherson, Ga.,* for inspection, and on completion *to his home and to the inactive list* of the Medical Reserve Corps, Major CHARLES H. MAYO, Rochester.

*To Fort Riley,* for temporary duty, Capt. GUSTAV H. LUEDTGE, Fairmont. For instruction, Lieut. JOSEPH MOSES, Jr., New London.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieut. PAUL W. WIPPERMAN, Minneapolis.

*To Oklahoma City, Okla.,* for instruction, from Camp Pike, Capt. ROBERT H. MONAHAN, International Falls.

*To his home and honorably discharged* from the Medical Reserve Corps, on account of physical disability which existed prior to his entrance into the service, Lieut. LYNN J. WALKER, Wykoff.

## Mississippi

*To Camp American University, Washington, D. C.,* for duty, from Fort Oglethorpe, Lieuts. DUDLEY R. MOORE, Cockrum; GEORGE R. STORM, Philipp.

*To Del Rio, Texas,* for duty, from Fort Riley, Lieut. CLEVELAND DAVID, Morgan City.

*To Fort Oglethorpe,* for instruction, Lieut. CHARLES H. HARRISON, Philadelphia.

*To Rochester, N. Y.,* for duty, from Camp Pike, Capt. ERSKINE P. ODENEAL, Biloxi.

## Missouri

*To Camp A. A. Humphreys,* Accotink, Va., as sanitary inspector, from Fort Riley, Capt. EDWARD S. SMITH, Macon.

*To Camp Grant,* Rockford, Ill., for instruction, Lieut. JACOB J. KENNEDY, Frankford.

*To Camp Lee,* Petersburg, Va., to inspect surgical equipment, and upon completion *to his proper station,* Major FREDERICK W. BAILEY, St. Louis.

*To Fort Monroe, Va.,* for duty, Lieut. ALOIS E. TUREK, St. Louis.

*To Fort Riley* for instruction, Lieuts. JOHN H. MARTYN, Cuba; ELMER E. WALDO, Hannibal; ERNEST F. HARRISON, Kennett; ELIJAH Y. PARE, Leeton; HENRY M. STRACHAN St. Louis; from Camp Grant, JACOB J. KENNEDY, Frankford.

*To Kansas City, Mo.,* Aviation Section, Signal Corps, for duty, Lieut. SAM E. ROBERTS, Kansas City.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieuts. REX L. DIVELY, SAMUEL H. SNIDER, Kansas City; JAMIE C. THOMPSON, St. Louis.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Sheridan, Lieut. JOHN R. ELLIOTT, Clarksdale.

*To Washington, D. C.,* Surgeon-General's office, Capt. GREENE D. McCALL, Fulton.

## Montana

*To Del Rio, Texas,* for duty, from Fort Riley, Capt. SPIES V. WILKING, Butte.

*To New York City,* Bellevue Hospital, for instruction, and on completion, *to Camp Lee,* for duty, from Fort Oglethorpe, Lieut. FERRIS L. ARNOLD, Billings.

## Nebraska

*To Camp Dodge,* Des Moines, Iowa, for duty, Lieut. THOMAS E. ATKINSON, Muhlen.

*To Fort Oglethorpe,* for instruction, from Fort Monroe, Capt. WILLIAM N. ANDERSON, Omaha.

*To Fort Riley* for duty as instructor, from Fort Riley, Major JOHN P. LORD, Omaha; Lieut. WESLEY C. BECKER, Papillion.

## New Hampshire

*To Camp Wheeler,* Macon, Ga., for assignment to duty, from Camp Wheeler, Major HENRY L. STICKNEY, Manchester.

## New Jersey

*To Camp Lee,* Petersburg, Va., for duty, Lieut. AUGUSTUS L. L. BAKER, Dover; from Columbus Barracks, Lieut. STERNE MORSE, Boonton; from New York City, Lieut. AARON G. BALDWIN, East Orange.

*To Camp Wheeler,* Macon, Ga., for temporary duty, Capt. JESSE D. LIPPINCOTT, Newark.

*To Fort Oglethorpe* for instruction, Lieuts. THOMAS W. PHILLIPS, Camden; HERMAN L. SHEEHE, Jersey City; JAMES M. TORRENCE, Phillipsburg.

*To Milwaukee, Wis.,* Milwaukee County Hospital, for duty, from Columbus Barracks, Lieut. STEPHEN CAMPBELL, Woodbury.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieut. NEIL C. STEVENS, Morristown.

## New Mexico

*To Fort Bayard, N. M.,* for duty, Lieut. EMMER P. DAVID, Tyrone.

## New York

*To Army Medical School,* Washington, D. C., for instruction, Capt. LESLIE M. WILKINS, Dexter; Lieuts. HENRY B. BOLEY, Brooklyn; JAMES P. FITZGERALD, Clayton; CHARLES G. IRISH, Lancaster; MALCOLM TURNER MUNKITTRICK, WILLIAM F. WIGGINS, New York City; WILLIAM M. EDMONDS, Tonawanda.

*To Camp American University,* Washington, D. C., for duty, from Fort Oglethorpe, Capt. WILLIS S. COBB, Corning.

*To Camp Bowie,* Fort Worth, Texas, as divisional psychiatrist, from San Antonio, Lieut. JOHN J. HUGHES, Mount Vernon.

*To Camp Custer,* Battle Creek, Mich., for temporary duty, from Camp Jackson, Lieut. LEWIS H. TAFT, New York City.

*To Camp Dix,* Wrightstown, N. J., for temporary duty, on completion of his course at New York City, Major MARTIN B. TINKER, Ithaca. For duty, Capt. EDWARD H. PERSHING, Woodmore, Long Island.

*To Camp Meade,* Annapolis Junction, Md., for temporary duty, from New York City, Lieut. HENRY M. THOMAS, New York City.

*To Camp Sevier,* Greenville, S. C., Aviation Mobilization Camp, for duty, Lieut. WILLIAM H. TAYLOR, Brooklyn.

*To Camp Sherman,* Chillicothe, Ohio, from Camp Sherman, Capt. REUBEN J. HELD, New York City. As a member of a board for the purpose of examining the command for nervous and mental diseases, from Ann Arbor, Capt. REEVE TURNER, New York City.

*To Fort Oglethorpe* for instruction, Capt. JAMES P. HUNT, New York City; Lieuts. ARTHUR J. O'CONNER, Brooklyn; HARRY E. WHEELOCK, Jamestown; HERMAN LEVISON, JOHN L. SENGSTACK, New York City; from Fort Oglethorpe, Lieut. LOUIS GOLD, Brooklyn.

*To Governor's Island, N. Y.,* Coast Defenses, from Fort Oglethorpe, Lieut. CARSON C. FAULKNER, Arena.

*To Hoboken, N. J.,* for duty, from Camp Cody, Lieut. HARRY C. SALTZSTEIN, New York City.

*To Lakewood, N. J.,* for duty, from Camp Upton, Lieut. GUSTAVE A. BRAUN, Brooklyn.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieuts. JACOB H. HIRSCH, Haverstraw; HERMAN B. PHILIPS, MAURICE M. POMERANZ, New York City; from Fort Riley, ORVILLE B. CHANDLER, Poughkeepsie. For duty, Lieuts. FREDERICK C. KELLER, LAWRENCE J. OSBORNE, New York City; from Fort Oglethorpe, Lieuts. ROLAND P. BLYTHE, GEORGE A. KOENIG, BERNARD L. ROBINS, CORNELIUS J. TYSON, JOHN H. WYSKOFF, New York City; from Fort Riley, Lieuts. CHARLES C. DARLINGTON, CHARLES H. NAMMACK, New York City. For intensive training, Lieut. BERTRAM P. BROWN, Brooklyn. Neurological Institute for instruction, Lieut. FREDERICK P. SCHENKELBERGER, Collins; for intensive training, Lieut. ELIAS C. FISCHBEIN, Senyea. Roosevelt Hospital for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. WILLIAM L. GROGAN, Rome.

*To Philadelphia, Pa.,* Evans Dental Institute, for instruction, Lieut. OTTO C. PICKHARDT, New York City.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Dodge, Lieut. ALOYSIUS M. MULHOLLAND, New York City.

*To Rockefeller Institute, N. Y.,* for instruction, and on completion *to Army Medical School,* for duty, Lieut. ADOLPH E. VOEGELIN, Brooklyn; on completion *to Philadelphia* for further instruction and on completion *to Camp Jackson* for temporary duty, Lieut. HAROLD K. BELL, Brooklyn; on completion *to Walter Reed General Hospital* for duty, Lieut. JAMES L. FAGAN, New York City.

*To San Antonio, Texas,* Kelly Field, to examine command in his specialty, from Camp Travis, Lieut. AUGUSTUS B. DYKMAN, Riverdale.

*To San Francisco, Calif.,* Letterman General Hospital, from Portland Ranch, Lieut. RAE W. WHIDDEN, New York City.

*To Washington, D. C.,* Surgeon-General's office, Major ALFRED E. COHN, New York City. Aviation Section, Signal Corps, Medical Research Board, Aviation Section, Signal Corps, from Chanute Field, and on completion *to his sick leave,* Capt. CONRAD BERENS, Jr., New York City.

*To his home and to the inactive list* of the Medical Reserve Corps, Lieut. CHARLES GOTTLIEB, New York City.

*To his home and honorably discharged* from the Medical Reserve Corps, on account of physical disability which existed prior to his entrance into the service, Capt. JAMES E. HOLDEN, Collins; Lieuts. EDWARD C. EHLERS, LYMAN J. SPALDING, New York City.

## North Carolina

*To Camp Hancock,* Augusta, Ga., for duty, Lieut. FREDERICK H. LINTHICUM, Charlotte.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, Lieuts. ALTON C. CAMPBELL, Raleigh; CARL M. VAN POOLE, Salisbury.

*To Camp Meade,* Annapolis Junction, Md., for duty, Lieut. GEORGE F. BULLARD, Elizabethtown.

*To Fort Oglethorpe,* for instruction, from Fort Monroe, Capt. THOMPSON FRAZER, Asheville. For instruction, Capt. ARTHUR T. PRITCHARD, Asheville; Lieut. LUCIUS V. DUNLAP, Albemarle.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, from Baltimore, Lieut. FRANK R. RUFF, Duke.

*To their homes and honorably discharged* from the Medical Reserve Corps on account of physical disability which existed prior to entrance into the service, Lieuts. ISRAEL W. MAYERBERG, Selma; CHARLES T. ROEBUCK, Williamston.

## North Dakota

*To Camp Wadsworth,* Spartanburg, S. C., for temporary duty, on completion *to his course at New York City,* Capt. JAMES P. AYLEN, Fargo.

*To Rantoul, Ill.,* Aviation Section, Signal Corps, for duty, Lieut. KNUTE O. KNUDSON, Glenburn.

## Ohio

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. HENRY R. BAREMORE, Jr., ROY B. LUCE, Akron; WILLIAM E. DWYER, PAUL F. FINCH, Cleveland; WILLIAM H. MORGAN, Columbus; ALBERT W. McCALLY, Dayton; NATHAN C. HATFIELD, Fostoria; FRANK S. VAN DYKE, Hammondsville; CHARLES A. S. WILLIAMS, Marietta; VICTOR R. TURNER, Newark; JAMES D. COUPLAND, Norwalk; ALFRED B. MILLS, Portsmouth. For duty, Lieut. FREDERICK A. EULER, Cleveland.

*To Camp Jackson,* Columbia, S. C., for temporary duty, Lieut. WILLIAM H. PARKER, Wellston.

*To Camp Sherman,* Chillicothe, Ohio, as Division Psychiatrist, and to examine the command for mental and nervous diseases, from Camp Sherman, Lieut. JOHN D. O'BRIEN, Canton.

*To Camp Wadsworth,* Spartanburg, S. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, from Camp Meade, Lieut. ALLEN N. WISELY, Ada.

*To Dayton, Ohio,* McCook Field, Aviation Section, Signal Corps, for duty, Lieuts. JAMES W. ALLBRITAIN, KENNETH A. CLOUSE, PAUL A. DAVIS, Columbus; ARNO E. BOHM, Montville; REX W. BEARD, Pioneer.

*To Fort Oglethorpe,* for instruction, Capt. THOMAS FOSTER, Wooster; Lieuts. HAROLD F. KOPPE, Logan; FRANCIS W. THOMAS, Piqua; from Garen City, Lieut. RUDOLPH S. REICH, Cleveland.

*To Milwaukee, Wis.,* Milwaukee County Hospital, for duty, from Columbus Barracks, Capt. JOHN W. MEANS, Columbus.

*To Philadelphia, Pa.,* Evans Dental Institute, for instruction, Capt. SIDNEY D. FOSTER, Toledo; on completion *to his proper station,* from Columbus Barracks, Lieut. EDMUND R. BRUSH, Zanesville.

*To Rochester, Minn.,* Mayo Clinic, for instruction and on completion to Camp Doniphan, for duty, Lieut. CLARENCE G. BOZMAN, Hebron.

*To Rockefeller Institute, N. Y.,* for instruction, and on completion to Camp Wadsworth, for duty, from Columbus Barracks, Capt. SYLVESTER J. GOODMAN, Columbus.

*To Takoma Park,* Washington, D. C., for temporary duty, from Columbus Barracks, Major FRANK WINDERS, Columbus.

### Oklahoma

*To Camp Doniphan,* Fort Sill, Okla., for duty, Lieut. WILLIAM W. D. AKERS, Ada; from Fort Riley, Lieut. HARL F. VANDEVER, Lahoma.

*To Camp Pike,* Little Rock, Ark., for duty, from Fort Sill, Lieut. WILLIAM R. BARRY, Bradley.

*To Dallas, Texas,* Love Field, Signal Corps, Aviation School, for duty, Lieuts. LEVI MURRAY, Milfray; GROVER C. MOORE, Wagoner.

*To Fort Bliss, Texas,* headquarters of the military police, from Fort Riley, Lieut. WILLIAM W. BRODIE, Tulsa.

*To Fort Leavenworth, Kan.,* for duty, from Camp Doniphan, Capt. BENJAMIN H. BROWN, Muskogee.

*To Fort Oglethorpe* for instruction, Lieut. JAMES E. ADAMS, Chandler.

*To Fort Riley,* for instruction, Lieuts. ADELBERT H. BENSON, Faxon; ARTHUR G. HUNT, Howe; GUY P. McNAUGHTON, Miami.

*To San Antonio,* Kelly Field, Aviation Section, Signal Corps, for duty, Capt. JESSE G. MARSHALL, Canton; Lieuts. MILES L. LEWIS, Ada; MILTON H. EDENS, Anadarke; EDWARD L. MILLER, Grainola; WILLIAM C. FASHEE, Grandfield; HENRY C. LLOYD, Hobart; WALDO B. M. B. NEWELL, Hunter; ESLEY E. LAWSON, Oakwood; THOMAS L. LAUDERRALE, Oklahoma City.

### Oregon

*To Portland, Ore.,* Aviation Section, Signal Corps, for duty with that unit, and as medical member of examining board and recruiting officer, Capt. JOSEPH L. McCOOL, Portland.

### Pennsylvania

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. MICHAEL G. DEWEY, Ashland; EDWARD E. MARSH, Centralis; A. BOYNTON NEVLING, Clearfield; BARNETT H. COOPER, Glen Lyon; RICHARD YOFFE, Harrisburg; FRANKLIN C. BRUSH, WILLIAM H. STONER, SYDNEY L. WINGRADE, Philadelphia; ROBERT E. BARTON, Pine Grove; ABRAM V. HICKS, JOHN A. LOGAN, JOHN L. STEFFY, Pittsburgh; JAMES CLINTON HAWKINS, McKees Rocks; WILLIAM W. WILKINSON, Meadville; ROBERT J. FLYNN, Scranton; ARTHUR W. THOMAS, Waynesboro; AUSTIN L. CORT, Wilson; GEORGE W. MELLON, Woodlawn.

*To Camp American University,* Washington, D. C., for duty, from Fort Oglethorpe, Lieuts. JESSE H. SWICK, Beaver Falls; WILLIAM H. ANNESLEY, Philadelphia.

*To Camp Beauregard,* Alexandria, La., for temporary duty, on completion of his course at New York City, Capt. WILLIAM C. HEISEY, McKeesport.

*To Camp Bowie,* Fort Worth, Texas, for duty, Lieuts. JOHN P. KENNEDY, JOHN M. WELCH, Philadelphia.

*To Camp Dix,* Wrightstown, N. J., for duty, from New York City, Capt. PERCY DELONG, Philadelphia.

*To Camp Doniphan,* Fort Sill, Okla., for temporary duty, from Philadelphia, Major CHARLES A. E. CODMAN, Philadelphia. For temporary duty, Lieut. MORRIS H. TINDALL, Philadelphia.

*To Camp Greene,* Charlotte, N. C., for duty, from Camp Greene, Lieut. JOHN W. BOGGS, Philadelphia; from Fort Oglethorpe, Lieut. JOHN J. DONOHUE, Frackville.

*To Camp Hancock,* Augusta, Ga., for temporary duty, Capt. CHARLES H. WEBER, Philadelphia.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. MARLEY G. ALBRIGHT, Philadelphia.

*To Camp Lee,* Petersburg, Va., to inspect orthopedic work being conducted at that camp, and on completion *to his proper station,* Major JAMES T. RUGH, Philadelphia. For duty, Lieuts. JAMES R. ST. CLAIR, Alexandria; CLAUDE E. SNYDER, Altoona; NATHANIEL W. WINKELMAN, Bridgeville; FRANK C. WILLARD, Clarendon; PERRY C. SMITH, New Brighton; REUBEN H. PEARLMAN, Pittsburgh; HARRY M. KRAEMER, Scranton; CHARLES H. SILMAN, St. Mary's; from Fort Oglethorpe, Lieut. FRED B. WILSON, Beaver.

*To Camp Meade,* Annapolis Junction, Md., for duty, Lieut. JOHN W. CONRAD, Philadelphia.

*To Camp Pike,* Little Rock, Ark., for examining the command, from Camp Sevier, Lieut. EDWIN H. ERNSY, Philadelphia.

*To Fort Oglethorpe* for instruction, Capts. ESTES PAINE, Clifton Heights; FREDERICK B. HARDING, Tamaqua; Lieuts. WAYNE L. SNYDER, Brooksville; FRANK C. PRATT, Fredericksburg; JAMES A. McCRACKEN, Norristown; DeFORREST BALLOU, Jr., Philadelphia; ROBERT J. CAMPBELL, Pittsburgh; JACOB W. E. ELLENBERGER, Wilkinsburg; from Baltimore, Lieut. JOHN H. BENNETT, York; from Fort Monroe, Lieut. WILLIAM H. HERR, Lancaster.

*To Governor's Island, N. Y.,* Coast Defenses, from Fort Oglethorpe, Lieut. J. MERLE EVERWINE, Clymer.

*To Newport News, Va.,* for duty, Lieuts. FREDERICK W. BYROD, Oberlin; STANLEY P. REIMANN, Philadelphia; FRED C. LARIMORE, Pittsburgh; ROBERT A. KNOX, Washington.

*To New York City,* Cornell Medical School, for instruction in military roentgenology, from Camp Meade, Lieut. THOMAS M. McMILLAN, Jr., Philadelphia. Neurological Institute for instruction, Lieuts. HOWARD H. HAMMAN, Greensburg; EDWARD P. CLARK, Pittsburgh; SIDNEY KALLAWAY, Shamokin.

*To Philadelphia,* Evans Dental Institute, for instruction, Lieut. FRANCIS S. CHAMBERS, Mt. Airy, Philadelphia; on completion *to his proper station,* from Camp Taylor, Lieut. HOMER P. PROWITT, Washington.

*To Portland, Me.,* Coast Defenses, from Fort Oglethorpe, Lieut. JOHN W. MANN, Pittsburgh.

*To Washington, D. C.,* Surgeon-General's Office, from Camp Lee, Lieut. WILLIAM J. EZICKSON, Philadelphia.

### South Carolina

*To Army Medical School,* Washington, D. C., for instruction, Lieut. SAMUEL E. WHEELER, Columbia.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, Lieuts. HARVEY M. McLURE, Bishopville; JAMES A. HAYNE, CARL A. WEST, Columbia; JOHN K. G. TUTEN, Furman; JAMES S. FOUCHE, Ninety Six.

*To Camp Sevier,* Aviation Section, Signal Corps, for duty, Lieut. WILLIAM E. WHITE, Greenville.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. AUGUSTINE S. WEEKLEY, Bamberg.

*To Fort Oglethorpe* for instruction, from Baltimore, Lieut. H. MADISON ROSS, Chester.

### Tennessee

*To Camp Lee,* Petersburg, Va., for temporary duty, from Fort Oglethorpe, Lieut. JAMES L. BRYAN, Nashville.

*To Fairfield, Ohio,* Wilbur Wright Field, Aviation Section, Signal Corps, for duty, Capt. GEORGE E. CAMPBELL, Elizabethtown; Lieut. ERNEST B. BOWERY, Fordstown.

*To Fort Oglethorpe* for instruction, Lieuts. SAMUEL HUNT, Knoxville; CONRAD O. BAILEY, Normal.

*To his home* and to the inactive list of the Medical Reserve Corps, Lieut. JOSEPH P. DELANEY, Arrington.

### Texas

*To Camp American University,* Washington, D. C., for duty, from Fort Oglethorpe, Lieut. NEWELL W. ATKINSON, Alice.

*To Camp Jackson,* Columbia, S. C., for duty, from Fort Oglethorpe, Capt. FRANK HARRISON, Ralls.

*To Camp MacArthur,* Waco, Texas, Aviation Section, Signal Corps, for duty, from Camp MacArthur, Lieut. JOHN POTTS, Fort Worth.

*To Fort Oglethorpe,* for instruction, Lieut. CHARLES H. WARREN, Gainesville.

*To Southern Department,* for assignment to duty, Capt. DAVID B. McGEE, Cameron.

*To San Antonio, Texas,* Kelly Field, Aviation Section, Signal Corps, for duty, Capt. JOHN F. NOOE, Boerne; Lieuts. JAMES A. WILKINSON, Blooming Grove; ALBERT L. MONDRICK, Bryan; JAMES R. RISINGER, Buffalo Gap; ERASTUS B. WHEAT, Cooper; WILLIAM R. SMITH, Hende; DUTCH K. ROBISON, Itasca; JAMES S. RUSHTON, Morrill; CHARLES P. YEAGER, San Antonio; GEORGE P. BAWLS, San Augustine.

*To Wichita Falls, Texas,* Call Field, Aviation Section, Signal Corps, for duty, Lieuts. WARREN M. WIER, Houston; DANIEL H. REEVES, Roby.

*To his home* and to the inactive list, Lieut. DeWITT C. BRUKES, San Antonio.

### Utah

*To Fort Riley,* for temporary duty, Lieut. FRANK K. BARTLETT, Ogden.

*To Western Department,* for assignment to duty, Lieut. CLARENCE G. STIGALL, Salt Lake City.

### Vermont

*To Fort Oglethorpe,* for duty, from Fort Oglethorpe, Lieut. FRANK C. ANGELL, Randolph.

*To Fort Riley,* for instruction, from Camp Grant, Capt. GEORGE L. BATES, Morrisville.

*To Rockefeller Institute,* New York, for instruction, and on completion to his proper station, from Camp Upton, Capt. WILLIAM STICKNEY, Rutland.

### Virginia

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. JOHN A. BOARD, Altavista; GEORGE C. RHUDY, Elk Creek; ARCHILLES D. TYREE, Iron Gate.

*To Camp Lee,* Petersburg, Va., for temporary duty, Capt. ROBERT H. WRIGHT, Richmond.

*To Camp Meade,* Annapolis Junction, Md., for duty, Lieut. LESLIE C. BURTON, Clayville.

*To Camp Shelby,* Hattiesburg, Miss., for duty, Lieut. EZRA E. NEFF, Chilhowie.

*To Fort Oglethorpe,* for instruction, Lieut. THOMAS R. COLLIER, Hampton; from Richmond, Lieut. WILLIAM B. HOPKINS, Richmond.

*To Newport News, Va.,* for duty, from Camp Meade, Lieut. ROBERT A. DAVIS, Newport News.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Fort Oglethorpe,* for instruction, Lieut. CHARLES C. TEUNANT, Charlottesville.

*To Washington, D. C.,* Government Hospital for the Insane, for intensive training, Lieut. WILLIAM A. TRIVETTE, Petersburg.

*To the inactive list,* from Richmond, Major ALFRED GRAY, Richmond.

### Washington

*To Camp Lewis,* American Lake, Washington, for temporary duty, Capt. WILMOT DE LEE READ, Tacoma.

*To Fort McPherson, Ga.,* for duty, from Douglas, Ariz., Lieut. RALPH HENDRICKS, Spokane.

*To Western Department,* for assignment to duty, Lieut. ELIPHALET T. PATEE, Pullman.

*Honorably discharged* on account of physical disability which existed prior to his entrance into the service, Lieut. DANIEL R. CAMPBELL, Pullman.

### West Virginia

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. DAVID T. WILLIAMS, Martinsburg; ALVIN McCLUNG, Pickens.

*To Fort Oglethorpe* for instruction, Capt. HERBERT H. HAYNES, Clarksburg.

*To Spartanburg, S. C.,* for duty, from Camp Gordon, Lieut. RICHARD H. EDMONDSON, Morgantown.

*To their homes and honorably discharged* from the Medical Reserve Corps, Lieut. THADDEUS C. McCLUNG, Ronseverte; on account of physical disability which existed prior to entrance into the service, Lieut. CLERMONT E. PARK, Parkersburg.

*To Ann Arbor, Mich.,* for intensive training, Capt. OSCAR C. WILLHITE, Lake Geneva.

### Wisconsin

*To Camp Taylor,* Louisville, Ky., for duty, Capt. BURT E. SCOTT, Berlin; Lieut. CHARLES R. FARNHAM, Milwaukee.

*To Camp Wheeler,* Macon, Ga., for duty, from Fort Riley, Capt. MILTON W. HALL, Mondovi.

*To Fort Des Moines, Iowa,* for duty, Lieut. WALTER J. JONES, Rockland.

*To Mercedes, Texas,* for duty with the Sixteenth Cavalry, from Fort Riley, Lieut. WAYNE F. COWAN, Stevens Point.

*To Milwaukee, Wis.,* Milwaukee County Hospital, for duty, Majors ROBERT C. BROWN, CURTIS A. EVANS, Milwaukee; Capts. HENRY B. HITZ, PHILIP F. ROGERS, FRANCIS A. THOMPSON, Milwaukee; Lieuts. ORVILLE R. LILLE, FRANCIS B. McMAHON, EDWARD L. THARINGER, Milwaukee. Milwaukee Auditorium for duty, from Fort Riley, Lieuts. GEORGE M. FITZGERALD, Milwaukee; JOHN E. RUETH, Sun Prairie.

*To New York City,* Neurological Institute, for instruction, Lieut. ADAM L. CURTIN, Milwaukee. *Roosevelt Hospital,* for instruction, and upon completion *to Camp Lee,* Petersburg, Va., for temporary duty, from Fort Oglethorpe, Lieut. CORNELIUS J. CORCORAN, Milwaukee.

*To Rantoul, Ill.,* Aviation Section, Signal Corps, for duty, Lieut. DREXEL L. DAWSON, Rice Lake.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and upon completion *to his proper station,* from Fort Snelling, Lieut. GEORGE F. SPENCER, Evansville.

*Honorably discharged,* Lieut. GEORGE E. PETERSON, Waukesha.

*To his home and honorably discharged,* Lieut. LEE W. CAREY, Winnebago.

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**For a Canadian Federal Department of Public Health.**—Commenting editorially on the establishment of a federal department of public health with a minister in the cabinet, a question now being earnestly considered in Canada, the *Public Health Journal* says: "We have pleasure in serving notice on the federal government that unless it can be clearly established that this matter must wait until after the war, and further, that other less vital questions shall not receive prior consideration because of political expediency, we are prepared to show that public opinion is in sympathy with the earliest possible action directed to the end that federal public health matters may be dealt with by a federal department of public health. Furthermore, federal or national public health questions relating to infant welfare, industrial hygiene, immigration, social hygiene, mental hygiene, housing, sickness insurance, etc., are problems which do not demand attention only when a government sees fit to deal with them. They are basic things in social welfare and must not be sacrificed to political expediency."

# Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

## CALIFORNIA

**Tri-County Tuberculosis Hospital.**—Announcement is made that the proposed tuberculosis hospital for Kings, Tulare and Kern counties will be in the Sierra foothills, not far from Springville.

**Personal.**—Dr. Francis F. Jackson has been elected one of the commissioners of public health and safety of Oakland. ——Dr. Wilbur A. Sawyer, Sacramento, has resigned as secretary of the state board of health, to accept military service, and will, it is said, be succeeded by Dr. Wilfred H. Kellogg, San Francisco.

**Tentative Report on Social Insurance.**—The State Social Health Insurance Committee of the Los Angeles County Medical Association has made a tentative report to the society, setting forth forty-four propositions which should be included in a scheme of state health insurance, which the committee approves in principle. Their scheme is based on the propositions of the Committee of State Social Insurance of the American Association for Labor Legislation. The insurance is to be compulsory for wage workers earning less than $100 per month and voluntary for those earning more. It provides that the state shall care for the unemployed, and that the state and employers shall care for all wage workers getting less than $40 per month, as well as all casual employees. Benefits are to be paid in case of sickness or accident or for death not covered by the workmen's compensation. The committee consists of Drs. William Wenzlick, Ross Moore and T. Perceval Gerson.

## ILLINOIS

**Laboratory for Hospital.**—The Lutheran Hospital, Moline, has installed a well equipped pathologic laboratory which is under the direction of Dr. Maud J. O. Vollmer, Moline.

**Smallpox in Bellville.**—Dr. Buenaventura H. Portuondo, chairman of the Bellville Board of Health, states that there are about twenty-five cases of smallpox in the city at present. Inspections of all schools have been made and all pupils have been vaccinated.

### Chicago

**Medical Women Entertain.**—The women students of medical colleges in Chicago, and the women interns of the city were the guests of the Medical Women's Club and the After Dinner Club, February 13, at a dinner in the Chicago College Club.

**Ear, Nose and Throat Men Meet.**—At the annual meeting of the Otological, Laryngological and Rhinological Society, Dr. Frank Allport was elected president; Dr. Charles H. Long, vice president, and Dr. Edward P. Norcross, secretary-treasurer.

**Unlicensed Practitioners Fined.**—Ernest P. Handl is reported to have pleaded guilty to practicing medicine without a license and to have been fined $50 and costs, January 16. Mrs. Bertha Roeske is said to have pleaded guilty, February 7, to practicing medicine without a license, and to have been fined $25.

**New Pavilion for Hospital.**—The Mothers' Aid Pavilion was formally transferred to the Chicago Lying-In Hospital, January 5. The building has been erected at a cost of more than $90,000, and is now at the services of the public and of the medical profession. Dr. Joseph B. De Lee, is physician in charge.

**Red League to Open Clinic.**—Physicians, actors and clergymen, came together, February 7, at the first meeting of the Red League in a campaign to restrict venereal disease. The league has decided to open a venereal clinic at 118 West Grand Avenue, supplementing the work of the clinic recently established by the city.

**Physicians Lose Licenses.**—The licenses to practice medicine granted to Drs. Leon T. Burgess, Isaac Walton Hodgens and Arthur L. Blunt are said to have been revoked, January 9, by Francis W. Shepardson, director of registration and education. In each case the revocation was due to violation of the Medical Practice Act.

**Medical Relief Agencies Need Money.**—Twelve organizations of the hospital and medical group of the Chicago Council of the Social Agencies at a meeting held, February 2, expressed the need for $200,000, for the work of this year, beyond what they can reasonably expect to raise from the regular source of income. Each of these organizations is to start a campaign to raise the money needed.

**New Zealand Child Welfare Worker in Chicago.**—Dr. F. Truby King, New Zealand, noted authority on child welfare and general superintendent of the Royal New Zealand Society for the Health of Women and Children, visited Chicago last week. A meeting was held in his honor, February 5, by the child welfare division of the Council of National Defense, and the Elizabeth McCormick Memorial Fund, at which Dr. King outlined the means by which New Zealand has attained the honor of having the low record for infant mortality of 50 per thousand. Dr. King believes that environment beats heredity and that ignorance is not confined to the poorer classes of society. Girls should be instructed for motherhood because they are girls and not because they are financially dependent or independent. This work is not a charity but a necessity for the healthful maintenance of the race. Dr. King also spoke at the City Club, and before the nurses and physicians of the health department, and of the Chicago Municipal Tuberculosis Sanatorium.

**Personal.**—Dr. Travy Hamilton Clark has been appointed president of the medical section of the National Fraternity Congress.——Dr. Frank Smithies has been appointed associate professor of medicine in the School of Medicine of the University of Illinois.——Dr. William W. Quinlan, medical referee of the Mutual Life Insurance Company of New York, has been made supervising referee of the company for the territory west of Chicago.——Dr. James M. Hancock was shot in the left temple, eye and right arm by robbers who were endeavoring to escape the police, February 2. Dr. Hancock is under treatment at the Hospital of St. Anthony and hopes are entertained for his recovery.——Major John M. Dodson has succeeded Dr. Frank Billings as medical aide to the governor of Illinois.——Lieut. Karl J. Henricksen, M. R. C., assigned to the Twentieth Engineers, who was formerly on duty in the office of the attending surgeon, Chicago, was one of the rescued passengers of the ill-fated *Tuscania*.——Dr. William E. Buehler, founder and president since the organization of the Illinois Masonic Hospital Association, declined reelection at the annual meeting, February 5.

### INDIANA

**Personal.**—Drs. Davis L. Field and John H. Baldwin have been appointed members of the Jeffersonville Board of Health. ——Dr. Clark E. Day has been appointed police surgeon of Indianapolis.

**Section Meeting.**—A meeting of the eye, ear, nose and throat section of the Indiana State Medical Society, was held at the Hotel Severin, Indianapolis, February 6 and 7. At this meeting the Indiana Society of Ophthalmology and Otolaryngology was organized.

**Vital Statistics.**—According to statistics 62,538 babies were born in Indiana in 1917 and there were 39,416 deaths. Tuberculosis caused 3,883 deaths; pneumonia, 3,639; measles, 543; typhoid fever, 481; scarlet fever, 144; infantile paralysis, 33; smallpox, 13; 410 persons committed suicide; 182 murdered; deaths due to external causes, 2,211 men and 707 women.

**New Building for School of Medicine.**—Dr. C. P. Emerson, dean of the Indiana University School of Medicine, has consulted with Governor Goodrich in regard to the construction of the new school of medicine to be built on the grounds of the Robert W. Long Hospital. The estimated cost of the new building is $365,000. The present plan is for the state to buy the old medical college building at approximately $150,000, and for the university to pay the remainder of the cost of the new building.

**State Board Meeting.**—At the annual meeting of the State Board of Medical Registration and Examination, held in Indianapolis, January 8, it was decided that hereafter no examination for license to practice medicine in Indiana will be given in any other language than English. Dr. James M. Dinnen, Fort Wayne, was elected president, to succeed Dr. William A. Spurgeon, Muncie; Dr. A. B. Caine, Marion, was elected vice president; Dr. William T. Gott, secretary (reelected), and Dr. Moses S. Canfield, Frankfort, treasurer.

**Smallpox.**—On January 22, there were 192 cases of smallpox in Indianapolis, and the authorities are discussing the need of an ordinance making vaccination compulsory. In the cases among adults, 99.8 per cent. of the individuals had never been vaccinated. Not a case has been reported among schoolchildren since vaccination was made compulsory.——It is reported that there are 100 cases of smallpox in Knightsville and that State Health Officer John N. Hurty has notified Health Officer F. G. Thornton, that unless the town takes steps to stop the spread of the disease, the entire town will be quarantined.——More than 200 cases of smallpox have been reported in Bicknell within the last two months.

### KENTUCKY

**Personal.**—Major Arthur T. McCormack, M. R. C., Bowling Green, has been assigned to permanent duty as chief health officer of the Panama Canal, succeeding Col. Albert E. Truby, M. C., U. S. Army. Major McCormack left for his new post of duty, February 1.——Dr. Arthur H. Keller has been elected secretary of the health board of Paris and reelected city health officer.

### LOUISIANA

**New State Board Officers.**—At the annual meeting of the State Board of Medical Examiners, held in New Orleans, the board was reorganized and the following officers were elected: president, Dr. Leon J. Menvill, Houma; vice president, Dr. Thomas E. Wright, Monroe, and secretary-treasurer, Dr. Everard W. Mahler, New Orleans.

**Bureau of Social Diseases.**—Carrying out the suggestion of Surgeon-General Gorgas of the U. S. Army, the Louisiana Board of Health has established a bureau of social diseases, which is to make a study of every phase of the social evil and report to the board. The bureau is composed of the members of the state board and nine other physicians, including Dr. Robin of the New Orleans Board of Health.

**New Officers.**—At the annual meeting of the Orleans Parish Medical Society, January 14, Dr. Paul J. Gelpi was installed as president, and Dr. Paul T. Talbot as secretary. The service flag of the society, containing fifty-six stars, was presented by Dr. John Callan, but the flag-raising ceremonies were postponed.——At the annual meeting of the Shreveport Medical Society the following officers were elected: president, Dr. Joseph E. Knighton; vice presidents, Drs. Arthur A. Herold and J. Garnett Yearwood, Caspiana; secretary, Dr. Willis P. Butler, and treasurer, Dr. Walter B. Hunter. A service flag is to be placed in the society headquarters, in the Shreveport Hospital.

### MARYLAND

**Personal.**—Dr. Herschel J. Strickler has been appointed health officer for the district, to serve during Dr. Charles T. Buckner's absence on military duty.——Dr. Lewellys F. Barker, Baltimore, was reelected president of the National Committee for Mental Hygiene at its tenth annual meeting, recently held in New York.

**University of Maryland Unit Ordered Into Training.**—The members of the base hospital unit of the University of Maryland have received orders from the Surgeon-General's Office to leave at once for Camp Meade, Camp Dix or Camp Devens for training preparatory to service in Europe. Dr. Archibald C. Harrison, Baltimore, is organizing the unit, which comprises about 200 men.

**Dr. Mall Eulogized.**—Memorial services to Dr. Franklin P. Mall, late professor of anatomy and embryology in Johns Hopkins Medical School, marked the last public tribute of respect to the first of the group of physicians who, in 1893, established the school and inaugurated a new era of medicine in America. About 200 persons attended the services which were held at Homewood and presided over by President Frank J. Goodnow of the university.

**Whooping Cough Epidemic.**—Brooklyn, Anne Arundel County, is experiencing the worst epidemic of whooping cough in its history. Not only are young children by the score suffering with the disease, but many adults are also affected. Fully 75 per cent. of the schoolchildren in Brooklyn have been affected. The disease broke out several weeks ago and has spread throughout the section, reaching Curtis Bay, Fairfield and nearby points. Some of the cases among the adults are of the most dangerous type, and pneumonia frequently follows.

### MASSACHUSETTS

**Infantile Paralysis.**—An appeal for funds to the amount of $18,000 has been made to continue the work of the commission of Harvard Medical School of Infantile paralysis. The figures show that 1,118 children were examined by the commission during the year ended Nov. 20, 1917, of whom 402 had infantile paralysis prior to 1916, 670 during 1916 and 46 during 1917. Cases followed up at the homes by orthopedic nurses numbered 645; by state field workers of the commission, 520; by the Boston Instructive District Nursing Association for the commission, 125; state clinics were held in thirteen different cities with a total attendance of 950, and 155 clinics were held at the Children's Hospital, Boston, with an attendance of 3,889.

### MINNESOTA

**Mayo Fund Turned Over to State.**—January 17, the Wells and Dickey Company, Minneapolis, turned over to State Treasurer Rines, bonds and cash amounting to $1,693,000, representing the trust fund established by Drs. Charles H. and William J. Mayo, Rochester, for carrying on medical research work at the University of Minnesota.

**Personal.**—Dr. Walter J. Marcley, Minneapolis, has been granted indefinite leave of absence from the City and Hopewell hospitals, that he may do special work in tuberculosis in France. Dr. Frank H. Hacking has taken charge of the work at the hospitals during Dr. Marcley's absence.——Dr. Christian S. Reimestad has been appointed health officer of Brainerd, succeeding Dr. Werner E. Hemstead, resigned to accept the position of physician at the State Infirmary, St. Cloud.

### NEW JERSEY

**Contract for Sanatorium Awarded.**—The board of supervisors of Rockland County have awarded the contract for the construction of the new tuberculosis hospital for $42,372.

**Personal.**—Dr. William L. Holt, health officer of Maplewood, has been appointed full time health officer of Beloit, Wis.——Dr. John J. McDonald has resigned as superintendent of the Jersey City Hospital.

**Provision for Sick Soldiers.**—The commissioners of Jersey City have authorized Mayor Haig to expend $20,000 in fitting up additional hospital quarters, because of the great increase in population surrounding Jersey City as a consequence of the establishment of Camp Merritt and other camps within a short distance of the city.

**Clinic Awarded for Drug Users.**—The citizens' committee appointed by Mayor Gillen of Newark to investigate the subject of habit-forming drugs in the city, and to make recommendations for the elimination of this evil, have recommended that a clinic be established in the City Dispensary, for the study and treatment of narcotic addicts, so that immediate help may be given indigent addicts, and "a progressive study be made to guide in the committee's future deliberations."

### NEW YORK

**County Tuberculosis Hospitals.**—By the laws of 1917, the statute that makes it mandatory for every county having a population of more than 35,000 to provide a tuberculosis hospital, affects twenty counties. The department has inspected sites in all except two of these twenty counties, where the authorities have appointed site committees. Sites have been approved in the following eleven counties: Niagara, Livingston, Broome, Herkimer, Nassau, Rockland, Chautauqua, Wayne, Otsego and Rensselaer counties.

**Long Island Physicians Meet.**—At the twentieth annual meeting of the Associated Physicians of Long Island, held at the Long Island College Hospital, January 26, the following officers were elected: president, Dr. Lefferts A. McClelland, Brooklyn; vice presidents, Drs. William A. Hulse, Bay Shore; Henry Goodwin Webster, Brooklyn, and Harris A. Houghton, Bayside; secretary, Dr. James Cole Hancock, Brooklyn, and treasurer, Dr. Edwin S. Moore, Bay Shore. The morning sessions consisted of medical and surgical clinics; in the afternoon a clinical demonstration of the Carrel-Dakin system was made and the day was concluded with a banquet at the Hamilton Club.

**Bill for Reorganization of State Board of Charities.**—There is a bill before the legislature providing for the reorganization of the State Board of Charities. Instead of an unpaid board of twelve members, appointed by the governor from different districts, the bill provides for a board of nine members, at least one of whom shall be a woman and of whom three are to be paid. They are to be appointed from the state at large and must have special qualifications specified by law. The three paid members are the president and the chairmen of two new bureaus within the board, the Bureau of Mental Deficiency and the Bureau of Dependent Children. The specialists provided for are an educational expert, a physician who shall have special knowledge in tuberculosis, one having special knowledge in psychiatry, a general practitioner and a lawyer.

**Public Health Nursing.**—During 1917 the state was divided into thirteen districts, each in charge of a public health nurse and a nurse trained in the after-care of infantile paralysis, according to *Health News* (January, 1918). Working in connection with the sanitary supervisors of their districts, they investigated forty-nine outbreaks of communicable diseases, made tuberculosis surveys in five counties, conducted child welfare exhibits in eighteen municipalities, and established ten little mothers' leagues in the state, with a membership of 415. Birth registration was investigated in seventeen municipalities and rural health surveys were made in seventeen others. Food exhibits and talks in connection with them were made by the nurses in twenty-five communities, a different community being visited each week. The after-care nurses had an average of 293 poliomyelitic patients to visit in addition to seventy-two patients who were brought to hospitals for operation. One nurse was assigned to the supervision and instruction of midwives. The nurses will arrange for tuberculosis clinics in their districts, to be conducted by experts, and will maintain a proper follow-up system in the homes.

### New York City

**Harvey Society Lecture.**—The sixth lecture of the Harvey Society series was delivered, February 9, by Dr. J. Gordon Wilson, professor of otology in the University of Chicago, on the "Effect of High Explosives on the Ear."

**Gifts to Columbia University.**—Among the gifts to Columbia University announced at a recent meeting of the trustees of that institution is one of $3,000 for research work in war problems from an anonymous donor and another of $5,000 from Clarence Mackay for surgical research work.

**The National Committee on Mental Hygiene.**—This organization has recently held its tenth annual meeting in New York, when the following officers were elected: president, Dr. Lewellys F. Barker, Baltimore; vice presidents, Drs. Charles W. Elliot, Walter B. James, New York, and William H. Welch, Baltimore; treasurer, Mr. Bannard; medical director, Dr. Thomas W. Salmon, New York; associate medical director, Dr. Frankwood E. Williams.

**Ask Congress to Run Quarantine Station.**—Secretary of the Treasury McAdoo has asked Congress for an appropriation of over $1,500,000 for the New York Quarantine Station. Of this sum $1,395,275 is asked for the purpose of purchasing the property of the station and $275,000 is for the purpose of operating the station during 1919. The bill asking this appropriation is accompanied by a statement showing why the federal government should own and operate this quarantine station.

**Court Sustains Privacy of Health Department Records.**—Following the refusal of the health department to accede to the request of Charles M. Higgins to furnish certified copies of certificates of all the thirty-three fatal cases of tetanus occurring in the city in 1915, application was made to the supreme court, County of Kings, for a writ of mandamus to compel the commissioner of health to furnish the copies requested. The supreme court has handed down a decision denying the application and dismissing the proceedings.

**Pneumonia Deaths Continue to Increase.**—The records of the New York City Health Department show that for the week ending February 9, the mortality from all causes was 1,772, 355 of which were due to pneumonia, while for the preceding week there were 1,736 deaths of which 325 were due to pneumonia. The highest number of deaths from pneumonia recorded on any one day this winter was on February 5, the day following the extremely severe cold wave, when there were 73 deaths reported as due to this disease.

**Military Night at Academy.**—The meeting of the New York Academy of Medicine, February 7, was devoted to papers on military subjects, relative to the Camp Upton Base Hospital, commanded by Major Jay D. Whitham. The papers presented were, "Classification and Results of Treatment of Pneumonia at Camp Upton," by Dr. Russell L. Cecil, director of laboratory; "Measles from the Standpoint of Military Medicine," by Dr. John Francis Hackett, Mansfield Depot, Conn., in charge of contagious wards; "Hyperthyroidism in the Recruit," by Dr. Harlow Brooks, chief of medical service, and "Autoinoculation in Syphilis," by Dr. Joseph V. Klauder, in charge of the syphilis wards."

**Personal.**—Dr. Charles Norris has been appointed chief medical examiner (coroner) for a probationary period of three months. In order to assume the duties of his office he has obtained a six months' leave of absence from his position as director of laboratories. Dr. Douglas Symmers will succeed Dr. Norris as director of laboratories.——Dr. Russel A. Hibbs of the University of Louisville has been appointed professor of orthopedic surgery in the college of Physicians and Surgeons of Columbia University.——Dr. Eugene W. Caldwell of Bellevue Hospital Medical College has been appointed to the newly established chair of roentgenology in the same institution.——Dr. Mark J. Schoenberg has been appointed attending surgeon to the Hermann Knapp Memorial Eye Hospital.——Capt. Henry James, M. R. C., who has been stationed at Base Hospital No. 15 in France since last July, has returned to this country on six months' leave of absence.——Dr. Charles D'Artois Francis, Brooklyn, is reported to have been committed to the Kings Park State Hospital, January 29.

### PENNSYLVANIA

**Upstate Hospital Burns.**—The Williamsport Private Hospital has been destroyed by fire. The blaze was caused by an overheated furnace. All the patients were rescued. The loss is $50,000.

**Personal.**—Dr. Maud Conyers Exley has been appointed a member of the dispensary staff of the Harrisburg Hospital, succeeding Dr. James E. Dickinson, transferred.——Dr. Edward S. Dougherty, Ashley, was painfully injured when an automobile in which he was riding crashed into a telegraph pole near Liberty.

**Rag Shops Must Get License.**—In accordance with an act passed by the 1917 legislature, effective January 1 of this year, the board of health has completed arrangements for issuing licenses to dealers in rags, used clothing and waste paper. The purpose of the act is to have that business conducted in a more sanitary manner.

#### Philadelphia

**Personals.**—Dr. Edward A. Treacy has been appointed assistant medical inspector of the department of health and charities with a salary of $1,400.——At a meeting of the board of trustees, Prof. Charles H. La Wall, chemist for the state dairy and food commission, was elected dean of the pharmacy course in the Philadelphia College of Pharmacy, to succeed the late Dr. Joseph P. Remington.

**New Medical Club Election.**—As the result of a protest that the recent election was in technical violation of the by-laws of the organization, filed with the board of governors of the Medical Club of Philadelphia, the board has called for another election. The technical point raised was that the name of the member elected did not appear on the official ballot as required by the by-laws of the organization.

**Centenary of Dr. Wistar.**—The centenary of the death of Dr. Caspar Wistar was celebrated, February 1, by the American Philosophical Society, of which he was president from January, 1815, until his death in January, 1818. Papers were read on Dr. Wistar "As a Citizen and Philosopher," by Dr. I. Minis Hays, "As a Human Anatomist," by Dr. George M. Piersol, and "As a Comparative Anatomist," by Dr. William Scott.

**Personal.**—Dr. D. P. Hillegass has been appointed a member of the State Bureau of Medical Examination and Licensure.——Dr. Max H. Bochroch has been appointed visiting physician to the psychopathic ward of the Philadelphia General Hospital.——Plans to celebrate the fiftieth anniversary of Dr. Anna E. Broomall's association with the Woman's Hospital are now being made by a committee of women physicians of the hospital. Dr. Broomall is consulting physician at the hospital.——Dr. E. V. McCollum of Johns Hopkins University will deliver the annual Packard Lecture of the Pediatric Society on February 12, the subject being "Growth."——Dr. A. Wiese Hammer has been appointed surgeon to the Pennsylvania Railroad.——Dr. Thomas J. Mays, who was stricken at his home with apoplexy, is still in a serious condition.

### TENNESSEE

**State Board Election.**—At the annual meeting of the state board of health, held in Nashville, Dr. Evander M. Sanders, Nashville, was elected president, succeeding Dr. Rufus E. Fort, Nashville, and Dr. Walter J. Miller, Johnson City, was elected vice president.

**Sanatorium Workers.**—An active campaign is being made in East Tennessee to raise a fund of $50,000 for the establishment of an East Tennessee sanatorium. The sanatorium corporation owns a farm of 125 acres near Knoxville, and other property valued altogether at about $30,000.

**Hospital Notes.**—The Lincoln Memorial Hospital was purchased by the city of Knoxville, December 13, for $65,000. Payment for the property will be made from an appropriation of $100,000 for the improvement of hospital facilities in Knoxville. The institution will be joined by the Knoxville General Hospital whereby the capacity of the latter will be increased by nearly 100 patients. The old medical college is to be converted into a home for nurses, and the second and third floors of the laboratory will be converted into a maternity hospital.——Baird-Dulaney Hospital, Dyersburg, has purchased property to be used as an annex to the institution. The annex will be ready for occupancy, June 1, and when completed will give the hospital a capacity of seventy-five beds.

### TEXAS

**Tuberculosis Clinic.**—The Dallas Association for the Study and Prevention of Tuberculosis has raised $3,500 through the sale of Red Cross Christmas seals. This sum will be the basis for the establishment of a clinic, which will be kept open every day and will be devoted to treatment and education.

**Personal.**—Dr. Arvel R. Ponton, Post, has disposed of his interest in the Post Sanitarium and has moved to Lubbock.——Dr. Ovie J. Colwick, Fort Worth, has been appointed field director of rural sanitation of the state board of health.——Dr. T. B. Fisher, for many years health officer of Dallas, has been appointed a member of the state board of health to succeed Dr. W. D. Littler, resigned.——The resignations of Drs. R. L. Aiguer, E. A. Werner, and Gano, have been accepted by the health department of Dallas.

### CANADA

**Promotion.**—Lieut.-Col. Samuel H. McKee, Montreal, has been promoted to the full rank of colonel. He went to the front shortly after the outbreak of the war, took part in the Dardanelles campaign and also saw service on the western front, being created a C. M. G. in recognition of meritorious services. He is at present in command of the eye and ear hospital at Folkstone, England.

**Reconstruction.**—The fight is on again to see who is "top dog" in the control of the returned Canadian soldier—the Military Hospitals Commission or the Army Medical Corps. The Army Medical Corps alleges that there are not sufficient beds in the Toronto Military District, and the Hospitals Commission points out there are nearly a thousand extra available, but that number includes two hospitals which are outside the jurisdiction of the Toronto Military District. It is probable that the government will order an investigation of the matter.

**Hospital News.**—Capt. J. E. Freeman, Kingston, Ont., has placed his entire farm of 100 acres at the service of returned soldiers who are convalescing at Kingston. The farm is offered as a patriotic gift for the period of the war. It will be under the control of the Military Hospitals Commission.——The latest census of the Military Convalescent Hospitals of Canada, taken January 15, shows 11,667 men under supervision. The figures include 9,660 men in convalescent hospitals, 1,319 in sanatoriums undergoing treatment for tuberculosis, and 688 who are being cared for in other hospitals.——Fire broke out in the Spadina Military Hospital, Toronto, January 24, but the patients, under the direction of the officers, had the flames under control before the arrival of the fire bridge.

**Personal.**—Major Gilbert Royce, Toronto, who has been overseas with the University of Toronto Base Hospital for nearly three years, has been appointed commandant of the Canadian Hospital at Bromley, Kent, England.——Major Samuel H. McCoy, formerly of St. Catherine's, Ontario, but more recently of Toronto, who has been overseas some time, has been appointed commandant of Yarrow Hospital, Broadstairs, England.——Dr. Alan E. McKibbin, Ottawa, a graduate of the University of Toronto, has returned from overseas to Toronto, and has been assigned to duty at the Whitby Hospital for Soldiers in Ontario.——Capt. Edwin Campbell McArthur, Greenwood, B. C., is now with the University of Toronto Base Hospital at Basingstoke, England.——Capt. William E. Sinclair, M.B., Toronto, 1914, has been awarded the military cross for his work at Paaschendaele. His home is in Meaford, Ontario, and he is in charge of No. 5 Field Ambulance.

**Discussion of Venereal Diseases.**—The Academy of Medicine, Toronto, held a special session on the prevalence of venereal diseases in the Toronto Military District. Capt. Gordon A. Bates gave the following figures: In the four weeks ending Sept. 30, 1917, out of 13,000 men examined, 132 cases developed; in October, out of 12,000 men, there were 117 cases; in November, out of 13,000 men, there were only 91 cases, and in December, out of 12,775 men, there were only 75 cases. Of the men who actually had venereal disease, a large percentage had developed their infection previous to joining the army. Figures obtained among men recently drafted in Toronto showed that from January 3 to 17, out of 1,400 men, exactly 49 cases were found. Thus, the amount of disease among draftees, who are practically members of the civilian population, is just ten times what it would be in a body of troops of equal number. Dr. Bates was able to state definitely that the percentage of syphilitics among men returned from the front was less than the 12 per cent. given by Dr. Herbert K. Detweller as existing in the wards of the Toronto General Hospital in the first three months of 1917. It would seem, then, that there is more disease outside the army than within.

## GENERAL

**A Warning.**—Officials of the Rogers Electric Laboratories Company write that for the past few years a man by the name of L. C. Sykora has been representing himself to the medical profession as connected with their company and has been practicing innumerable frauds, and that he also uses the names of other companies in his schemes. They add that one of his methods is to borrow electrical apparatus which he does not return.

**The Neurological Bulletin.**—The first number of a new publication, to be known as the *Neurological Bulletin*, has just been issued. It is devoted to clinical studies of nervous and mental diseases in the neurologic department of Columbia University. It is edited by Dr. Frederick Tilney, assisted by Dr. Louis Casamajor and an editorial board. Case reports, as presented in the regular staff conferences of the neurologic department, will be published, to include discussions by the clinical staff. The first number, containing thirty-four pages, contains seven articles. Particularly valuable is the discussion of a summary and differential diagnosis blank for diseases of the nervous system, by Dr. Oliver S. Strong.

**Development of Cooked Food Service in New York City.**—That new social conditions are arising out of the food and labor situation is shown by the response of the public to the new food service plan being established to deliver cooked meals to homes. The demand for this service comes from the better class of apartment houses and separate homes on the upper west side, within motor radius of the first station at 215 West Seventy-Ninth Street, but the founders are making every endeavor to place the low-priced service within the reach of the industrial population. Two weeks before its opening day (February 1), the first station was registered almost to its full capacity of 500 persons per day. Other stations are in contemplation, so that all parts of the city may have hot, well balanced meals, fulfilling all the requirements of the food administrator and endorsed by him, delivered to the homes.

## FOREIGN

**Deaths in the Profession Abroad.**—**G. Weiss,** professor of general pathology and dean at the University of Messina, aged 73.——Major **P. D. Siccardi,** assistant at the Clinic for Industrial Diseases at Milan, succumbed to laboratory infection while studying spirochetosis icterohemorrhagiae.——Capt. **G. Lerda,** instructor in operative surgery at the University of Turin.——According to a notice in the *Norsk Magazin for Lægevidenskaben,* Prof. **B. Krönig** of Freiburg is dead, aged 60. The Freiburg gynecologic clinic and maternity in his charge, it will be remembered, was the pioneer in "twilight sleep" and in roentgen treatment of cancer with exceptionally large doses.

## CORRECTIONS

In the Selective Service Regulations, The Journal, Feb. 2, 1918, page 320, Section 187, the line reading "Registrants with contagious, communicable, reportable diseases should be ordered before the local board for examination until they are discharged by the Boards of Health" should read "Registrants . . . should not be ordered, etc." The line following, "Registrants recovering from diphtheria should be ordered, etc.," should read "should not be ordered."

## LONDON LETTER

London, Jan. 14, 1918.

### Torpedoing of Hospital Ship

The Hospital Ship *Rewa* was torpedoed and sunk in the English Channel about midnight, January 4, on her way home from Gibraltar. There were 287 wounded on board. All were safely transferred to patrol vessels, and there were only three casualties among the crew, three Lascars being missing. She was displaying all the lights and markings required by the Hague Convention, and she was not, and had not been, within the so-called "barred zone" as delimited in the statement issued by the German government, Jan. 29, 1917. It may be remembered that in order to stop the sinking of hospital ships by the Germans, under the groundless pretext that they were used to carry soldiers or munitions, an agreement was entered into with the German government—evidently another scrap of paper—that hospital ships should carry a Spanish naval officer to insure that they were not so used, and would then be immune. Before this agreement, hospital ships ran without lights at night, risking collisions in order to avoid the greater danger of the German pirates. Trusting to the agreement, the *Rewa* was lighted up and going at about 4 knots. A torpedo struck with a terrific crash right on the hospital cross. The conduct of the captain and other officers was admirable; orders were given and carried out with splendid accuracy, and boats were successfully launched while the ship was sinking. There were about thirty patients in cots, and these were first placed in the boats. The four women nurses were then taken off. When every one else had left the ship, the officers followed. About ten minutes after the last boat was loaded, the ship plunged head foremost and disappeared. Wireless messages that had been dispatched were picked up by mine sweepers and other ships, and the boats after being adrift from between one and two hours were picked up in the moonlight. In accordance with the agreement, a Spanish officer had traveled from Saloniki, and left the vessel at the last port of call, Gibraltar. Hospital ships are so distinguished that there is no possibility of confusing them even at a distance of several miles, either during the day or at night with other vessels. They are painted white, have a broad band of green from stem to stern about 4 feet deep, huge red crosses painted amidships and red crosses on each bow. At night large vessels, such as the *Rewa*, besides carrying the usual navigation lights have several hundreds of lights burning. The sides of the ships are picked out with a belt of green electric lights about 3 feet apart, and the red crosses are illuminated by brilliant white electric lights. The *Rewa* was 456 feet long, and would have been seen at a distance of at least 5 miles. She is the sixth British hospital ship known definitely to have been torpedoed without warning during the last ten months. In each case the crime was committed during the night.

### Retirement of Sir Alfred Keogh

With great regret, the secretary of state for war has decided to allow Surgeon-General Sir Alfred Keogh to resume his work as general executive officer to the Imperial College of Science and Technology. He will be replaced by Col. T. H. J. C. Goodwin, until recently assistant director of medical services to the British Recruiting mission in America. When the war began, Sir Alfred Keogh had retired from the army. His services were placed by the governors of the Imperial College of Science and Technology at the disposal of the War Office, and, although, during the last three years they have on several occasions requested that he should return to his former duties, owing to the development of matters of great national urgency that are delayed by his absence, it has not hitherto been possible to spare him. It is largely due to Sir Alfred Keogh's prevision, intimate knowledge, and administrative grasp that the army medical service has been such a success. His successor, Colonel Goodwin, has served through the period of Mons, the Marne and Ypres, and by his mission to America has fostered the fraternal feeling between the members of the profession on each side of the Atlantic.

### The Increase of Cerebrospinal Fever

The Local Government Board has issued a report by its medical officer, Sir Arthur Newshelme, on the prevalence of cerebrospinal fever. The number of cases which occurred are as follows: 1913, 305; 1914, 315; 1915, 2,566; 1916, 1,306; 1917 (to June 30 only), 1,085. These figures relate only to the civilian population. Among soldiers, 1,136 cases of cerebrospinal fever were reported in England and Wales in 1915, and 893 in 1916. Corresponding with the increase in the number of cases is a great increase in the mortality. In the five years 1901-1905, the total deaths from cerebrospinal fever in England and Wales numbered 395, or an average of 79 annually. In the next five years the annual number of deaths averaged 122. In the three following years the annual deaths averaged 146. In 1914 they had increased to 194, in 1915 to 1,974, and in 1916 they fell to 369. In the recent epidemic, England and Wales suffered much less severely than other countries in which cerebrospinal fever has become epidemic. In 1915, the mortality among the troops occurred earlier in the year than that in the civilian population. The case mortality was about 53 per cent., both in the civilian and in the military population. But little is known of the conditions under which epidemics arise. In this respect there is some resemblance between influenza and cerebrospinal fever. Both diseases occur at irregular intervals in widespread epidemics, embracing whole continents; while in the interepidemic periods, sporadic cases, or even small outbreaks occur, which do not appear to possess the power to spread, and consequently die out. In influenza, however, insusceptibility to attack is unusual; in cerebrospinal fever it is the rule, the difference possibly being bridged over by minor catarrhal or febrile attacks due to the meningococcus, in which meningeal invasion fails to occur.

## PARIS LETTER

Paris, Jan. 10, 1918.

### Death of Professor Lepage

Dr. G. Lepage, 58 years of age, is dead. He was associate professor of obstetrics at the University of Paris and obstetrician to the hospitals. Intern in 1888, he became successively chief of the laboratory, chief of the clinic, and *répétiteur* at the Baudelocque Clinic. In 1894 he was appointed obstetrician to the hospitals, continuing his teaching work, and in 1898 he was made *professeur agrégé* of obstetrics. In these two services, which he directed successively at the hospitals of the Pitié and Boucicaut, he was given charge of a course in a supplementary clinic. When war was declared he offered his services as a surgeon and has been thus engaged at two of the military hospitals of Paris, besides organizing a maternity service elsewhere.

In collaboration with his master, Ribemont-Dessaignes, Lepage published a treatise on obstetrics that was authoritative. He also published a practical treatise on obstetric antisepsis, and edited several chapters of the "Medico-Chirurgical Practice." Original articles were published in the *Annales de Gynécologie*, etc. By numerous communications and actual participation in discussions, besides his scientific publications Lepage contributed to the prosperity of the Société d'obstétrique, de gynécologie et de pédiatrie de Paris, of which he was secretary-general from 1902 to 1907. He also was secretary-general of the Association générale des médecins de France from 1906 to 1911.

### Dressings That Do Not Touch the Wound

At a recent meeting of the Société de pathologie comparée, Drs. Polonowski and Durand described their method of wound treatment. In order to avoid contact of the dressings with the wound in cases requiring irrigation, they conceived the idea of isolating the wound from the gauze by a protective apparatus, consisting of a wire netting molded to fit over the wounded area. The edges rest on a small roll of absorbent cotton fastened to the netting. The irrigating tubes do not touch the wound. Compresses placed on the wire netting protect against dust. The fluids run off into a waterproof bag. The apparatus is immobilized with adhesive plaster or a mixture of colophonium, 40; ligroin, 5; turpentine spirits, 2, and alcohol, 20. This procedure obviates contact of the drainage tubes and wicks with the wound, and adds greatly to the well-being of the patient. Dressings are changed seldom because the irrigation keeps the wound in good condition and it can be inspected by raising the outer dressings. This method of dressing permits of subjecting the wound alternately to irrigation and to heliotherapy. It is adaptable to all methods of treatment. Fitted out with this apparatus, the wounded can be evacuated painlessly into the interior. The neutral solution of chlorinated soda can be replaced advantageously by an isotonic solution of sodium chlorid. The resulting cicatrix is comfortable and supple.

### Etiology of War Tachycardia

Dr. Octave Crouzon, physician to the hospitals, and Dr. Abel Mauger recently demonstrated to the Société médicale des hôpitaux de Paris that a large number of cases of tachycardia are caused by an infectious lesion of the heart, organic and latent, existing quite often before the war, and caused to flare up by the war, of which the sole clinical manifestation is an acceleration of the pulse, without any other objective sign. Therefore, these cases should not always be regarded as simple functional disturbances, but one must think of an organic basis in those with antecedent rheumatism, typhoid or other recent severe infection. Consequently, from the military point of view, these cases should be considered for service provisionally or at times even definitely, as representing only limited fitness.

### Treatment of the Itch, Tinea and Vermin in Horses by Sulphuration

At a recent meeting of the Academy of Medicine, Mr. T. A. Clayton called attention to the good results obtained in the treatment of the itch, occurring among soldiers, by a gaseous mixture resulting from burning sulphur in a closed oven. The mixture is known as "Clayton's gas" and was employed successfully by the English in the South African War. In April, 1915, the British military authorities called on Mr. Clayton to delouse the soldiers by this method and also to combat the itch in man and beast. The men wear a mask and stay half an hour in the sulphuration room. They are treated with their clothes on. Not only itch mites, lice and nits are destroyed, but also all parasites and vermin affecting the skin. The *Bulletin* of the academy publishes an illustrated description of the procedure as applied to horses of the French cavalry. The government had a stable built for the purpose with ten stalls, although the apparatus could sterilize twenty horses at one time. The head of the horse projects, but he wears a hood continuous with the lining of the stall, only the nose being left exposed. Forty horses can thus be freed of itch and external parasites per day with this stable, and the success has been complete with seventy horses to date. None were washed or shaved beforehand, and each wore his harness.

### Cerebral Tetanus

At a recent session of the Academy of Medicine, Dr. Léon Bérard, associate professor on the Faculty of Medicine of Lyons, and Dr. Auguste Lumière called attention to a new form of clinical tetanus, characterized by cerebral symptoms, which had not been observed previously. The case in question was one of late tetanus. The cerebral complication did not appear until a week or two after the onset of the contractures. The symptoms consisted of hallucinations, delirium, excitement and phobias, with nocturnal exacerbations, coming on suddenly and with maximum severity, persisting for eight days at least, and then gradually lessening in severity. There was no elevation of temperature. Bérard and Lumière believe that these are wholly toxic manifestations.

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## Marriages

Capt. Francis Wallace Meagher, M. R. C., U. S. Army, Brooklyn, on duty at base hospital, Kelly Field, South San Antonio, Texas, to Miss Emily Winifred Rose of Brooklyn, January 12.

Lieut. Charles Benjamin Kendall, M. R. C., U. S. Army, Columbus, N. M., to Miss Nell Gordon of Chester, Pa., at El Paso, Texas, December 3.

Lieut. Louis Nelson West, M. R. C., U. S. Army, Raleigh, N. C., to Miss Eliza Eagles (Betsey John) Haywood of Atlanta, Ga., January 18.

Hope Thomas Martin Ritter, M.D., Allentown, Pa., to Miss Sarah Snyder of Phillipsburg, Pa., in Philadelphia, January 9.

Charles Robert Graham, M.D., Brownville, Pa., to Miss Beulah Minerva Glosner of New Castle, Pa., January 15.

Lieut. Randolph Dade, M. R. C., U. S. Army, to Miss Ruth Baynham, both of Hopkinsville, Ky., January 17.

George Augustine Sheehan, M.D., to Miss Laurette Regina Ennis, both of Brooklyn, January 23.

Marcus Bryed Wilson, M.D., Huron, S. D., to Miss Agnes E. Collyer of Wilmette, Ill., January 30.

James Marion Smith, M.D., to Miss Inez Brant, both of Los Angeles, January 23.

Victor Lupu Schrager, M.D., to Mrs. Jean Rowland both of Chicago, January 25.

# Deaths

**Heinrich Stern, M.D.,** New York City; St. Louis College Physicians and Surgeons, 1899; aged 49; a Fellow of the merican Medical Association, and at one time chairman of e Section on Pharmacology and Therapeutics; a member the American Public Health Association, American Urogical Association, and New York Academy of Medicine; cretary of the American College of Physicians; visiting ysician St. Mark's Hospital and the Methodist Episcopal ome; gold medalist of the Medical Society of the State of ew York; founder and editor of the *Archives of Diagnosis;* riter on biologic chemistry, diagnosis and diseases of nutrion; died at his home, January 30, from cirrhosis of the liver.

**Benjamin Ralph Swan, M.D.,** San Francisco; College of hysicians and Surgeons in the City of New York, 1868; ged 80; a Fellow of the American Medical Association; from 75 to 1890 professor of pediatrics in the University of alifornia; a veteran of the Civil War; for a long time edical referee for the Mutual Life Insurance Company of ew York; formerly surgeon of the Pacific Mail Steamship ompany, and coroner of San Francisco County; died at the dler Sanitarium, San Francisco, January 27, from pneuonia.

**Jacob Franklin Lewis, M.D.,** ittle Rock, Ark.; Eclectic Medil Institute, Cincinnati, 1872; Benett Eclectic Medical College, Chigo, 1880; aged 64; a member of e State Board of Medical Examers of Kansas in 1879, of the ansas State Board of Health in 89, and of the Arkansas State oard of Health in 1908; past resident and secretary of the rkansas Eclectic Medical Society; as found dead from heart disease his office, January 24.

**Barna Edmond Radeker, M.D.,** eposit, N. Y.; College of Physians and Surgeons in the City of ew York, 1874; aged 68; a member of the Medical Society of the tate of New York, and for several ars president of the Boone County edical Society; a director and easurer of the Deposit Electric ompany, and president of the eposit Telephone Company; died his home, January 6, from paralsis.

**Robert Newland Blanchard, M.D.,** mestown, N. Y.; University of uffalo, N. Y., 1881; aged 62; forerly a Fellow of the American edical Association; a member of e Medical Society of the State of ew York; died, January 18, from rebral hemorrhage.

Died in the Service

Capt. Frank Keator, M.D., M. R. C.,
U. S. Army, 1879-1918

(*See The Journal, Feb. 2, p. 336*)

**Eugene Harold James, M.D.,** Harrisburg, Pa.; University Pennsylvania, Philadelphia, 1879; aged 60; formerly a ellow of the American Medical Association; once the presint of the Harrisburg Academy of Medicine; surgeon for e Harrisburg Hospital, and for twenty years the local rgeon of the Pennsylvania Railroad; died at his home, nuary 27.

**William E. Rodman, M.D.,** Hodgenville, Ky.; University Louisville, Ky., 1870; aged 70; formerly a Fellow of the merican Medical Association; a member of the Kentucky ate Medical Association, and secretary of the Larue County edical Society; health officer of Larue County; died at his ome, January 25.

**Albertus Joseph Burge, M.D.,** Iowa City, Iowa; State Unirsity of Iowa, Iowa City, 1900; aged 46; a Fellow of the merican Medical Association; a member of the Western rgical Association; for twelve years a member of the culty of his alma mater; died at his home, February 2, from rnicious anemia.

**Charles Henry Stoeckle, M.D.,** Ludlow, Pa.; University of ennsylvania, Philadelphia, 1892; aged 50; formerly a mem- r of the Medical Society of the State of Pennsylvania, and edical officer of the Army; formerly a member of the staff of the State Hospital, North Warren; died at his home, January 31.

**Robert Love Moore, M.D.,** Columbia, S. C.; University of Maryland, Baltimore, 1896; aged 46; formerly a Fellow of the American Medical Association; a member of the South Carolina Medical Association; a specialist on diseases of the eye, ear, nose and throat; died in the Columbia Hospital, January 4.

**Lurton D. Dillman, M.D.,** Connersville, Ind.; Medical College of Ohio, Cincinnati, 1878; aged 72; formerly a member of the Indiana State Medical Association; for several terms a member of the Connersville School Board; died in the Fayette Sanatorium, Connersville, February 1, from heart disease.

**Reginald Mortimer Hutchings Banbury, M.D.,** Brooklyn; Long Island College Hospital, 1897; aged 42; died in the Brooklyn Hospital, January 28, from heart disease, four days after a fall on an icy sidewalk in which he sustained a compound fracture of the left leg above the knee.

**Lieut. Francis Findley Hanbidge, M.D., M. R. C., U. S. Army,** Ogdensburg, N. Y.; Jefferson Medical College, 1916; a Fellow of the American Medical Association; is reported to have died from pneumonia, about February 3, while on duty with the American Expeditionary Forces.

**Albert W. Fleming, M.D.,** St. Louis; Missouri Medical College, St. Louis, 1887; aged 58; a Fellow of the American Medical Association; formerly professor of operative and clinical surgery in Barnes Medical College; died at his home, December 29, from lobar pneumonia.

**Elmer S. Hull, M.D.,** Montgomery, Pa.; Jefferson Medical College, 1884; aged 56; a member of the Medical Society of the State of Pennsylvania; who had been staying in Augusta, Ga., for several months on account of ill health; died in that city, January 27, from cerebral hemorrhage.

**Charles Newell Burton, M.D.,** Blue Earth, Minn.; University of Michigan, Ann Arbor, 1889; aged 52; formerly a Fellow of the American Medical Association; a member of the Minnesota State Medical Association; died at his home, February 1, from cerebral hemorrhage.

**Nelson Mays, M.D.,** Richmond, Ky.; University of Louisville, Ky., 1866; aged 76; formerly a member of the Kentucky State Medical Association; died at the home of his daughter in Richmond, January 24.

**James Horrace Wright, M.D.,** New Lexington, Ohio; Starling Medical College, Columbus, 1881; aged 58; a Fellow of the American Medical Association; formerly captain and assistant surgeon in the Ohio National Guard; died at his home, January 25, from cerebral hemorrhage.

**Thornton P. Crowell, M.D.,** Nankin, Ohio; Western Reserve University, Cleveland, 1868; aged 71; a veteran of the Civil War; for many years a member of the local board of education and president of Orange township; died at his home, January 30, from cerebral hemorrhage.

**Annie Louisa Conner, M.D.,** Mount Airy, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1901; aged 42; a Fellow of the American Medical Association; a member of the staff of the Germantown and Woman's hospitals; died at her home, January 25.

**Nelson Hoyt Chamberlain, M.D.,** Oakland, Calif.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1892; aged 49; a Fellow of the American Medical Association; died in the Hahnemann Hospital, Chicago, January 20, from cerebral hemorrhage.

**Harley Howard Emerson, M.D.,** Columbus, Ohio; Ohio Medical University, Columbus, 1904; aged 40; a Fellow of the American Medical Association; assistant medical examiner of the state industrial commission; died at his home, January 26, from asthma.

**Richard Giles, M.D.,** Cold Spring, N. Y.; College of Physicians and Surgeons in the City of New York, 1882; aged 56; a member of the Medical Society of the State of New York; consulting surgeon to the Highland Hospital; died at his home, January 19, from myocarditis.

**William A. Thompson, M.D.,** Cabot, Ark.; Barnes Medical College, St. Louis, 1904; aged 50; formerly a member of the State Medical Association of Texas, and a practitioner of San Antonio; died in a hospital in Little Rock, Ark., January 26.

**Edward Dyer Ellis, M.D.,** Poultney, Vt.; Harvard Medical School, 1877; aged 67; formerly a member of the Vermont State Medical Society; for many years director of the First National Bank of Fair Haven, Vt.; died at his home, January 26.

**William D. Hoge, M.D.,** Rayland, Ohio; Western Reserve University, Cleveland, 1889; aged 54; a Fellow of the American Medical Association, and a director of the People's Bank of Martin's Ferry; died at his home, January 20, from valvular heart disease.

**Francis Gurney Bennett, M.D.,** Norwich, Pa.; Jefferson Medical College, 1889; aged 50; a Fellow of the American Medical Association; formerly a member of the medical staff of the Clearfield Hospital; died at his home, January 17, from pneumonia.

**Homer H. Throop, M.D.,** Newport-Richie, Fla.; Northwestern University Medical School, 1880; aged 74; formerly of Jackson, Mich., and a member of the Michigan State Medical Society; died at his home, January , from chronic myocarditis.

**Montrose Graham Tull, M.D.,** Philadelphia; University of Pennsylvania, Philadelphia, 1885; aged 58; formerly a Fellow of the American Medical Association; a specialist on diseases of the eye; died at his home, January 25, from pneumonia.

**Mary P. Meyer Fleming, M.D.,** Baltimore; Baltimore Medical College, 1883; aged 84; said to have been the first woman to study medicine in Maryland; a pioneer suffragist of Maryland; died at her home, January 20, from pneumonia.

**Lieut. Ivan Ellsworth Bellinger, M.D., M. R. C., U. S. Army,** Sweet Home, Ore.; Williamette University, Salem, Ore., 1913; aged 30; on duty at Fort Riley, Kan., since December 10; died in that place, January 17, from pneumonia.

**Charles Wingate Badeau, M.D.,** Dunedin, Fla.; New York University, New York City, 1869; formerly a resident of Passaic, N. J., and district physician for the fifth district, New York City; died at his home, January 3.

**Julian Howard Evans, M.D.,** Sandersville, Ga.; Vanderbilt University, Nashville, Tenn., 1887; aged 50; a member of the Medical Association of Georgia; died at his home, January 24, from acute gastritis.

**Manuel S. da Silva, M.D.,** Sacramento, Calif.; College of Physicians and Surgeons of San Francisco, 1901; aged 55; a native of Pico, Azores; died in the Sisters' Hospital, Sacramento, January 19.

**Gustav A. Fischer, M.D.,** Chicago; University of Prague, Bohemia, 1871; aged 72; died at his home, January 31, from cerebral hemorrhage, formerly a member of the Illinois State Medical Society.

**Cyrus E. Pringle, M.D.,** Pocahontas, Ark.; Missouri Medical College, St. Louis, 1883; aged 56; a member of the Arkansas Medical Society; died in Hopsy, Ark., January 22, from heart disease.

**Frank Eugene Whitney, M.D.,** Rochester, N. H.; New York University, New York City, 1881; aged 64; for four years town physician; died at his home, January 20, from uremia.

**Charles E. Baker, M.D.,** Genoa, Ohio; Columbus (Ohio) Medical College, 1881; aged 60; a member of the Ohio State Medical Association; died at his home, about January 20.

**Jose Florene de F. Fernandez, M.D.,** New York City; New York University, New York City, 1894; died at his home, January 18, from cerebral hemorrhage.

**Andrew J. Lappeus, M.D.,** Vina, Calif.; Northwestern Medical College, St. Joseph, Mo., 1887; aged 73; died in the Red Bluff (Calif.) Hospital, January 15.

**John Simmons,** Middleport, Ohio (license, Ohio, 1896); aged 85; a practitioner for thirty-two years; died at his home, December 25, from arteriosclerosis.

**George B. Rowell, M.D.,** Orleans, Vt.; University of Vermont, Burlington, 1869; aged 72; died at his home, January 16.

# *The Propaganda for Reform*

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## NOSTRUMS IN RETROSPECT

### A Review of Worthless or Unscientific Proprietary Mixtures Previously Criticized

[Foreword.—The article that follows is the sixth[1] of a series written for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations which will be taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and sold indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[Article VI]

## FELLOWS' SYRUP, AND OTHER PREPARATIONS OF THE HYPOPHOSPHITES

By S. Q. Lapius, M.D.

We hope that it is clear to those who have read the several articles of this series that their purpose is to present evidence that will enable the reader to form a correct estimate of the literature employed in the exploitation of various nostrums. The distinction between mere assertion—however plausible, and from however eminent an authority—and evidence should again be emphasized. Satisfactory evidence rests on careful observation by those who are capable of accurately determining to what extent any changes that may be observed are due to the therapeutic agent employed and not mere accompaniments of such treatment.

When the Council on Pharmacy and Chemistry was organized in 1905 the greater part of the literature of the nostrums was so palpably misleading, the statements often so ludicrously false, that it was only necessary to call attention to this fact to have those claims collapse. As a result of the Council's work the exploiters of worthless nostrums have developed a greater degree of shrewdness in avoiding the easily exploded falsehoods. This has made it increasingly difficult to point out the exact statements on which many of the false claims now rest, even though the exploitation as a whole is as inherently dishonest as before. If a nostrum is worthless, any exploitation must be false and misleading in effect, even though not one single false direct statement is made.

A platitude may be given an appearance of importance if uttered in an impressive manner, and it may be employed to suggest far more than it categorically affirms. These two facts are appreciated by many nostrum exploiters and we find that they have adopted the impressive manner to secure attention, and the platitude to suggest far more than they could defend in direct statement. Thus we have the "lie with circumstance."

### FELLOWS' SYRUP

A full page advertisement which has been appearing regularly for about a year and which must represent a good deal of money, is used to give an appearance of importance to a few words which, if printed in ordinary type, would either pass wholly unnoticed or would lead one to assume that something essential to the full meaning had been omitted. The statement, in full, reads:

> "Fellows' Syrup differs from other preparations of the hypophosphites. Leading clinicians in all parts of the world have long recognized this important fact. Have you? To insure results, prescribe the genuine ℞ Syr. Hypophos. Comp. Fellows'. Reject cheap and inefficient substitutes. Reject preparations 'just as good.'"

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[1] The previous articles of the series are "Bell-ans," The Journal, Nov. 24, 1917; "Anasarcin and Anedemin," Dec. 8, 1917; "Pepto-Mangan," Dec. 29, 1917; "Caetina Pillets," Jan. 19, 1918; "Ammonol and Phenalgin," Feb. 2, 1918.

The only direct statement contained in the advertisement is to the effect that many clinicians have observed that Fellows' syrup and other preparations of the hypophosphites are not alike. In truth, Fellows' is not like the better preparations of this type, since after standing it contains a muddy looking deposit that any pharmaceutical tyro would be ashamed of. Technically, then, the statement is true, but it is hardly credible that the manufacturer is paying for an entire page in a medical journal to make this statement without any attempt to suggest something else.

The advertising pages of six medical journals were examined in just the order in which they chanced to come to hand. In five of these the entire advertisement of Fellows' syrup was in the words just quoted; not a single word more. In one there was the further statement:

> "Not a new-born prodigy or an untried experiment, but a remedy whose usefulness has been fully demonstrated during half a century of clinical application."

These advertisements show that the exploiters of Fellows' Syrup are spending a great deal of money to induce physicians to prescribe the preparation, and it is equally evident that they wish to convey the impression that the preparation has some therapeutic value. Since we find nothing directly false, in the first mentioned advertisement at least, we must take the evident intent for consideration and determine what therapeutic value, if any, this preparation has, and whether it is advisable for physicians to employ it in any case.

The preparation, according to the statement just cited, has been in use for fifty years. As the exploiter of any preparation cites the most convincing evidence in his possession in support of his views, this claim may be assumed to be the strongest available, and if this evidence fails we must reject the contention as not proved. Here we face a dilemma, for examination of the literature used in the exploitation of Fellow's Syrup fails to disclose any evidence of the kind that we have described as satisfactory, and we are therefore forced to conclude that none has ever been found. By this it is not to be implied that no reputable physician has ever reported favorably concerning the therapeutic effects of this preparation. It is quite possible that an extensive literature of that sort might be found if one examined the older medical journals. But the day has passed when every improvement that follows the administration of a preparation is blindly attributed to the drug in question. Clinical research today is far more exacting.

We will assume that the reader who has investigated the question with an open mind will have come to the decision that the contention that Fellows' syrup is of especial therapeutic value is not proved. We might rest with that assumption and ask the clinician whether he is prepared to use a nostrum that has been before the medical profession for half a century without any satisfactory evidence having been gained that it possesses therapeutic value. We might ask him whether he would be willing to tell his patients that he was prescribing such a nostrum for them in the face of the absence of any such evidence of its value.

### THE INERTNESS OF THE HYPOPHOSPHITES

But we prefer to go even further and show him that not only is there an entire absence of any evidence of its therapeutic value so far as we have been able to learn, but in addition there is an abundance of evidence that the hypophosphites are devoid of any such therapeutic effect as they were formerly reputed to have, and that, in fact, they are, so far as any effect based on their phosphorus content is concerned, singularly inert.

While we have thus far taken the Fellows' preparation as the subject of the discussion, we may take a broader view and examine the subject of the hypophosphites in general, and the phosphorus-containing substitutes that have been introduced from time to time. It hardly needs to be said that if the hypophosphites are without therapeutic value, it is impossible to give them value by combining them in a muddy-looking, ill-made preparation such as Fellows' Syrup. Such evidence was submitted to the medical profession in a report of the Council on Pharmacy and Chemistry which was published in The Journal, Sept. 2, 1916, p. 760, and we would strongly advise any one who is disposed to act on the suggestion contained in the advertisements of Fellows', and other hypophosphite preparations, to read that report in full and think the matter over before prescribing one of these nostrums. Quoting briefly from the report in question:

> "Although the overwhelming weight of evidence was against the probability that the hypophosphite preparations are of value as therapeutic agents, the Council thought it well to investigate the subject. Dr. W. McKim Marriott of Baltimore was therefore requested to review the evidence for and against the therapeutic usefulness of the hypophosphites and to conduct such experiments as seemed necessary."

The Council was not content to rest on the mere absence of evidence for the value of these preparations or any one of them, but sought to obtain evidence that would fulfill the conditions mentioned above, and in pursuance of this plan it secured the cooperation of a trained investigator, one who would work under the best of conditions for learning the truth. The results of Dr. Marriott's investigation were published in The Journal Feb. 12, 1916, p. 486, and should be read by everyone who has any interest in the problem. Lest some of our readers may fail to refer to the original of Marriott's paper we will quote briefly from it:

> "None of the subjects of the experiment experienced any effect whatsoever from the administration of the drug . . . Almost all of the ingested hypophosphite is eliminated unchanged. . . .
>
> "These experiments (Forbes) demonstrate conclusively that the hypophosphites possess no specific value as a source of phosphorus for the body. . . . It is doubtful if there are any conditions in which the body suffers from lack of phosphorus. Even should such conditions exist, phosphorus, in the form that it occurs in the ordinary foods, or as phosphates, is more efficient in supplying the deficit than hypophosphites that must be oxidized before utilization and which are only about 15 per cent. oxidized if at all. For example, half a glass of milk contains more available phosphorus than three large doses of hypophosphites of 15 grains each, as great a dosage as is usually given.
>
> "What, then, is the therapeutic value of hypophosphites? There is no reliable evidence that they exert a physiologic effect; it has not been demonstrated that they influence any pathologic process; they are not 'foods.' If they are of any use, that use has never been discovered."

The case seems to stand about like this: A nostrum maker spends thousands of dollars to tell physicians that his cloudy preparation is not like other preparations, and physicians are expected to accept that as convincing evidence that they should prescribe and their patients, perforce, take it. This too, in spite of the evidence gained by careful scientific investigators that the hypophosphites in fairly large doses contain less available phosphorus than half a glass of milk, and that there is no evidence available that they exert any therapeutic effects at all.

Should we take the meaningless statement of a nostrum maker, who does not submit evidence of any therapeutic value of his preparation—unless one can call certain careless habits of prescribing evidence—and assume the responsibility of prescribing a nostrum that according to all scientific evidence available is useless, and of no more effect than a few teaspoonfuls of milk, so far as its hypophosphite content is concerned? It may be argued that it possesses some value because of its bitter nature. We will not deny that it is bitter; so is strychnin, so is quinin, so are scores of simple drugs, but what physician would care to admit to his patients that he did not know how to prescribe a simple bitter, such as nearly every layman can select for himself, without recourse to a preparation such as Fellows' Syrup?

We have felt that it is not wholly satisfactory to discourage the use of a given nostrum without making an effort to assist the physician in choosing wisely in the treatment of the condition for which the nostrum is claimed to be useful. In the present instance, however, we fear that would prove a task beyond our powers, for the hypophosphites have been used in such a variety of conditions that the discussion would have to include nearly the whole materia medica if we were to follow our usual procedure.

# Correspondence

## NATIONAL LICENSURE FOR PHYSICIANS IN THE FEDERAL SERVICE

*To the Editor:*—I wish to voice the opinion of almost every physician with whom I have conversed on the granting of national licensure to all physicians in the medical service of the U. S. Army or Navy, enlisted in the Medical Reserve Corps, National Guard or regular Medical Corps. These men should be granted the privilege of practicing medicine in any place in the United States at the end of the war, without taking a state board examination. In my conversation with officers some say that they do not know whether or not they will go back to the place from which they came. Others, younger men, argue that they had not been given the time to take their state board examinations in the state in which they want to practice, but took them where they were taking their internship, and that that state does not reciprocate with their own state. As they might be in the service anywhere from three to five years, this would make state examinations more difficult than if they had taken them immediately after graduation.

If we are good enough to care for our soldiers, we certainly are good enough to practice in any state in the Union. We are showing our patriotism by serving our government, and each state of the Union ought to reciprocate by granting us a license. All physicians given an honorary discharge at the conclusion of the war should be granted the privilege of practicing medicine any place in the United States.

Lieut. Donald Brown, M.D., M. R. C., U. S. Army.

*To the Editor:*—Will you kindly inform me whether a medical officer of the U. S. Navy would be given a license to practice in civil life without taking the various state board examinations and, if this privilege is not extended by all the states, whether it is extended by any and, if so, which? In view of the rigid examinations necessary to pass in order to get a commission in the regular corps of the Navy and Army, it appeals to my mind that the states would be perfectly justified in assuming that all medical officers are mentally qualified and entitled to a certificate to practice and to obtain a license.

Eugene C. Lowe, M.D., Assistant Surgeon,
U. S. Navy, U. S. S. *Minnesota.*

[Comment.—The above letters are samples of many received by The Journal. The regulation of medical practice comes under the police powers of the state; the only way to accomplish what our correspondents desire is to secure favorable action on the part of each state. No state, so far as we know, recognizes the Medical Reserve Corps commission. Seven states—Alabama, California, Colorado, Illinois, North Dakota, Virginia and Wisconsin—register, without examination, retired officers of the Medical Corps.—Ed.]

## "THE TAX ON OLEOMARGARIN"

*To the Editor:*—In The Journal, Jan. 19, 1918, p. 164, an editorial discusses the advisability of removing the special tax on colored oleomargarin, and quotes from one of the newspapers a paragraph in which, *inter alia,* it is stated that the fats used in the manufacture of butter substitutes are as nutritious as butter fat. While not specifically denying this statement, the editorial refers to the larger content of vitamins in butter fat, and so sets some opposition to the newspaper assertion, which, like most of such assertions, is made without careful inquiry.

Your editorial is in error, however, in saying that a substantial economic advantage will come to the mass of the people if the tax is taken off. I have been familiar for many years with the conditions surrounding the selling of butter substitutes. I was among the first of American chemists to assist in the control of the sale, and as chemist to the dairy and food commissioner of Pennsylvania, made, in association with Dr. William Beam, many hundreds of analyses of samples sold in Philadelphia and its vicinity. In the course of this work we devised the Leffmann-Beam method of distinguishing between butter fat and its substitutes, a method now official in France, Germany and the United States, and probably elsewhere. Our experience was that oleomargarin, when colored and otherwise prepared to resemble butter, always meets the ultimate consumer at prices so near that of the true article as to leave the profit almost wholly with the middleman. If the special tax is taken off oleomargarin, it is possible that the large department stores and the chain stores will label it correctly, but the small shops and food pedlers, from whom the wretched dwellers of the slums obtain their supply, will sell the article as butter at possibly a few cents below the ruling butter figures, but realize a large profit on their wholesale rate. Similarly, boarding houses, restaurants and even grand hotels will take advantage of the easy substitution, and place oleomargarin on the tables instead of butter, without notice to the customer either by direct word or in the bill. "Bread and butter" will be charged, but "bread and oleo" be furnished. After all, the discussion is academic, for the agrarian interests of the country are much too powerful to permit the experiment to be made. A very large part of the difficulty in introducing oleomargarin as a substitute for butter along lines in which its difference would be of less moment is the obstinacy of the middle class women and servants. Among that curious population of eastern Pennsylvania, commonly known as the "Pennsylvania Dutch," butter is often served without salt and without color. It looks like lard, and is not generally appetizing to those who see it for the first time. On the other hand, butter and butter substitutes intended for certain West India islands must be colored almost a mahogany red to be salable.

There is a large supply of animal and vegetable fats that can be used to replace butter in a limited way, but no good will come by permitting the sale of colored oleomargarin freely. Some months ago, the women who preside over my household thought that economy might be secured by using oleomargarin in place of lard, but soon found their mistake. Commercial oleomargarin contains considerably more water than does lard, and apart from the economic loss, makes a good deal of trouble by its sputtering when heated. Nevertheless, if housewives and those they serve could rid themselves of the idea that butter ought to be yellow to be wholesome, a limited use could be made of oleomargarin even at the table; but I do not think it can wholly replace true butter as an application to bread. Even in cooking, it is a question if some other fats are not as wholesome and cheaper.

Henry Leffmann, M.D., Philadelphia.

## OPEN SAFETY PIN IN AN INFANT'S STOMACH

*To the Editor:*—The report of an open safety pin in an infant's stomach in The Journal, Dec. 22, 1917, might lead to the impression that an operation is always necessary in such cases. I therefore report the case of an 8 months old baby who swallowed a 1½ inch open safety pin, November 21, about 2 p. m., and later passed it. Roentgenograms taken at the request of the attending physician, Dr. Corliss Keller of Hamilton, Ohio, showed the pin to be in the stomach. Thirty-six hours later the pin was in the same position, and as the separation of the open ends of the pin, as shown in the roentgenogram, seemed to be considerably greater than the diameter of an infant's pylorus, I advised bringing the child to a hospital for operation. Several more pictures were made at the hospital, and at the end of fifty-two hours the operating room was ordered to be made ready. A final picture, however, showed that the pin had apparently passed from the stomach. Operation was then advised against, and in the following thirty-six hours the pin was watched by means of the fluoroscope as it traveled through the intestinal tract, and it was passed at the end of ninety-six hours. Only during the first twenty-four hours did the child show any clinical symptoms. The pin was open at least three fourths of an inch; but as the blunt end evidently engaged the pylorus, the probabilities are that the pyloric sphincter closed the pin sufficiently to allow it to pass. In the majority of instances one can count on the passage of a foreign body through the intestine if it has been able to pass through the pylorus.

D. W. Palmer, M.D., Cincinnati.

## AN UNUSUAL COMPLICATION OF TYPHOID FEVER

*To the Editor:*—The following case seemed to be of sufficient interest to report:

Aug. 10, 1917, a 12 year old boy was brought to St. Joseph's Hospital with typhoid fever. Relatives stated that he had seemed ill for the previous ten days. Sixteen days after entering the hospital, the patient rather abruptly lost the power of speech, although he was able to answer questions by signs. When spoken to he usually began to weep. After ten days the aphasia gradually disappeared, and in two weeks speech was normal. At this time the patient's mother and nurse both noticed that he used his right hand for every purpose, whereas before his illness he had been left handed to an unusual degree. From this time on, convalescence was uneventful. A letter, dated Dec. 26, 1917, reports that to all appearances the boy is right handed, and is now able to use both hands equally well.

Roy E. Thomas, M.D., Phoenix, Ariz.

# Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

## PROPHYLAXIS OF OPHTHALMIA NEONATORUM

*To the Editor:*—1. For about how many years has the Credé method of protecting the eyes of children at birth been generally observed?

2. At first was there opposition by some physicians, or by others?

3. Are there states in the Union which have passed laws making this matter obligatory?

H. C., M.D., Colorado.

Answer.—1. The Credé method of employing a 2 per cent. solution of silver nitrate in the prophylaxis of ophthalmia neonatorum was announced about 1880, and its use has been of gradual growth since.

2. There has been opposition to its use and neglect on the part of physicians and midwives, even where it has been made compulsory by law. Objection has been raised because sometimes the 2 per cent. solution causes slight irritation, and in a few instances a more or less persistent redness of the conjunctiva. Some advocate the use of a 1 per cent. solution, and in some states this is the required strength.

3. According to Allport, the following states up to 1916 had made prophylaxis compulsory: Michigan, Idaho, Wisconsin, Rhode Island, North Dakota, Ohio, Tennessee, North Carolina, Nebraska, Illinois, Indiana and Louisiana; the following furnish the prophylactic free: New Jersey, Massachusetts, Utah, Vermont, Wisconsin, Rhode Island, Kentucky, Louisiana, Ohio, California, Illinois, District of Columbia, Kansas, New York and Washington. Each year adds to the states making prophylaxis compulsory.

Many other states have other special legislation concerning ophthalmia neonatorum.

The following may be consulted:

Allport, Frank: State Legislation Concerning Ophthalmia Neonatorum, Paper 2, Ophthalmology, January, 1916, p. 276.
Credé: Prevention of Ocular Inflammation in the New Born, 1884.
Lewis, F. Park: Ophthalmia Neonatorum, Conservation of Vision Series, Pamphlet XI, American Medical Association.

## INCOMPATIBILITY OF QUININ AND ASPIRIN

*To the Editor:*—I have been in the habit of writing the following prescription for colds:

Aspirin
Quinin sulphate
Dover's powder āā q. s. gr. 5

A drug company of my town gave to a firm of manufacturing pharmacists an order for capsules containing the foregoing drugs, and the latter did not want to fill the order, unless, as set forth in a letter, the drug company was "willing to assume all responsibility for any untoward effect that might result from the administration of a combination of this kind." The reason given for hesitation to execute the order was:

"Acetyl salicylic acid and quinin sulphate are incompatible, and of late medical journals have contained numerous cases where the administration of combinations of this nature have produced very bad effects. While we have not made any special investigation along this line, it seems that in the decomposition of acetyl salicylic acid in connection with the quinin, some poisonous substance, probably quinotoxin, is formed."

Can you give me any information along this line? My experience with this combination has been very satisfactory, but if it is incompatible I want to discontinue the use of it.

J. H. M., Idaho.

Answer.—In a discussion of the incompatibility of quinin with acetylsalicylic acid and other organic acids (Queries and Minor Notes, Dec. 18, 1915, p. 2187), The Journal said:

> By long-continued heating with glacial acetic acid or by fusion of the alkaloid salts, some of the cinchona alkaloids may be converted into isomeric products which possess extremely poisonous properties. Experiments have also shown that by acting as catalyzers, slightly dissociated acids, such as acetylsalicylic (aspirin), citric, malic, acetic or tartaric acid, under the influence of heat, may convert quinin into its poisonous isomer, quinotoxin, and cinchonin into cinchotoxin. At the temperature of from 98 to 102 C. (208.4 to 215.6 F.) the conversion is practically quantitative; at 37 C. (98.6 F.—normal body temperature) the reaction goes on much more slowly, amounting to about 2 per cent. in forty-eight hours. The danger of poisoning through conversion of quinin into quinotoxin in the body cannot be great, but it is well to keep the possibility in mind. The formation of a dangerous amount of the poisonous product would probably be greatly favored if the mixture—quinin and aspirin, for instance—had been made up for some time. Suspensions of the alkaloid in flavored syrups, with organic acids, etc., might be regarded with suspicion; likewise elixirs, such as iron, quinin and strychnin, which usually contain citrates or tartrates. The foregoing applies especially to the alkaloid and to such salts as quinin tannate.

In The Journal, Oct. 20, 1917, p. 1375, a physician calls attention to the tendency of capsules containing quinin and aspirin to get soft, showing a physical and probably a chemical change.

## CALCIUM IODID IN TUBERCULOSIS—VENCALXODINE

*To the Editor:*—Would you kindly furnish me such information as you have as to the value of calcium iodid intravenously in tuberculosis? My attention has been directed to the preparation called Vencalxodine put out by the Intravenous Products Company of Denver. What is the standing of this firm?

Walter E. Vest, M.D., Huntington, W. Va.

Answer.—We know of no work which indicates that the intravenous administration of calcium iodid in tuberculosis is of value. It has not been demonstrated that tuberculosis is associated with a deficiency of calcium (The Journal, June 23, 1917, p. 1915); on the other hand, the experiments indicate that the administration of calcium does not change the calcium content of the blood (The Journal, Feb. 2, 1918, p. 313). Furthermore, there is no evidence to warrant the intravenous administration of iodids.

The Council on Pharmacy and Chemistry has not examined Vencalxodine; it has, however, examined and published reports on the following preparations of the Intravenous Products Company: Venarsen (The Journal, May 22, 1915, p. 1780); Venodine (The Journal, June 26, 1915, p. 2155), and Venosal (The Journal, Jan. 5, 1918, p. 48).

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**Work of Infantile Paralysis Committee.**—The citizens' health committee, appointed by the mayor of Newark, which began its work in August, 1916, in the after-care of patients the victims of infantile paralysis, has made its report to the Board of City Commissioners. The committee was supplied with funds by public subscription to the amount of about $22,000, of which $18,500 was spent, leaving a balance unexpended of a little over $3,500. There came to the notice of the committee 1,152 cases, all of which were investigated, and of this number, 956 patients were placed under the care of trained nurses. At present there are 286 patients under the committee's care, and arrangements have been made to continue their treatment until the fund is exhausted. Of the total number of cases, 781 were discharged, fifty-seven patients died and twenty-eight left the city when their families moved. Those discharged are classified as follows: recovered, 224; apparently recovered, 79; improved, 100; to family physician, 232; to hospitals, 30; to other care, 15; moved away, 72; refused care, 29. Of the fifty-seven who died, not all were under the committee's care, and sixteen of the deaths of those under its care were from causes other than infantile paralysis. Braces to the number of 437 were purchased up to Nov. 1, 1917.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

Alaska: Juneau, March 5. Sec., Dr. L. P. Dawes.

California: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

Connecticut: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

Connecticut (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigly.

Maine: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 2-4. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

### New Hampshire June Examination

Dr. W. T. Crosby, secretary of the New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, June 25-26, 1917. The examination covered 12 subjects and included 60 questions. An average of 75 per cent. was required to pass. Six candidates were examined, of whom 5, including 1 osteopath, passed, and 1, an osteopath, failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

| College PASSED | Year Grad. | Per Cent. |
|---|---|---|
| Johns Hopkins University | (1914) | 75.5 |
| University of Maryland | (1916) | 79 |
| Boston University | (1917) | 81.6 |
| University and Bellevue Hospital Medical College | (1910) | 84.7 |

| College LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|
| Kentucky School of Medicine of Louisville | (1905) | Vermont |
| Boston University | (1900) | R. Island |
| Tufts College Medical School | (1915, 2) | Mass. |
| University of Vermont (1908) Vermont; | (1910) | Mass. |
| | (1913) | New Jersey |

### Alaska July Examination

Dr. L. P. Dawes, secretary of the Alaska Board of Medical Examiners, reports the written examination held at Juneau, July 4-6, 1917. The examination covered 9 subjects and included 66 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. The following colleges were represented:

| College PASSED | Year Grad. | Per Cent. |
|---|---|---|
| Chicago College of Medicine and Surgery | (1917) | 84 |
| University of Texas | (1899) | 87 |

### Wyoming March, June and October Examinations

Dr. H. E. McCollum, secretary of the Wyoming State Board of Medical Examiners, reports the written examinations held at Laramie in March, June and October, 1917. The examinations covered 10 subjects and included 100 questions. Fifteen candidates were examined, including 2 osteopaths, all of whom passed. An average of 75 per cent. was required to pass. Fourteen candidates were licensed through reciprocity. The following colleges were represented:

| College PASSED | Year Grad. | Per Cent. |
|---|---|---|
| University of Colorado | (1916) | 83 |
| Chicago Coll. of Med. and Surgery (1916) 80.2; | (1917) | 87 |
| Jenner Medical College | (1916) | 89 |
| Rush Medical College | (1903) | 83.4 |
| Ensworth Medical College | (1905) | 82 |
| Maryland Medical College | (1912) | 86 |
| John A. Creighton Med. Coll. (1914) 87.5; (1915) 85; | (1917) | 83 |
| Lincoln Medical College | (1917) | 87 |
| University of Nebraska | (1916) | 85 |
| Trinity Medical College | (1901) | 83 |

| College LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|
| Denver College of Medicine | (1899) | Illinois |
| Bennett College of Eclectic Med. and Surg. | (1908) | Illinois |
| Rush Medical College | (1900) | Illinois |
| Drake University | (1909) | Illinois |
| State University of Iowa College of Medicine | (1911) | Iowa |
| Kansas Medical College | (1897) | Kansas |
| University of Kansas | (1907) | Kansas |
| Baltimore Medical College | (1913) | W. Virginia |
| Ohio State University College of Medicine | (1917) | Ohio |
| University of Oklahoma | (1915) | Utah |
| Western Pennsylvania Medical College | (1895) | Penna. |
| Medical College of the State of South Carolina | (1899) | Utah |
| Memphis Hospital Medical College | (1901) | Tennessee |
| Wisconsin College of Physicians and Surgeons | (1912) | Wisconsin |

### Utah October Examination

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Oct. 1-2, 1917. The examination covered 18 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. One candidate was licensed through reciprocity. The following colleges were represented:

| College PASSED | Year Grad. | Total No. Licensed |
|---|---|---|
| University of Colorado (1916) 1; | (1917) | 1 |
| Jefferson Medical College | (1917) | 1 |

| College LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|
| Chicago College of Medicine and Surgery | (1913) | Idaho |

# Book Notices

Dietetics for Nurses. By Julius Friedenwald, M.D., Professor of Gastro-Enterology in the College of Physicians and Surgeons, Baltimore, and John Ruhräh, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Fourth Edition. Cloth. Price, $1.50 net. Pp. 467, with 8 illustrations. Philadelphia: W. B. Saunders Company, 1917.

In this edition the authors have brought the subject of dietetics for nurses up to date. This subject has been receiving much more attention in recent years than it formerly did, and a considerable number of advances have been made. This applies particularly to the work on diabetes, and the section on this subject has been largely rewritten, and a number of new diet lists added. The book covers the subject in great detail, and will be found exceedingly valuable, not only for nurses, but also for physicians who wish a shorter work on the subject than the larger book by these authors, entitled "Diet in Health and Disease." An especially excellent section of the book is that on diet in ulcer of the stomach. The authors describe the treatment followed by Boas, the Lenhartz diet and finally the Sippy diet, which they believe is likely to replace all other methods of treatment.

Impotence and Sterility with Aberrations of the Sexual Function and Sex Gland Implantation. By G. Frank Lydston, M.D., D.C.I. Cloth. Price, $4. Pp. 333, with illustrations. Chicago: Riverton Press, 1917.

In this work the author discusses the disorders of sexual function, including the various researches that he himself has conducted on this subject. The first two thirds of the book cover the phases and contain a discussion of these disorders, including numerous cases and excellent recommendations as to treatment. The final third of the book is devoted to a report of the author's researches on sex gland implantation, much of which has appeared in recent periodical literature. As a result of his work, the author concludes that successful total or partial implantation of human sex glands in both male and female is practicable, and that by this method various disease conditions may be greatly benefited, as successful implantation supplies the internal secretions of these organs which are "stimulant, nutrient, tonic and reconstructive, and should increase resistance to disease." He points out, finally, that as matters now stand, only persons in affluent circumstances, and very few even of these, can avail themselves of this procedure.

Manual of Laboratory Diagnosis. By Stella M. Gardner, M.D., and Mary C. Lincoln, Ph.B., M.D. Cloth. Price, $1.25. Pp. 133. Chicago: Chicago Medical Book Company, 1917.

This is an extremely brief outline of common diagnostic methods. It is incomplete, without illustration, and suffers by comparison with other works on laboratory diagnosis.

# Medicolegal

## Liability for Damages from Criminal Operation

*(Lembo vs. Donnell (Me.), 101 Atl. R. 469)*

The Supreme Judicial Court of Maine, in overruling a motion by the defendant for a new trial after the jury returned a verdict of $881.58 for the plaintiff, says that it was alleged that the defendant performed an illegal opertation on the plaintiff's wife to produce a miscarriage, and thereafter negligently and unskilfully treated her, whereby the plaintiff was put to large expense for nursing, medicine and medical attendance for her, and was deprived of her companionship and services for a long space of time. The court thinks the evidence was abundantly sufficient to justify the jury in finding that both of the allegations on which the action was based were established. Nor did the defendant succeed in making it appear to the court that the damages awarded were excessive. The plaintiff's wife became infected with blood poisoning as a result of the criminal operation on her. The defendant attended her for about four weeks following the operation. Under his treatment she became desperately ill, and as soon as another physician was called she was removed to a hospital, where her case was diagnosed as almost hopeless. She remained in the hospital seven weeks, during which time ten operations were performed to remove pus from different parts of her body. She had recovered only in part at the time of the trial, about six months after she left the hospital. The evidence showed that the plaintiff was put to large expenses for nursing, medicine and medical and surgical services in an effort to save his wife's life and to restore her to health as much as possible. The jury may well have found from the evidence that his actual disbursements and liabilities necessarily incurred on that account amounted to substantially $600. In view of that fact, and also that the plaintiff was deprived of the services of his wife for a long space of time, and that he suffered great anxiety and distress of mind on account of her serious illness, an awaard of $881.58 in his favor could not be regarded as excessive.

## Property Rights and Duties of a Public Charitable Hospital

*(O'Brien vs. Physicians' Hospital Association (Ohio), 116 N. E. R. 975)*

The Supreme Court of Ohio affirms a judgment permanently enjoining the county treasurer from demanding or collecting certain taxes on the property of the hospital association. The court says that the property was purchased with trust funds donated for the purposes of a public charity hospital, and is impressed with that trust. It cannot be withdrawn from the uses of this trust at the will of the trustee, or of any or all of the donors of the fund. The donors of this fund have parted with all private ownership in the fund itself. They have no property interest in the fund, or the real estate purchased with the fund, and no rights whatever in relation thereto, except to compel the administration of the trust in accordance with the terms of the gift. The title to this property is in the corporation only as a trustee for the purposes of this trust, and it cannot divert it to any use other than public charity. Every dollar received by this association from patients who are able to pay, or from other sources, immediately becomes impressed with the same trust, and cannot be diverted to private profit. This corporation can be compelled by a court of competent jurisdiction to administer this trust according to the intent and purpose of the donors of the fund; or, on its failure to do so, it can be removed, and another trustee appointed who will administer it. It is true that this corporation is not compelled to use this property for hospital purposes. It may find the property inadequate for its needs, and purchase other property for the purposes, or it may find it unnecessary to occupy the entire property for a hospital, and may sell it, or rent the whole or a part, as may in its judgment be for the best interest of the trust; but the funds obtained from sale or rentals would still be trust funds that could not be devoted to any purpose other than the purposes of the trust, although the property itself would no longer be used exclusively for public charity. If, however, it uses this property exclusively for hospital purposes, then such hospital must be a public charitable hospital, and as such its doors must open to those who are unable to pay, the same as they open to those who have means to contribute further sums to this public charity commensurate in a degree at least with the hospital accommodations they receive. The fact that it may receive pay patients, without losing its character as a public charitable hospital, does not authorize it to receive pay patients in such numbers as to exhaust its accommodations, so that it cannot receive and extend hospital service to the usual and ordinary number of indigent patients applying for admission under proper rules and regulations of the board of trustees—excepting, of course, the cases it has no facilities for handling. The first concern of a charitable hospital must be for those who are unable to pay. If, after taking care of these, it still has further accommodations, there can be no objection to making use of these for pay patients in order to increase the fund which may be at its disposal for the benefit of the poor. It may be, however, that it cannot always nicely measure these demands. It is sufficient if it conforms its conduct along the lines of its experience as to the ordinary and usual demand made on it by charity patients, provided, always, that it act in good faith and in accord with the purposes of its organization. If the hospital association fails in these particulars, the remedy is not by placing the property on the tax duplicate, but by action to enforce a proper administration of the trust, or the revocation of its charter for abuse of its corporate franchise, and the appointment of another trustee to administer the trust.

## Optometry Law Unconstitutional

*(People vs. Griffith (Ill.), 117 N. E. R. 195)*

The Supreme Court of Illinois, in reversing a judgment of conviction of the defendant of practicing optometry without a license, holds that the act of 1915 to regulate the practice of optometry in the state of Illinois is unconstitutional. The court says that Section 1 of the act gives a definition of optometry as including every means for the measurement of the powers of vision and the adaptation of lenses for the aid thereof, other than the use of drugs, medicine or surgery. A woman asked to have her eyes tested for reading, and the defendant put on her head a try frame, in which he could place different lenses to see whether she could read letters which he placed at a distance, and, when he found lenses that suited her, she contracted to pay him $12.50 for glasses, paid him a dollar, and took a receipt. The trial court found, and counsel insisted, that what the defendant did consisted of the practice of optometry under the foregoing definition, which is broad enough to include every measurement of the power of vision and fitting glasses to aid the vision. Assuming that what the defendant did was the practice of optometry, the question was whether an act requiring a license for doing those things is valid. What the defendant did was to try different lenses, and when the customer said she could read the letters at a distance she practically decided what glasses would suit her and contracted for them. If changing lenses until the customer was suited, or placing letters at a distance to be read, is measurement of the power of vision and the adaptaion of lenses, it is no more than the measurements made by any person who undertakes to fit a person when the person himself decides what answers the purpose. Such measurements, if they are so called, have no relation to the public health, comfort, safety or welfare, such as to require a course of previous study and an examination and payment of a license fee. This court does not say that it is beyond the power of the General Assembly to enact a statute requiring a previous course of study and an examination of applicants to practice the calling or profession of examining the eye to ascertain if there are defects which can be remedied by the use of lenses, the determination of the accommodation and refractive states of the eye, the range and power of vision and abnormal conditions, and the adaptation of lenses to correct defects, or to require a license to practice such calling or profession; but the act now in question, as construed by the parties and counsel, is not within the scope of the powers intrusted to the General Assembly.

### Construction of Provision as to Compensation of Physicians

*(Holland vs. Zeuner (Mass.), 117 N. E. R. 1)*

The Supreme Judicial Court of Massachusetts says that this was an action whereby the plaintiff sought to recover for professional services rendered by him as a physician to the defendant, who received injuries arising out of and in the course of his employment by a subscriber under the workmen's compensation act of that state. The defendant's injury was reported to the industrial accident board by his employer. He was referred to an impartial physician, on whose report an agreement for compensation was made and allowed. The plaintiff attended the defendant from the time of the injury until recovery. He was paid by the insurer for his services rendered during the first two weeks after the injury. The remainder of his bill was involved here. The defendant contended that there could be no recovery because the bill had not been approved by the industrial accident board. The court affirms an order dismissing report.

It is provided by the workmen's compensation act that:

> "Fees of attorneys and physicians and charges of hospitals for services under this act shall be subject to the approval of the industrial accident board. If the association and any physician or hospital, or the employee and any attorney, fail to reach an agreement as to the amount to be paid for such services, either party may notify the board, which may thereupon call for the formation of a committee of arbitration," etc.

The court thinks it is manifest from this section as a whole that it does not cover fees for services which are rendered outside the act. The second sentence makes it plain that the fees of the physician which are "under the act" are those for which the insurer must pay. It is only in the case of a disagreement between the insurer and the physician that that board is to be notified and the disagreement settled. The employee is not mentioned at all in this connection. The only disagreement in connection with which he is mentioned is one with his attorney. So far as concerns physicians, this section refers only to the services for which, under Part 2, Section 5, the insurer is liable. It does not apply to arrangements for professional attendance between a physician and an employee for which the employee is liable and the insurer is not, even though relating to an injury for which the insurer may be liable under the act. All of the cases which have arisen in this commonwealth heretofore have had to do with physicians' fees for which the insurer was responsible, and none of them are at all at variance with the conclusions here reached.

### As to Showing Contingent Fees of Witnesses

*(Missouri, K. & T. Ry. Co. of Texas vs. Hart (Tex.), 196 S. W. R. 960)*

The Court of Civil Appeals of Texas, in affirming a judgment for damages for personal injuries in favor of plaintiff Hart, holds that there was no error in excluding as evidence certain testimony offered by the defendant railway company as to the contingent fees in other cases of a physician who was one of the physicians that treated the plaintiff for the injury he claimed he had suffered and who was a witness for him in this case. The court says that the defendant, on its cross-examination of this witness, proved by him that in the nine years preceding the trial he had been a witness for plaintiffs, represented by one of the attorneys for the plaintiff in this case, in about 110 damage suits against railway companies, and had never been a witness for a defendant in such a suit. The defendant complained that the trial court refused to permit it to prove further by the witness that he had been paid contingent fees for testifying in a number of the suits, and then had a suit pending in the district court to recover $700 for testifying in one of them, in which he alleged in his petition that it was on his testimony that the plaintiff in that suit had recovered a large judgment against the defendant. It would have been permissible for the defendant to show, if it could, that a fee other than the statutory one was to be paid the witness if the plaintiff recovered a judgment against it in this case, and doubtless it would have been permitted to make such proof had it offered to do so. But proof that the witness had received, or claimed a right to receive, contingent fees for testifying in other cases would not of itself tend to show interest on his part in the result of this suit, or bias against the defendant.

# *Society Proceedings*

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## ANNUAL CONGRESS ON MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

### FOURTEENTH ANNUAL CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

*Held in Chicago, Feb. 4, 1918*

Dr. Horace D. Arnold, Boston, in the Chair

### Council Problems and Policy

Dr. Horace D. Arnold, Boston: The Council on Medical Education has until now had but one chairman, Dr. Arthur Dean Bevan, since it was established in 1904. The remarkable success in raising the standards of medical education in so short a time has been due chiefly to Dr. Bevan's broad, progressive conceptions, and to his rare tact and good judgment.

The Council has voted to submit to the next meeting of the House of Delegates for approval a slightly modified basis for classifying medical colleges, and to ask authority to proceed with a general reclassification on this new basis. It has become evident that after the war there will be a great opportunity for graduate instruction for the medical schools of this country, not only for our own returning medical offices, but also for physicians from the nations now our allies, who will look to this country for the best organized opportunities for such study. Many opportunities for advanced medical study and work already exist in this country, but they are little known and poorly organized. The work of a committee, appointed a year ago to consider higher degrees in medicine, has been extended by the Council to include the collection and publication of data on graduate medical instruction.

The standardization of hospitals and the development of better conditions for intern service urgently demand the attention of the Council, which will push this work and cooperate with other agencies now studying these problems.

In regard to the various medical cults, we should emphasize the fact that the success of any treatment used to relieve those who are ill depends on a proper training of those who are to administer that treatment.

The importance of the maintenance of the present high standards of medical education should be emphasized. The opportunity afforded by the examination of physicians for Army service, together with the experience already gained in observing the deficiencies of many of the physicians thus selected in the various camps, is the best possible proof that the requirements are not too high, and the best possible reason for maintaining these standards.

[See article by Dr. Arnold, this issue, p. 451.]

### Recent Improvements and Further Needs in Medical Education

Dr. N. P. Colwell, Chicago: During the last fifteen years, the improvement of greatest importance has been the increase in the preliminary qualifications required of medical students. Without a training in physics, chemistry and biology, students would be handicapped, however well equipped the medical school might be with teachers and laboratories. The higher admission requirements were adopted voluntarily by the majority of medical schools, and this increase in many instances has been supported by the local state licensing boards. This action by state boards induced other medical colleges, which would not do so voluntarily, to adopt the higher standard. It is usually those interested in medical schools of the latter type that are ready to seize on any pretext to urge a retrogression in entrance requirements. They are now urging the country's "dire need of doctors" as a reason for returning to lower entrance standards.

In recent years, the remarkable increase in the demand for medical graduates as hospital interns, health officers, medical teachers, and the like, has been due to the greatly improved qualifications of those now graduating from our medical schools. This demand did not exist formerly because the graduates then turned out were not qualified educationally or professionally to fill those positions satisfactorily. The present demand, therefore, does not call for lower educational standards, but for a continuation of the entrance requirements and improved teaching methods now enforced by the majority of medical schools. Once the war is over, the better colleges will easily supply all demands. This is evidenced by the fact that, from the better medical schools, the number of graduates has increased steadily for the last five years, while the number of those graduating from the lower grade colleges has steadily decreased.

Another claim is that higher requirements are responsible for the development and extension of drugless cults. But osteopathy had reached its acme before the present campaign for higher medical education began, and the large financial returns from the teaching of osteopathy doubtless led to the "discovery" of the later cults, which, in fact, are mostly offshoots of osteopathy. The increased standards of medical education will eventually solve the medical cult problem. Heretofore, some medical colleges were as bad as some of the drugless cult institutions, and many who graduated from low grade medical colleges had less real culture than some of the cult practitioners. Under a continuance of the higher standards of medical education, however, the line of demarcation between physicians and cult healers will broaden into a zone so wide that any one can distinguish between them.

The problem of medical cults is slowly but surely being solved. Their lack of adequate educational requirements is becoming known, and of late most court decisions have been against them. National and state supreme courts have decided that any one who treats human disease by any method is practicing medicine, and this carries the logical conclusion that all those licensed to treat the sick should have a training in the fundamental medical sciences. The United States Supreme Court has shown that osteopaths—and the same argument applies as to other medical sects—should have the same training as is required of physicians. No new sect in medicine should obtain recognition unless its educational requirements are as high as those now required of physicians.

State governments are now trying to avoid a multiplicity of boards and at the same time to guarantee that all who treat the sick shall have an adequate education. In each of several states, practitioners of all schools are licensed by a single medical board. Some states require that all practitioners shall possess the minimum educational qualifications, after which they are licensed as physicians and may practice as they please. The most recent scheme in licensure is that adopted in Illinois, where one board licenses not only physicians and other practitioners of the healing art, but also dentists, pharmacists, midwives and those in other licensed occupations. The most promising feature is that the enforcement of the new law is in the hands of educators of unquestioned ability.

In the recent campaign for the improvement of medical education, a very generous financial support has been provided for medical schools; but it happens that medical schools for negroes have been largely overlooked, although their needs have been proportionally greater than for medical schools generally. Now their income from students' fees has been considerably reduced as a result of the general adoption of higher entrance requirements. As a consequence, medical schools for negroes have not been able to keep pace with improvements in medical education. For about 11 million negroes in the United States, there are only four negro medical schools, one of these being of hopelessly low standing. Generous donations could do much good at the present time if given to medical schools for the colored race.

### Problems in the Administration of Entrance Requirements to Medical Schools

Prof. George Gailey Chambers, Director of Admissions of the University of Pennsylvania, Philadelphia: A special committee, appointed by the Council on Medical Education, has prepared a schedule of subjects to be included in the college work required for admission to medical schools: chemistry, twelve semester hours; physics, eight semester hours; biology, eight semester hours, and English composition and literature, six semester hours. A reading knowledge of French or German is strongly urged.

There is no question regarding the wisdom of including English and a foreign language among the requirements, because no acceptable college would be organized so that the premedical student could not conveniently take these subjects. The requirement in English should be doubled as soon as the medical schools can do so without unduly decreasing the number of students.

The methods of teaching the sciences should be such as to arouse a desire for scientific investigation and to create an analytic attitude of mind. These are extremely important for the medical student and the practicing physician.

The required subjects constitute a little more than half of the total amount of college work required, and admission officers should consider that any applicant who does not meet those minimum requirements is not entitled to take up the study of medicine.

The plan of allowing conditions in preliminary branches to be removed a year or more after medical work has begun is not justified. The quality of his first year medical work will have been lowered because of the deficiency in his premedical training.

One of the big problems in the administration of entrance requirements is to determine which colleges are organized and equipped to give premedical college work in a satisfactory manner. There is need of some nation-wide agency to determine college standards, to examine the various colleges, and to publish its findings. Then admisson officers and committees could know whether or not the credentials from a particular college should be accepted. The North Central and Southern Associations of Colleges and Secondary Schools have established permanent commissions to pass on the standing of institutions.

#### DISCUSSION

Dr. John M. Dodson, Chicago: Scientific subjects are as truly cultural in their power to develop the mind as are the humanities; but since we need both breadth of information and breadth of culture, humanities should have a large place in our premedical curriculum. The activities of the future physician must be largely in the line of preventive medicine. Recent advances have given us a tremendous power to prevent disease, but relatively little advance in curing disease. Therefore we need, first, education of the community, and second, an expression of educated public opinion in legislative enactments. A cultivated medical man, able to express himself forcefully, is a more effective leader of public opinion in his community than one who intensifies his training along special lines. In other countries, medical men have had a large part in framing legislation; in our country, relatively little. Some medical men in state legislatures and in Congress are men who have dabbled in politics and not men of high standing in the medical profession. For this reason, the medical man of the future needs to be broadly educated. Of late years, our average students have gone backward in their ability to express themselves in good English. A man's ability to express himself in English, either in speaking or in writing, is largely a question of environment. Instead of requiring a certain amount of English, therefore, there should be a specific test as to whether the student can write English properly.

President Robert E. Vinson, Austin, Texas: We should enlarge our premedical requirements if possible without lengthening the time, by utilizing summer schools now being carried on in most universities. There should be many studies included that will broaden the student's culture and also enlarge his special training.

President William O. Thompson, Columbus, Ohio: Culture does not come in youth but in middle life or later. Those managing our grammar and high schools need the support of intelligent professional men to help uphold the best things in education. In the standardization processes there is the danger of insisting on area and quantity rather than quality.

*(To be continued)*

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### Archives of Ophthalmology, New Rochelle, N. Y.

January, 1918, **47**, No. 1

1 Ocular Changes in Acne Rosacea. Case of Rosacea Ocularis Complicated with Fascicular Keratitis. M. U. Troncoso, New York.—p. 1.
2 Production of Cataract. W. E. Burge, Urbana, Ill.—p. 12.
3 Salvarsan and Other Remedies in Ophthalmic Practice. F. Fergus, Glasgow.—p. 29.
4 Five Years' Experience with Iridotasis. D. Harrower, Worcester, Mass.—p. 37.
5 Late Infection with Enucleation Following an Operation of Iridotasis for Chronic Glaucoma. D. Roy, Atlanta, Ga.—p. 42.
6 Tension in Normal Eyes Before and After Tonsillectomy. A. M. Carr, Chicago.—p. 46.
7 Asteroid Hyalitis. T. B. Holloway, Philadelphia.—p. 50.
8 Leukemic Manifestations in Eye. M. Cohen, New York.—p. 61.
9 Penetrating Injury Limited to Eyeball Followed by Acute Tetanus. R. Sattler, Cincinnati.—p. 64.
10 Case of Unilateral Proptosis; Exploratory Operation. Tentative Diagnosis of Ethmoidal Osteoma. R. Sattler, Cincinnati.—p. 68.
11 Sarcoma of Choroid with Secondary Changes. E. Jackson and W. C. Finnoff, Denver.—p. 72.
12 Tumor of Frontal Lobe of Brain with Ocular Symptom. Necropsy. A. Knapp, New York.—p. 83.

### Boston Medical and Surgical Journal

Jan. 24, 1918, **178**, No. 4

13 Research Problems in Tuberculosis. E. R. Baldwin, Saranac Lake, N. Y.—p. 105.
14 Carrel-Dakin Method of Treating Septic Wounds; Its Application to Civil Surgery. G. A. Moore, Brockton.—p. 109.
15 Surgery of Biliary Tract. J. E. Briggs, Boston.—p. 116.
16 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 120.
17 *Paralysis Agitans and Myopathic Dystrophy Occurring in Uncle and Nephew, with Evidences of Internal Glandular Dyscrasia in Latter. M. Osnato, Boston.—p. 123.

17. **Paralysis Agitans and Myopathic Dystrophy.**—There are two very interesting points in the family history in both of Osnato's cases. In the case of the children of the uncle, it is noteworthy that all of them were very early affected by defective eyesight. The significance of this is not clear. The patient's mother and his brothers and sisters were subject to paroxysmal headaches lasting from three to four days, being periodical in character, occurring once each month. There is a bitemporal pallor in the fundus of this patient to explain the headaches on the grounds of pressure from an enlarged pituitary or pineal gland, most likely pituitary. Whether a suspicion is justifiable in the mother and in the other members of the family suffering from these headaches that either the epiphysis or the hypophysis was responsible for the headaches is a question. The patient continues to have paroxysmal periodical headaches, but the other relatives no longer suffer from them. The roentgenographic examination made in the case of the uncle shows nothing. The eye examination in this patient also discloses nothing. Tests for sugar tolerance in the younger patient have been repeatedly made and show a very high degree of sugar tolerance.

### Canadian Medical Association Journal, Toronto

January, 1918, **8**, No. 1

18 Occupation in Treatment of Pulmonary Tuberculosis. J. R. Byers.—p. 1.
19 Diagnosis of Renal Tuberculosis from Department of Urology, Royal Victoria Hospital, Montreal. D. W. MacKenzie, Montreal.—p. 8.
20 Effects of Gassing as Seen at Casualty Clearing Station. G. B. Peat.—p. 17.
21 Modification in Strength of Bordet-Wassermann Test During Treatment of Syphilis. H. K. Detweiler, Toronto.—p. 25.
22 Cases of Empyema Cavities. D. E. Robertson, Toronto.—p. 34.
23 Home Treatment of Tuberculosis. D. H. Bernstein, Montreal.—p. 38.
24 Purpuric Measles. L. M. Lindsay, Montreal.—p. 49.

### Colorado Medicine, Denver

November, 1917, **14**, No. 11

25 What Constitutes a Diagnosis of Tuberculosis Sufficient for Rejection for Army? H. Sewall, Denver.—p. 286.
26 Intravenous Medication. M. R. Fox, Sterling.—p. 291.

### Indiana State Medical Association, Fort Wayne

January, 1918, **11**, No. 1

27 Activities of the Indiana State Medical Association. J. H. Oliver, Indianapolis.—p. 1.
28 Anesthesia as a Specialty. E. M. Hoover, Elkhart.—p. 4.
29 Causes of Postoperative Nephritis. K. R. Ruddell, Indianapolis.—p. 6.
30 Backache in Women. J. A. Work, Jr., Elkhart.—p. 9.
31 Surgery of Thyroid. W. D. Gatch, Indianapolis.—p. 13.

### Iowa State Medical Society Journal, Des Moines

January, 1918, **8**, No. 1

32 Laboratory Diagnosis of Atypical Cases of Communicable Diseases. H. Albert, Iowa City.—p. 1.
33 Diagnosis and Prognosis of More Common Valvular Affections of Heart. W. L. Bierring, Des Moines.—p. 4.
34 What Is Not Rheumatism? W. H. Rendleman, Davenport.—p. 10.
35 Prenatal, Natal and Postnatal Lesions of Cerebrum with Resultant Conditions. E. M. Williams, Sioux City.—p. 16.
36 Tuberculosis of Larynx. R. M. Lapsley, Keokuk.—p. 20.
37 War Work of American Medical Women. E. M. Mosher, New York.—p. 22.

### Journal of Infectious Diseases, Chicago

January, 1918, **22**, No. 1

38 *Studies on Blood Proteins. Albumin-Globulin Ratio in Antitoxic Immunity. K. F. Meyer, S. H. Hurwitz and L. Taussig, San Francisco.—p. 1.
39 *Effects of Roentgen Ray on Antibody Production. L. Hektoen, Chicago.—p. 28.
40 Experimental Trypanosomiasis: T. Equiperdum Infection in Dog. E. B. Krumbhaar, Philadelphia.—p. 34.
41 Complement Fixation in Experimental Trypanosomiasis. A. C. Woods and H. H. Morris, Philadelphia.—p. 43.
42 Stability of Erythrocytes of Ox, Pig and Sheep. M. W. Lyon, Jr., Washington, D. C.—p. 49.
43 *Use of Monilia Vaccine in Treatment of Sprue. C. Michel, Porto Rico.—p. 53.
44 *Active Immunity to Systemic Plague Infection. F. Eberson, Harbin, Manchuria.—p. 62.
45 Streptococcus in Acute Epidemic Respiratory Infection of Horses. G. Mathers, Chicago.—p. 74.
46 *Antipollen Serum for Standardization of Pollen Antigen. R. O. Clock, New York.—p. 80.
47 Allergic Phenomena Following Intraportal Injections. F. H. Falls, Chicago.—p. 83.
48 *Microscopic Demonstration of Cocci in Central Nervous System in Epidemic Poliomyelitis. L. Hektoen, G. Mathers and L. Jackson, Chicago.—p. 89.
49 *Inhibitive Effect of Ox-Bile on B. Typhosus. E. E. Ecker, Chicago.—p. 95.

38. **Albumin-Globulin Ratio in Antitoxic Immunity.**—Meyer and his associates found that the percentage of serum globulins increases markedly during the course of immunization with diphtheria, tetanus, and botulism toxin. In the case of botulism toxin, however, there is first an initial rise in the albumin fraction. No constant relationship is demonstrable between the percentage increase in the serum globulin and the antitoxic potency of the serum. The rise in globulins may be one manifestation of an upset in the delicate protein balance of the blood, resulting from the disturbed metabolism following the toxin inoculations.

39. **Roentgen Ray and Antibody Production.**—To test the effect of the ray on antibody-production after it is well under way, that is, a few days after the introduction of the antigen, it proved advisable to use animals that would stand repeated bleedings better than the rat. The purpose now is to present briefly the results of experiments of this and like nature made by Hektoen on the dog and the rabbit. He found that exposure of dogs and rabbits to the roentgen ray at about the same time as antigen is introduced may restrain in high degree, and under some conditions completely, the production of antibodies as measured by the antibody content of the serum. The results correspond fully to those previously obtained from experiments on the white rat. When antibody-production is at or near its height, exposure to the roentgen ray appears to have but little if any effect on the antibodies in the blood, and at this time dogs appear to have an increased resistance to the effects of the ray just as rabbits in the period of active production of antibodies have an increased resistance to effects of benzene. Whether there is any relationship between this apparent resistance to the effects of roentgen rays and the reported beneficial effect of the rays in the later stages of tuberculosis in guinea-pigs remains to

be determined. The results obtained from these observations harmonize with the view that antibodies are produced in the spleen, lymphatic tissues, and marrow, as these structures suffer most directly from the action of the roentgen ray; they indicate also that one reason why the lymphocyte appears to be an important agent of defense in tuberculosis and other conditions may be its power to form antibodies and that the rapid development of tuberculosis in roentgen-rayed guinea-pigs may depend, at least in part, on interference with antibody-production.

43. **Monilia Vaccine in Sprue.**—Of 81 cases reported on by Michel 62 patients have completed the treatment. All cases were diagnosed by Ashford and monilia psilosis was isolated from the feces. In all these cases the complement fixation test was positive. The diet was regulated so as to fit each individual case. The only medication given was to stimulate digestion. Sprue being confused with other diseases and being often complicated, a careful positive diagnosis was made in each case. Cases of sprue without complications responded most readily to the treatment. Americans responded very quickly to the treatment and required a shorter time than Porto Ricans. Of 62 patients treated, 49 patients were discharged cured, 12 were improved, and 1 died. The results of the vaccine treatment are very encouraging, and all patients under treatment have shown great improvement. In noting the results of the treatment, the mental attitude of the patients has been considered to ascertain whether the injections and reactions produced a psychic improvement only. In certain cases there was a distinct abatement of sprue symptoms after the third injection and instead of a diarrhea, constipation resulted. The most notable feature was the gain in weight, which was progressive from week to week. There was, in all cases, a great improvement in the general physical condition of the patient, and the disappearance of the monilia from the feces. The results of this treatment are very favorable, and it is believed that monilia psilosis vaccine should be tried in other localities where sprue is present.

44. **Active Immunity to Systemic Plague Infection.**—Eberson claims that the treatment of rabbits with proteotoxins obtained with *B. pestis* confers a definite resistance on the part of the animal to systemically introduced plague organisms. There is apparent protection in at least 75 per cent. of the animals treated, taking the entire number of cases into consideration. Below a certain dose of bacteria, the protection conferred is much greater. Combined intravenous and intraperitoneal injections of the proteotoxin seem to be more effective than either method by itself, although intraperitoneal treatment of rabbits results in a powerful resistance to plague bacteria administered by that route. The immunity, so far as it has been possible to determine in these experiments, is definitely marked for at least one month after treatment. Injections given at intervals of two to three weeks give rise to a definite resistance to inoculation with living virulent plague bacilli. *B. pestis* appears to be the matrix for a specific poisonous substance of the nature of proteotoxin, and capable of inducing a specific resistance to the organism which is used in the manufacture of the toxic element. Observations so far support the hypothesis that one of the most potent factors in the protective mechanism is that of leukocytosis.

46. **Antipollen Serum for Standardization of Antigen.**—Potent antipollen serum was prepared by Clock by immunizing rabbits intravenously or intraperitoneally with an extract of whole pollen. Eleven injections of an increasing number of units of pollen, ranging from 5,000 to 50,000, produced immune serum of sufficiently high titer for use as positive serum in standardizing pollen antigen. Antipollen serum preserved in 50 per cent. glycerol retained its potency and did not become anticomplementary after two years. Antipollen serum, used for standardizing pollen antigen by the complement fixation method, afforded a reliable guide for determining and measuring the active antigenic power of pollen extract.

48. **Cocci in Nervous System in Poliomyelitis.**—The cord and other parts of the central nervous system in about fifty cases of epidemic poliomyelitis, occurring in different parts of the country, were examined by Hektoen and his associates and found to contain in stained sections, cocci which look quite like the cocci that may be grown in cultures from the brain and cord in poliomyelitis. This result indicates that such cocci occur constantly in the central nervous system in epidemic poliomyelitis, and that their presence here is not explainable as due to accident or contamination.

49. **Inhibitive Effect of Ox-Bile on B. Typhosus.**—The observations recorded by Ecker show that a great number of the viable cells of *B. typhosus* are affected through the use of bile media, and further multiplication prevented. Bile has a distinct inhibitive effect on the growth of typhoid bacilli. This inhibition can be reduced to a certain extent by the addition of glycerol. There is no marked difference between the inhibitory power of bile sterilized by heat and that of bile sterilized by filtration through a Nordmeyer bougie. Bile salts distinctly retard the growth of typhoid bacilli.

### Journal of Parasitology, Urbana, Ill.

December, 1917, **4**, No. 2

50 Homologies of Excretory System of Forked-Tailed Cercariae. W. W. Cort, San Francisco.—p. 49.
51 Morphology and Life History of New Trematode Parasite, Lissorchis Fairporti Nov. Gen., et. Nov. Spec. from Buffalo Fish, Ictiobus. T. B. Magath, Chicago.—p. 58.
52 Insect Transmission of Infectious Anemia of Horses. C. W. Howard.—p. 70.
53 Intestinal Worms of Dogs in Philippine Islands. L. D. Wharton, Philippines.—p. 80.
54 Intracellular Development of Gregarine Frenzelina Ampelisca n. sp. N. Nowlin and I. Smith, Topeka, Kan.—p. 83.
55 Animal Parasites of Rats at Madison, Wisconsin. A. M. Moll, Madison, Wis.—p. 91.

### Medical Record, New York

Jan. 26, 1918, **93**, No. 4

56 *Streptococcus Oral Sepsis: Complement Fixation Test and Value of Routine Blood Examination. N. B. Potter, A. McNeil and S. Bradbury, New York.—p. 135.
57 Radioactivity in Therapeutics. J. B. Bissell, New York.—p. 12.
58 Diagnosis and Treatment of Obscure Cases of Tuberculosis. O. Paget, Fremantle, West Australia.—p. 144.
59 Gallbladder Disease and Its Surgical Treatment. M. Behrend, Philadelphia.—p. 147.
60 Internal Secretions and Pediatrics. A. Hymanson, New York. p. 150.

56. **Streptococcus Oral Sepsis.**—The authors detail their experiences with a complement fixation test in a series of cases of streptococcus mouth infections. Even with an imperfect antigen the results of a complement fixation test for streptococci in the oral sepsis complicating or causing many forms of chronic invalidism, supports in general the clinical evidence of the etiologic, prophylactic, and therapeutic importance of this organism, and emphasizes the desirability of further attempts along this line to assist diagnosis. In twenty-five cases of pronounced oral sepsis the only suggestive feature exhibited by a routine examination of the blood is a high normal lymphocyte percentage, which, however, is certainly no more striking than in any collection of patients who consult a physician for some minor ailment.

### Military Surgeon, Washington, D. C.

January, 1918, **42**, No. 1

61 *Transportation of Wounded. J. Gilmour.—p. 1.
62 Army Venereal Problem. G. R. Callender.—p. 13.
63 Id. R. G. Ebert.—p. 19.
64 Medicomilitary Notes. R. W. Hinds.—p. 25. To be continued.
65 Ophthalmology as Specialty Ashore and Afloat. G. B. Trible.—p. 37.
66 Local Anesthesia. C. R. Reynolds.—p. 45.
67 *Flatfoot. G. H. R. Gosman and H. P. Perry.—p. 56.
68 *Auscultation of Pulmonary Apices in Young Men. J. T. King, Jr.—p. 60.

61. **Transportation of Wounded.**—Gilmour describes the method of transportation of wounded used by the Royal Army Medical Corps. The assistant director of medical services makes his arrangements to get the wounded of his division from the firing line to the field ambulance. The deputy director of medical services of the corps removes the wounded from the field ambulances to the casualty clearing station. The director of medical services at the army headquarters arranges for hospital trains to clear the casualty

clearing stations to the general hospitals at the base. The assistant director of medical services of the division must work closely with the other divisional staff officers. He must obtain sufficient personnel to act as stretcher-bearers. He must know which are "up" trenches and which are "down." Trenches cannot be blocked by wounded being carried down when troops and ammunition are being taken up. He must know the routes of the trench tramways and Decauville railways so as to utilize these important methods of transport and so avoid long carries by men. He must arrange for the use of the empty returning trucks, so he must know when ammunition, etc., is being sent up. In the event of an advance, these light railways and trench tramways are pushed on behind the troops; he must therefore know where they are going and arrange his collecting posts at the most suitable sites. If it is possible to use roads, he must know which roads are suitable for motor transport and which for horse-drawn transport. All routes must have proper directing posts or flags at crossings so that the unaccompanied, walking, wounded men may know which way to go. All medical posts must be distinctively marked.

The deputy director of medical services at the corps headquarters arranges for the transportation of wounded from the main dressing station to the casualty clearing station, and also assists by sending extra transport to clear the wounded from the advanced dressing stations to the main dressing station if any strain or congestion is occurring at any point. He also arranges for the evacuation of the lightly wounded from the "walking wounded post" to the casualty clearing station. The site for a "walking wounded post" should be, if possible, close to a main road so that the empty returning transport may be made use of. Empty returning ammunition trucks are usually available after the first few hours. The route to be taken by the motor ambulance cars between the advanced dressing station and the main dressing station and between the main dressing station and the casualty clearing station must be worked out in conjunction with the assistant provost marshal at the corps headquarters. Ambulance cars should never be allowed to run in convoys; single cars are much easier to handle by traffic officers. They can be passed through a body of marching troops without halting the whole column, and they are much speedier when running alone. The evacuation from the casualty clearing station to the base by means of hospital trains is arranged by the director of medical services with the director of railway transport at the army headquarters.

When a man is hit in the trenches the stretcher-bearers go to his assistance. The first field dressing is applied and the man is accompanied or carried to the headquarters of the medical officer in the battalion aid post. This is a dugout in the second or third line of trenches. From there he is taken by the battalion stretcher-bearers to the advanced dressing station, or, if the distance is great, to a collecting post. This part of the journey is made by hand carriage or trench tramways by the battalion stretcher-bearers. From the advanced dressing station or the collecting post the field ambulance takes charge of the wounded man. If his condition is not serious he may be detained till night, when it is possible for motor ambulances to come up and evacuate the wounded. If the condition of the wounded man is so serious that he cannot be detained, he is taken by wheeled stretcher to the nearest point to which an ambulance car can advance without attracting the attention of the enemy and from there to the main dressing station of the field ambulance. This stage of the evacuation is performed by the ambulance cars of the field ambulance. From the main dressing station to the casualty clearing station, the cars of the motor ambulance convoy do the transportation. This evacuation is arranged at fixed hours once or twice a day. The officer in charge of the field ambulance notifies the commander of the motor ambulance convoy how many patients he has requiring transportation, whether they are officers or of other ranks, and how many lying and sitting. The motor ambulance convoy removes infectious cases once a day from the field ambulance to the special infectious hospital. The methods of transport in use on the western front may be classified as follows: (1) by men, (2) by conveyances carried by men, (3) by conveyances wheeled or drawn by men, (4) by conveyances carried by animals, (5) by conveyances drawn by animals, (6) by mechanical transport, (7) by railway transport, (8) by water transport.

67. **Studies in Flatfoot.**—The following conclusions have been reached by Gosman and Perry as the result of the work at Fort Ethan Allen, in the observation and treatment of flatfoot. 1. Subjectively symptomless flatfoot, in civil life, quickly becomes a source of trouble and invariably gives acute symptoms under the burden of intensive military training. 2. Any given case objectively showing a flat arch, even though of the first degree, should be rejected for enlistment, unless all motions of the toes and ankles are free to the extreme degree. 3. The system of recording the degree of flatfoot inaugurated at this post indicates, by comparison, the degree of improvement in motility under muscular exercise properly conducted. 4. The method employed at Fort Ethan Allen since Aug. 1, 1917, in the treatment of flatfoot is the plan best adapted to the needs of men in the army undergoing intensive military training. 5. The nonresistant exercise plan is most effective and shows results well calculated to make its adoption in military practice advisable.

68. **Auscultation of Pulmonary Apices.**—In an examination of over 20,000 men for tuberculosis, King kept notes of adventitious sounds in the upper lobes in the examination of 819 men. In thirty-three cases (4 per cent.), crepitations were heard at or near one or more joints. Most of such sounds emanated from the scapulae, the costosternal and sternoclavicular articulations, and from the joints at the shoulder anteriorly. In twenty-three instances, certain crackles, usually rather loud and explosive, were heard for one or a few respirations at the apices, disappearing promptly during continued breathing. In seventeen cases (2.07 per cent.) there were found the persistent apical clicks or crackles, of the type which had often proved confusing.

### Minnesota Medicine, St. Paul

January, 1918, **1**, No. 1

69 Orthopedic Treatment of Deformities Resulting from Incurable Paralysis. A. J. Gillette and C. C. Chatterton, St. Paul.—p. 1.
70 *Harelip and Cleft Palate. G. B. New, Rochester.—p. 8.
71 Some Popular Fallacies Regarding Pediatrics. W. R. Ramsey, Minneapolis.—p. 16.
72 The Tonsil Question. N. H. Gillespie, Duluth.—p. 20.
73 Tonsils Cause of, and Tonsillectomy Cure for Rheumatism. J. H. James, Mankato.—p. 23.

70. **Harelip and Cleft Palate.**—New says that in the Mayo Clinic they prefer to close the lip first when the child is between 3 and 4 mounths old, if he is gaining weight and doing well. From three or four days to a week before the operation the child should be fed with a spoon or dropper to accustom it to this method of feeding, since of course, after the operation, it is not allowed to nurse from the bottle or the breast. When there is a cleft of the alveolar process, as in the complete single harelip, the lip is brought together over it, but no attempt is made to approximate the alveolar process. The same procedure is used in the treatment of the premaxilla. In a case of double harelip the lip is brought together over the premaxilla and its normal rounded appearance is maintained. If the alveolar process is forced back in the single harelip or if the premaxilla is removed in the double harelip or a wedge-shaped piece is taken out of the vomer and the premaxilla forced back, the lip will be flattened and it will be almost impossible to correct the deformity. When united, the lip gradually presses back the alveolar process or premaxilla into its normal position, giving the normal rounded contour to the face and the correct alinement to the teeth. The time for closing the palate is when the child is from a year to a year and a half old, before it has begun to talk. The edge-to-edge approximation or the Langenbeck operation is the operation of choice for the closure of cleft palate.

### Nebraska State Medical Journal, Norfolk

January, 1918, **3**, No. 1

74 Military Surgery. J. E. Summers, Omaha.—p. 1.
75 First Aid to Injured. J. C. Tucker, Long Pine.—p. 5.

76 Case of Double Ureterostomy for Inoperable Obstruction of Ureters. C. A. Roeder, Omaha.—p. 7.
77 Acute Gonorrheal Urethritis. H. R. Brown, Beatrice.—p. 10.
78 Tonsil in General Diseases and Its Treatment by General Practitioner. R. T. Jones, Edgar.—p. 12.
79 Internal Secretions. A. E. Guenther, Omaha.—p. 15.
80 Acidosis. M. J. Breuer, Lincoln.—p. 19.
81 Anesthesia and Analgesia in Labor. A. L. Smith, Lincoln.—p. 23.

### New York Medical Journal

Jan. 26, 1918, **107**, No. 4

82 Complete Clinical Chart. S. S. Cohen, Philadelphia.—p. 145.
83 Treatment of Acute and Chronic Arthritis with Radioactive Wave Energy. E. Zueblin, Cincinnati.—p. 147.
84 Henry VIII, A Most Liberal Patron of Medicine. H. D. King, New Orleans.—p. 151.
85 Otosclerosis. M. W. Fredrick, San Francisco.—p. 153.
86 Ether Therapy in Surgical Infections and Its Effect on Immunity. J. Saliba, Elizabeth City, N. C.—p. 157.
87 How to Avoid Tuberculosis. O. R. Eichel, Albany.—p. 161.
88 Heartphone. C. C. Henry, New York.—p. 162.

### New York State Journal of Medicine

January, 1918, **18**, No. 1

89 Mechanism of Intestinal Atony in Children; Etiology and Treatment. F. B. Turck, New York.—p. 1.
90 Practical Infant Feeding. J. R. Johnson, Syracuse.—p. 6.
91 *Lactic Acid Cultures in Treatment of Difficult Feeding Cases. F. Vander Bogert, Schenectady.—p. 13.
92 Noma. E. E. Hinman, Albany.—p. 15.
93 *Treatment of Whooping Cough. H. L. K. Shaw, Albany.—p. 18.
94 *Indicanuria in Children. W. J. Schuyler, Utica.—p. 22.
95 Laryngotomy in Children. J. F. McCaw, Watertown.—p. 26.
96 Surgery of Splenic Anemia. G. W. Cottis, Jamestown.—p. 28.
97 Operative Obstetrics. I. W. Potter, Buffalo.—p. 32.

91. **Lactic Acid Cultures in Infant Feeding.**—Colicky babies and infants, as well as older children, with severe chronic digestive disturbances, whose stools show distinct gas production on culture are in Bogert's experience almost invariably benefited by cultures of lactic acid bacilli, in frequent and full dosage. In the milder infections, diet alone, lowering of the sugar and fat percentage of the food will suffice. The improvement, however, is apparently far slower. Bogert has used liquid cultures. They must be kept cold, otherwise they very probably will destroy themselves by overproduction. Buttermilk was not used because of difficulty of procuring.

93. **Treatment of Whooping Cough.**—A study of the use of vaccines in 112 cases of whooping cough, in which this was the only treatment employed, shows that in 36 per cent. of the cases in which the vaccines were given after the whoop developed, the course of the disease was shorter than the usual duration of the whooping stage; that is, thirty days, but with no effect on the number and severity of the paroxysms; in 52 per cent. there were fewer paroxysms and of lessened severity, especially at night; in 12 per cent. of cases there was no improvement observed, either in the course of the disease, its severity or the number of paroxysms.

94. **Indicanuria in Children.**—Several cases are cited by Schuyler. The first is that of a child about 4 years of age who had been the victim for a year or more of prolonged attacks of vomiting accompanied by marked prostration. Investigation showed the presence of indican in the urine in large amount. In addition to this the oxalates in the form of oxalate of lime crystals were found in excess. There was no trace of albumin or sugar. Another child about 6 years of age had had repeated attacks of bronchial asthma. The urine was loaded with indican. Still another child, aged about 2 years suffered with severe attacks of bronchial asthma, and much the same underlying conditions were found, except that in this instance, biurate of soda was crystalized out of the specimen in large amount. In each case complete relief followed the correction of the intestinal putrefactive tendency.

### Northwest Medicine, Seattle

January, 1918, **17**, No. 1

98 *Cerebral and Cardiac Types of Arteriosclerosis. T. H. Coffen, Portland, Ore.—p. 1.
99 Problem of Social Diseases in Modern Army. A. H. Peacock, Seattle.—p. 7.
100 Rural Sanitation in Relation to National Affairs in Time of War. T. D. Tuttle, Seattle.—p. 9.
101 War Surgery Abroad and at Home. R. W. Corwin, Pueblo, Colo.—p. 12.
102 Outlook for Surgery. H. N. Mayo, Salt Lake City.—p. 14.
103 Surgical Goiter. J. E. Else, Portland, Ore.—p. 16.
104 Operative Treatment of Goiter. W. I. Terry, San Francisco.—p. 20.
105 Quinin and Urea Injections in Goiter. L. F. Watson, Chicago.—p. 23.
106 Pancreatic Cyst. Removal of Three-Fourths of Pancreas. Recovery. J. T. Mason, Seattle.—p. 24.

98. **Types of Arteriosclerosis.**—Out of seventy-one cases analyzed by Coffen, blood pressure readings and clinical observations having been made in the last three or four years, fifty-two, or 70 per cent., fall according to the "heart-load" in the cardiac group. Fourteen are referred to particularly; five of these have died—three from cardionephritic symptoms, all finally in coma (uremia). One died suddenly with angina pectoris and one in diabetic coma. The majority of the cardiac patients showed on repeated examinations the urinary and clinical findings of chronic interstitial nephritis with increased output, traces of albumin, few hyalin and granular casts. One patient of the cardiac group had been unconscious for two weeks when first seen, in apparent uremia, but recovered on active cardiac stimulation, falling apparently in the cerebral edema type. In the cases falling into the cerebral group (nineteen) there were definite clinical evidences of cerebral hemorrhage in most but there were some anomalies, for repeated blood pressure readings showed in some a high heart-load at times, and some signs of cardiac strain. A considerable number of cases, according to the formula, fell into one or the other group, but so far show no outspoken cardiac or cerebral symptoms. These may later show the prognostic value of estimating the heart-load. Coffen's study shows that the majority of hypertension cases in arteriosclerosis show sooner or later cardiac strain. The estimation of the heart-load seems of value as evidence of increased work demanded of the heart, and to a certain degree of how much work. The kidney's share in arteriosclerosis seems more evident in the terminal stages. Of the patients with arteriosclerosis seen in the past four years, the kidneys function well, as a rule, while the patient is ambulatory.

### Pennsylvania Medical Journal, Athens

January, 1918, **21**, No. 4

107 Arthritis: General Considerations and Classifications. L. Litchfield, Pittsburgh.—p. 217.
108 Metabolism and Treatment of Rheumatoid Arthritis. R. Pemberton, Philadelphia.—p. 220.
109 Diagnosis of Focal Infection. J. Daland, Philadelphia.—p. 224.
110 Development of Nephritis. O. Klotz, Pittsburgh.—p. 229.
111 Tests for Measurement of Renal Efficiency in Relation to Prognosis in Nephritis. H. A. Christian, Boston.—p. 233.
112 Classification and Treatment of Nephritides. M. H. Fischer, Cincinnati.—p. 236.
113 Composition of Sweat in Nephritis. J. Sailer, Philadelphia.—p. 245.
114 Social and General Management of Cases of Nephritis as Seen in Medical Dispensary. T. C. Kelly, Philadelphia.—p. 248.
115 Diseases of Eye from Focal Infections. A. Krebs, Pittsburgh.—p. 251.

### Public Health Journal, Toronto

January, 1918, **9**, No. 1

116 Housing Problem in England with some Lessons for Canada. F. A. Dallyn, Ontario, Canada.—p. 1.
117 Pasteurization of Milk Supply. J. A. Boudouin, Lachine, Quebec.—p. 11.
118 Control of Venereal Disease. E. H. Marsh, Brooklyn.—p. 27.
119 Provincial Board of Health of Ontario. J. W. S. McCullough, Toronto.—p. 35.

### Southwestern Medicine, El Paso, Texas

January, 1918, **2**, No. 1

120 Complement Fixation Reaction in Tuberculosis. C. N. Boynton, Phoenix, Ariz.—p. 9.
121 Treatment of Syphilis. J. H. Morford, El Paso.—p. 15.
122 *Method of Obtaining Skin Flaps in Repair of Mutilating Injuries of Hands or Feet. C. S. Vivian, Humboldt, Ariz.—p. 21.
123 Open Treatment of Fractures. W. L. and C. P. Brown, El Paso.—p. 23.
124 Diseases of Glans and Prepuce. W. R. Jamieson, El Paso.—p. 25.
125 Abdominal Cesarean Section with Local Anesthesia. T. B. Smith, Morenci, Ariz.—p. 32.

122. **Method of Obtaining Skin Flaps in Repair of Injuries on Hands and Feet.**—In cases in which it is necessary to

amputate a finger, for instance, Vivian makes use of the skin covering this finger to cover the denuded area of the injured hand or wrist. The bone being removed, the flap is spread out and sutured to the margin of the area which is to be covered. In Vivian's experience the skin is apt to slough for an area of about one eighth of an inch around its periphery, consequently, it is well to refrain from tight suture. Any lacerated or infected areas of the skin of the finger to be utilized should also be excised and may be sutured together in whichever direction it seems advisable. This procedure has been most successfully applied in an injury produced by explosive force at the wrist; in another in which the metacarpal bones were caught between the gears of a pump; and a third in which a percussion cap exploded in the palm of the workman's hand, tearing out the second and third metacarpals together with their articulations to the phlanges.

### Tennessee State Medical Association Journal, Nashville

January, 1918, **10**, No. 9

126 Endometrium and Endometritis. H. M. Tigert, Nashville.—p. 345.
127 Some Facts About Tuberculosis. C. A. Robertson, Ridgetop.—p. 350.
128 Buccal Route for Operative Procedures on Anterior Part of Floor of Nose. W. L. Simpson, Memphis.—p. 355.
129 Inguinal Hernia. H. L. Fancher, Chattanooga.—p. 357.
130 Orthodontia as Science. O. A. Oliver, Nashville.—p. 360.

### Vermont Medicine, Rutland

December, 1917, **2**, No. 12

131 Physical Examination of Drafted Men. J. M. Hamilton, Rutland.—p. 285.

### Washington Medical Annals

January, 1918, **17**, No. 1

132 Centennial Anniversary Number.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

Jan. 5, 1918, **1**, No. 2975

1 *Some Surgical Developments in Wound Treatment During War. A. W. M. Robson.—p. 1.
2 Treatment of Gonococcal Arthritis by Sensitized Gonococcal Vaccine. H. D. Haworth.—p. 4.
3 Muscle Nerve Testing During Operation. W. R. Bristow.—p. 6.
4 *Eye Changes in Trench Nephritis. J. Kirk.—p. 7.
5 Sycosis and Other Chronic Staphylococcal Infections of Skin, and Their Prevention. H. G. Adamson.—p. 8.
6 Treatment of Psoriasis by Roentgen Rays and Chlorin Ionization. C. E. de Silva.—p. 9.
7 *Acidosis as Possible Cause of Certain Symptoms in Diphtheria. B. A. Peters.—p. 10.
8 Simple Method of Mechanical Fixation for Fracture of Long Bones. J. E. Adams.—p. 12.
9 Anatomic and Physiologic Principles Underlying Treatment of Injuries to Muscles, Bones and Joints. A. Keith.—p. 14.

1. **Surgical Developments in Wound Treatment.**—Robson says that in cases seen at the front the first duty of the surgeon in all shell wounds is to lay the wound fully open, including every pocket, to remove all foreign bodies and bits of clothing as well as loose particles of bone and dead or damaged tissue, to arrest bleeding, and to irrigate the wound thoroughly with some antiseptic such as eusol or neutral solution of sodium hypochlorite, or hypertonic saline or alcohol—in fact, to treat the patient on the general principles well known as suitable for poisoned wounds; this, followed by free drainage, was the method carried out with more or less success in the early months or first year of the war. Although this led to saving of life and to abolishing violent sepsis and gas gangrene, it left large wounds to heal by a long process of granulation, and led to exhaustion of vital powers, and to deformity caused by large scars. Now, however, there are several methods to choose from to shorten the treatment subsequent to the first necessary operation. The Carrel-Dakin treatment, with closure of the wound in from a week to a fortnight, if the patient can be taken to a good hospital, and kept there, is the ideal method, and has certainly given excellent results, but it is not good for patients that have to be transferred by sea and rail.

If the patient has to be transferred—as, indeed, have the greater number of patients—after cleansing the wound and drying it with alcohol, the bipp treatment with closure of the wound affords an excellent method; this is especially the case if the wound has been completely excised, when either bipp or the paste recommended by Hey can be used. The salt pack treatment used by Gray is excellent both for transport and subsequent treatment, to be followed in about a week or more by the Carrel-Dakin or bipp methods. For the care of patients with septic suppurating wounds arriving constantly at the base hospitals both in France and in England, the pathologic method followed out at Reading of grafting the purified wound with the Reading bacillus under packs of sphagnum moss is both simple and effective, and the experience there is that secondary hemorrhage has never occurred under this treatment.

4. **Eye Changes in Trench Nephritis.**—Seventy or eighty patients came in the same convoy from the Macedonian front. They were chiefly active cases of trench nephritis in soldiers between 20 and 30 years of age, and were examined by Kirk with reference to eye complications. Nearly all the cases presented the disease in a severely acute form, and almost invariably marked retinal congestion, with large pulsating veins were present. There were no signs then, however, of any patches of exudation or nerve involvement. Some weeks later, however, more definite changes of nerve swelling, accompanied by patches of retinal exudation were seen. While the spots of exudation were generally in the usual situations, that is, near the disk and in the macular area, in no case was seen the typical silvery starlike figure of the chronic cases as figured in the textbooks. Hemorrhage was not common. Those seen were of the small punctate variety, and not of the striate or flamelike character. The optic disk was often affected, the changes varying from a definite swelling to slight woolliness and indistinct edges. Small areas of edema were noticed, especially along the course of the veins. An important point was that in several of the series Kirk was able to trace the gradual absorption of some of the smaller patches of exudation.

Kirk believes that the pathology of this condition is probably an acute congestion resulting from some specific toxin, that the exudation which ensues is partly lymphoid and partly cellular in nature, and that this deposit probably clears up in the great majority of cases, without leaving any permanent results. The condition is one which is probably allied to the acute retinitis of pregnancy, scarlatina, and acute uremia, and should not be confounded with the retinitis of chronic kidney inflammation with its permanent changes in the retinal circulation vessels and tissues.

7. **Acidosis in Diphtheria.**—Peters' observation has lead him to believe that in certain cases of diphtheria, acidosis is a serious complication. Some of the symptoms in vomiting cases of diphtheria may be due to a previous acidosis causing suprarenal exhaustion. These symptoms are not prevented by antitoxin if the patient does not receive it by the third or fourth day of the disease. The administration of large amounts of alkali to patients showing these symptoms diminishes or stops vomiting but does not usually save the patient. The administration of 10 to 15 gm. of sodium bicarbonate daily for several days from the earliest possible moment, with full doses of antitoxin, appears to prevent the onset of these symptoms.

### Dublin Journal of Medical Science

December, 1917, **144**, No. 552

10 Prognosis. H. C. Drury.—p. 345.
11 Eugenics Limited to Care of Pregnant Women, Advocating Expectant Mother Hospitals and Special Dispensaries. A. Smith.—p. 351.

### Journal of Tropical Medicine and Hygiene, London

Jan. 1, 1918, **21**, No. 1

12 History of Introduction of Antimony in Therapeutics of Internal Leishmaniasis. R. Jemma.—p. 1.

### Lancet, London

Jan. 5, 1918, **1**, No. 4923

13 *Antiscorbutic Value of Milk in Infant Feeding. H. Chick, E. M. Hume and R. F. Skelton.—p. 1.

14 Roentgen-Ray Localization. E. W. H. Shenton.—p. 2.
15 *Treatment of Fractures in Warfare. W. A. Lane.—p. 4.
16 Treatment of Wounds Involving Mucous Membrane of Mouth and Nose. P. P. Cole.—p. 11.
17 Entameba Histolytica Infections. W. MacAdam.—p. 15.
18 Wassermann Reaction. F. E. Taylor.—p. 19.
19 Value of Roentgenogram in Surgery of Facial Injuries. H. M. Johnston.—p. 10.

Jan. 12, No. 4924

20 *Antenatal Syphilis: Suggested Action of Chorionic Ferments. A. J. Routh.—p. 45.
21 Heart Failure and Pregnancy. J. Mackenzie.—p. 50.
22 Some Points in Diagnosis and Treatment of Dysentery Occurring in British Salonika Force. D. Graham.—p. 51.
23 *Wounds of Chest as Seen at Advanced Operating Center. W. A. Rees and G. S. Hughes.—p. 55.

13. **Antiscorbutic Value of Milk in Infant Feeding.**—Although raw cow's milk contains the accessory food factor (vitamin) which protects from scurvy, this is present in small amounts and is further diminished by heating or drying. Therefore, the authors suggest that infants fed on heated or dried milk, or on any milk substitute, should receive also some antiscorbutic ration, such as fresh fruit juice or potato. It is probable that the raw juices of turnips and swedes can also be employed.

15. **Treatment of Fractures in Warfare.**—In Lane's experience during the war no patients have been as badly treated as those having simple fractures. In the large majority of instances the unsatisfactory nature of the result has been due apparently either to a want of familiarity with the mechanics of fractures or to such an imperfect operative technic as suggested but little knowledge of the very important details which a surgeon should employ in operating on fractured bones. Large numbers of simple fractures have been put up in plaster of Paris, or in wooden or metal splints, without any apparent regard to the character of the displacement, and the fragments have been allowed to unite in such positions as either rendered the limb useless or have materially affected its usefulness. As regards the operative procedures in fractures, it is unfortunate that many surgeons appear to imagine that the very moderate amount of cleanliness which enables them to perform abdominal or other operations with success is sufficient for the methods required to expose a simple fracture, to place the fragments in accurate apposition, and to retain them by means of steel plates and screws.

Apart from infection of the wound, the surgeon failed frequently to obtain a successful result for the reason that he was unaware of the very simple means by which, in cases of fractures by direct or indirect violence, the broken surfaces can be brought into accurate apposition. Not succeeding in doing this, he had occasionally endeavored to establish apposition of fragments and axial continuity of the shaft by cutting away portions of the bone. As to the operative treatment of fractures produced by projectiles, Lane says, that only in very exceptional circumstances is it advisable to fix fragments of broken bones together by means of plates and screws while the wound is very foul. Should the surgeon have to resort to their use he must be most careful to see that perfect drainage is established. It is advisable to postpone operative interference till the wounds have healed for some considerable time, and until the tissues are, in all probability, free of organisms. If any apparently septic focus is observed during an operation, a culture and a vaccine should be obtained from it and employed at once should symptoms of infection of the wound develop. If there is any definite suspicion of the presence of latent sepsis, Lane advises irrigation by Carrel's method; if not, the wound should be closed completely at the time of operation. On no consideration whatever should any bone be removed. Accurate apposition can always be obtained if the surgeon knows how to bring it about. This is effected by manipulation with suitable instruments.

Much heavier steel plates are required in the class of malunited fractures produced by projectiles than are usually employed in the less comminuted fractures of civil life. Joints in relation with the fractured bone should be moved as soon as possible after the operation in order to avoid stiffness and limitation of movements, providing no strain shall be exerted on the junction likely to develop nonunion, the sooner the patient who has been operated on for fracture of one or more long bones of the leg is up and about, the more bone will be deposited and the more rapid will be the repair at the seat of fracture. Lane emphasizes the fact that while the operative treatment of compound fractures produced by projectiles is the most important of all surgical procedures in warfare, it is well to remember that it demands a degree of asepsis, mechanical skill, resource and judgment in excess of that required for other operations for war conditions. Besides sepsis, usually introduced from without, hemorrhage is the chief risk which is associated with these operations. This can be best avoided by the use of very powerful hemostatic forceps, which are left in position in the wound for as long as possible during the course of the operation. A ligature is rarely required.

20. **Antenatal Syphilis and Chorionic Ferments.**—Congenital syphilis is a more serious infection than primary syphilis, and the treatment of congenital syphilitics is less satisfactory than in those infected primarily. Routh believes that not only is paternal infection of the ovum by the seminal fluid possible, but that it is not infrequent, and that the mother may become (1) directly infected either before or with fertilization if she has a genital abrasion or an erosion of the cervix; or (2) indirectly infected during the pregnancy via the embryo (conceptional syphilis); or (3) there seems evidence to show that in a few cases she may be infected by the spirochetes in a granule stage, and that these may develop into the mature organism after pregnancy. More usually, however, the embryo is infected by the already infected mother, either by the infection of the ovum while in the Graafian follicle as part of the generalization of the disease, or after fertilization when burrowing in the uterine mucosa, or by transplacental infection. Some very early abortions may be the result of paternal infection of the ovum, and the woman may have escaped infection owing to the expulsion of the ovum very soon after its fertilization and infection, before there is any true fetal circulation. The percentage of intra-uterine deaths from syphilis is variously estimated, but syphilis is the commonest cause of abortions and stillbirths. Routh's opinion is that in city populations about 25 per cent. of stillbirths and abortions are due to syphilis. In rural districts the proportion is probably much less.

Routh points out that the "granules" mentioned above are infecting agents, being, in fact, spirochetes in the granule stage. They are able to develop into the mature spirochete in a suitable environment, or may become biologically inactive and remain latent for short or long periods. Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and to open up maternal blood vessels, so that the ovum may find for itself a resting place with nutritive blood spaces around it. As a result of the destructive action of the ferments on the maternal tissues so-called syncytiotoxins are formed, but appear to be at once neutralized by so-called syncytiolysins. If not thus neutralized, maternal and fetal toxemia may become present. The chorionic ferments (or their derivatives) are suggested as being capable of exercising their destructive properties on the *Spirochaeta pallida*, which may either be in the maternal intervillous or fetal intravillous tissues, both of which are in intimate relations with the syncytial cells of the villi whence the ferments arise. This destructive action of the chorionic ferments on the spirochete breaks it up into granules. Routh further suggests that during pregnancy it is the continued action of the chorionic ferments on the granules which may render them latent and biologically inactive, and perhaps in a few cases may destroy them. After the pregnancy, when the chorionic ferments cease to be present in the tissues of the mother and child, the granules, wherever they may be, may develop into mature spirochetes.

23. **Wounds of the Chest at Advanced Operating Center.**—According to Rees and Hughes primary hemorrhage is the chief cause of death during the first few hours after the

receipt of a wound of the chest. When severe, the patients are brought in blanched, restless, and with a rapid pulse. Restlessness is the most marked feature of the case. The treatment for these bad cases is mainly expectant, keeping the patient as quiet as possible and easing pain by the use of morphin or heroin. They require very careful handling, rolling them over on to their sound side to dress the wound being sometimes sufficient to cause death. The blood usually comes from the deeper blood vessels in the lung, and Nature's method of arresting it is to cause collapse of the lung. The authors have not seen a single case in which severe hemorrhage came from an intercostal artery, and therefore plugging of the wound is of no real benefit, and moreover, it prevents the entrance of air into the pleural cavity, which is the most rapid way of causing collapse of the lung. Hemoptysis was present in 65 cases out of 100 undoubted penetrations of the chest in which its presence or absence was noted. In the authors' series there were 44 cases of leaking pneumohemothorax and 72 cases of hemothorax or closed pneumohemothorax. The mortality in the leaking pneumohemothorax cases was 61 per cent.

Three methods of dealing with leaking cases are mentioned: (*a*) Simple dressing. The wound is swabbed over with an alcoholic solution of picric acid or iodin and dry gauze applied. (*b*) Plugging the wound, to arrest hemorrhage and also to hinder the entrance of germ-laden air. In most cases, the authors do not advocate this method of treatment. (*c*) Sewing up the wound, with or without the removal of the foreign body. The removal of the foreign body from the lung is only justifiable in a few selected cases, but the sewing up of the wound is advisable in all cases of leaking chest wounds, since it is by this means one can prevent the pleural cavity from becoming infected in more than half the cases. The treatment of the cases of closed pneumohemothorax differs in no way from that of an ordinary hemothorax. The authors had 72 cases of hemothorax and closed pneumohemothorax with 14 deaths, a mortality of 19.3 per cent. Of the fatal cases, 5 patients died from primary internal hemorrhage. Of the 67 patients that survived forty-eight hours, 8 became infected (11.9 per cent.) and 5 died from this cause, a mortality rate of 7 per cent. Bronchopneumonia caused the fatal result in one patient, and heart failure in two.

### Medical Journal of Australia, Sydney

Dec. 22, 1917, **2**, No. 25

24 Trench Nephritis. W. M. Shepherd and L. J. J. Nye.—p. 514.

December 29, No. 26

25 Use of Giant Magnet. J. L. Gibson.—p. 533.

### Practitioner, London

January, 1918, **100**, No. 1

26 Mental War Cripples. G. H. Savage.—p. 1.
27 Treatment of Tuberculous Disease of Larger Joints and of Spine. H. F. Waterhouse.—p. 8.
28 Treatment of Indigestion. G. Rankin.—p. 21.
29 Dietetic Treatment of Diabetes Mellitus. R. T. Williamson.—p. 35.
30 Venereal Diseases as We See Them Today. J. E. R. McDonagh.—p. 41.
31 Ministry of Health. A. W. Russell.—p. 70.
32 Swallowed Thread as Guide in Instrumentation of Narrowed Esophagus; Report of Case of Cardiospasm in Which Method Was Employed. C. H. Whiteford.—p. 81.
33 Management of Neurasthenia, Psychasthenia, Shell Shock and Allied Conditions. F. C. Forster.—p. 85.
34 Treatment of Whooping Cough by Vaccines. W. M. Gray.—p. 91.
35 Case of Gestation Prolonged to Twelve Months. J. T. R. Miller.—p. 94.

### Bulletin de l'Académie de Médecine, Paris

Dec. 18, 1917, **78**, No. 49

36 *High Heels. V. Galippe.—p. 726.
37 *Regulation of the Sale of Proprietaries. Léger and others.—p. 732.
38 *Surgery of the Stomach. Témoin.—p. 737.
39 *Gastropylorectomy for Gastric Ulcer. V. Pauchet.—p. 741.
40 *Cerebral Tetanus. L. Bérard and A. Lumière.—p. 744.
41 *Simplified Intratracheal Injections. M. Mignon.—p. 746.
42 *Eye and Ear Complications of Meningitis. P. Zarzycki.—p. 748.
43 Child Welfare Work in Paris District during Third Year of War. A. Pinard.—p. 751.

36. **High Heels.**—Galippe remarks in connection with the fashion for high heels: "Ce serait mal connaitre la psychologie féminine que de croire, un seul instant, que la coquetterie cédera jamais le pas à l'hygiène." P. Camper of the Hague called attention in 1781 to the crime against physiology of the Louis XV heels, and Onimus again in 1877, when they were again on the crest of the wave of fashion, and Galippe says he has been declaiming against them the last year but that his words have not had the slightest effect even in his own immediate circle.

37. **Regulation of Sale of Proprietaries.**—After prolonged discussion through several weeks the Académie passed resolutions calling for stricter application of the laws in force regarding secret remedies, and demanding that the term "secret remedy" should be defined to mean any medicament, simple or compound, the qualitative and quantitative composition of which is not yet known. Hygienic and alimentary proprietaries—when they are designed for the use of the sick—should also bear on the label the exact indication of their composition. It was reiterated that the aim of the resolutions was to make it impossible for any substance to be administered to the patient without the physician's knowledge.

38. **Surgery of the Stomach.**—Témoin insists that while gastro-enterostomy may prove successful in correcting morbid conditions when mechanical disturbance alone is responsible for them, this does not suffice where there is inflammation or pain. In these cases the pylorus should be resected, with possibly the antrum, removing the inflammatory lesion into sound tissue. By shelling off the vessels there is no need for ligation, and the whole operation is complete in from twenty-five to thirty-five minutes. With his twin forceps, he says, no assistance is required, and there is no traction on or laceration of the tissues while they ensure the asepsis of the field of operation. These conclusions were published last year on the basis of 117 operations of the kind, and he now reports on an additional series of 56 cases. Five died in this last series, but four of the deaths were explained by other causes.

39. **Gastropylorectomy.**—Pauchet declares from twenty years of experience and over a thousand operations on the stomach that the majority of disturbances from dyspepsia are not accompanied by any lesion in the stomach. Usually the dyspepsia is of reflex origin, from some lesion in the gallbladder, a kink or tumor in the bowel, appendicitis, ptosis of stomach or colon or both, or from morbid conditions in the lungs, heart or kidneys, tabes or acetonemia. When the disturbances are actually of gastric origin and are chronic or recurring, a gastric or duodenal ulcer is almost certain, the latter especially if the patient is a man. Gastric ulcer is almost always on the lesser curvature. Acute recent gastric ulcer often heals under repose, ulcer diet and bismuth. The other cases in his experience were of long standing but the symptoms were far from the classic set of symptoms, and the cases had been labeled hyperchlorhydria, nervous dyspepsia, Reichmann's disease, etc. In 80 per cent. of his gastric cancer cases the cancer had developed on the basis of an ulcer, and the ulcer had seldom been recognized. The only operation for gastric ulcer that cured completely and permanently was gastropylorectomy, and this he advocates as the routine procedure. He makes a point of examining directly the posterior aspect of the stomach. The portion of the stomach to be resected is shelled free from vessels with a compress and no ligatures or forceps are required for hemostasis. After resection between clamps, the two stumps are each sutured to make a blind pouch. After the operation the patient's diet must be strictly hygienic to protect the insufficient liver, kidneys and glands which evidently cooperated in the production of the ulcer.

40. See Paris Letter.

41. **Intratracheal Injections.**—Mignon combines traction of the tongue with pushing the epiglottis out of the way with the finger. This facilitates intratracheal injection of a fluid, without special illumination or assistance. The epiglottis is pushed down with the left index finger until it rests on the drawn-out tongue. This opens the larynx wide while reducing the opening into the esophagus to the minimum.

42. **Ear and Eye Complications of Meningitis.**—Zarzycki found complications on the part of the eye or ear in about 15 per cent. of his numerous cases of epidemic cerebrospinal meningitis. Every eye or ear affection when meningitis is prevalent should be suspected and bacteriologic examination made, with prompt serotherapy if the findings are positive. He applies the antiserum locally also, injecting it at need into the lacrimal sac or under the conjunctiva.

### Lyon Médical

December, 1917, **126**, No. 12

44 *Acute Bacillary Dysentery. P. Dufourt and A. Devic.—p. 541.
45 French Pioneers in Heliotherapy. G. Rivier.—p. 552.
46 *War Wounds of Joints. R. Leriche.—p. 556.
47 War Bread. R. Lépine.—p. 578.

44. **Acute Bacillary Dysentery.**—Dufourt and Devic insist that the antiserum should be given early in large and repeated doses. If it fails to relieve promptly and ensure a brief convalescence, mixed infection should be suspected. The excessive loss of fluids must be combated vigorously, having the patient drink at brief intervals small amounts of aromatic rice water, tea, much sweetened decoctions or vegetable bouillon. Large amounts of fluids should not be given the patients but small amounts should be distributed among them every hour or half hour. Fractioned in this way, the fluid is absorbed rapidly and in the upper intestine. In urgent cases, artificial serum is called for, from 500 to 1,000 c.c., with a little epinephrin or suprarenal extract in case of suprarenal insufficiency. Highly sweetened drinks are nourishing, and also milk boiled and skimmed, a third or half a liter, taken in very small amounts at a time. The frequent watery passages, soiling bed and body linen, require that an actual zone of protection should be arranged about each person with bacillary dysentery. The passages and linen must be sterilized at once, and every one approaching or touching the sick should wash the hands frequently, at least before eating. Contagion can thus be warded off, and prophylactic serotherapy is unnecessary. As it protects for only about ten days, it is useful only for the attendants.

46. **War Wounds of Joints.**—Leriche emphasizes certain points which experience has demonstrated to be of importance in treatment of war wounds of joints. One is the necessity for primary suture in the early treatment of wounds of the synovial membrane with or without a foreign body. Time has also shown that an early secondary suture is often possible when the primary suture was out of the question. It is better to do it early than later, the second, third or fourth day, if it can be done then. The ultimate outcome has shown that a lateral arthrotomy is preferable to a transverse opening of the joint through the tendon; also that a small bone lesion or one far to the side should not modify the general line of treatment; also that it is dangerous to leave a deep ragged wound in the epiphysis enclosed in the synovialis, both on account of possible flaring up of infection later, and on account of the danger for the functioning of the joint. When the parts of the joint have been injured to such an extent as to throw the joint out of gear (*disloquer la statique articulaire*), resection is preferable. Another point learned from experience is the advantage of subperiosteal resection at all stages. Leriche has consistently advocated primary resection, but insists on the necessity for conservation of the periosteum with extreme care. This requires the patient methodical use of a cutting rasp or bone-scraper (*rugine*). The aim is to retain a periosteum-capsule sheath, assuring the continuity of the sustaining soft tissues of the joint leaving the supporting ligaments intact and also the muscles and tendons attached to it. This sheath holds the parts in place and maintains the normal outline of the joint. As bone tissue proliferates, this sheath guides it into proper proportions, while the normal play of the muscles models the newly formed soft bone. The articulation is thus reconstituted on the preexisting physiologic type. The operation consequently must be inside the capsule and done extremely cautiously, sacrificing everything to the physiologic conception and the concern for the ultimate result. This is Ollier's method and it is giving results now more brilliant than even Ollier hoped for.

### Presse Médicale, Paris

Dec. 6, 1917, **25**, No. 68

48 *Classification of Tachycardia. A. Martinet.—p. 693.
49 *Prophylaxis of Secondary Hemorrhage from War Wounds. Revel.—p. 694.
50 Crile's Anoci-Association. J. Luzoir.—p. 695.

Dec. 13, 1917, **25**, No. 69

51 *War Wounds of the Hip. V. Pauchet.—p. 701.
52 *Mechanism of the Seroreaction in Syphilis. A. Vernes.—p. 704.
53 *Adjustable Screw Extension for Fractures. C. Willems.—p. 706.

48. **Classification of Tachycardia.**—Martinet discusses paroxysmal, temporary and more or less permanent tachycardia, saying that the paroxysmal form should be suspected when the pulse is over 110 and there is no goiter or fever and the rate is not sensibly modified by change from the horizontal to the vertical position. The accidental or temporary tachycardia may be traced to fever, exercise, to change of position, emotions, pain or toxic influences from tea, coffee, kola or theobromin. The more or less permanent tachycardia without actual heart lesions is encountered with exophthalmic goiter or as a neurosis, and he emphasizes that every feature of a tachycardia neurosis is identical with those of the exophthalmic goiter tachycardia—even the morning exacerbation—"the only difference between them is the neck." There is in both evidently intense excitation of the sympathetic which not only accelerates the heart action but has a vasoconstricting and pressure-raising action. He has encountered several cases in which all the types of tachycardia were observed at different times, finally settling down into the exophthalmic goiter type.

49. **Prophylaxis of Secondary Hemorrhage.**—Revel insists on the necessity for systematic exploration of the vessels in case of a war wound. The vessels in the region may be injured at more than one point, and hence they should be thoroughly investigated at once as the only means to ward off secondary hemorrhage. He had twenty cases of secondary hemorrhage before this thorough exploration was made the routine procedure, but since then it has been warded off. The injury of the vessel may heal spontaneously if the wound is aseptic, but even imperceptible latent infection may be enough to start the secondary hemorrhage in these cases of dry vascular wounds or when the wound is close to some large vessel.

51. **Resection of Hip Joint for War Wounds.**—Pauchet gives twelve illustrations showing the various procedures required for different kinds of war wounds of the hip. He also shows the preferable plaster cast and the spring separate sole that holds the foot up, to ward off equinism.

52. **Seroreaction in Syphilis Placed on Mathematical Basis.**—Vernes gives a number of diagrams showing the varying precipitation of colloids with different proportions of certain drugs or other substances added to them. He refers in particular to the colloids in human serum. He distributed in a set of test tubes 2 c.c. of a fine suspension of ferric hydroxid (*hydrate de fer jaune*) prepared with 0.225 gm. ferric acetate in 250 c.c. of distilled water. To each tube is then added a graduated amount of normal human serum diluted in enough 9 per thousand saline to make a constant amount of 0.2 c.c. The diagram shows that there is complete flocculation on addition of some of these graduated amounts while there is none with other amounts. When the normal human serum has been added in proportions of 0.2 : 1.5 c.c. down to 0.2 : 10 c.c. there is complete flaking, but there is no flaking with from 0.2 : 12 c.c. to 0.2 : 40 c.c. Then in the tubes with from 0.2 : 41 to 0.2 : 90 c.c. flocculation is complete again, but with lesser amounts of the serum than 0.2 : 90 c.c. there is no further flaking. When syphilitic serum is used, precipitation occurs more readily and earlier in each of these phases. This is a differentiating reaction with syphilitic serum which seems to be constant and reliable, when the test fluid is made with care to produce a fine suspension of a given stability so that precipitation will occur with syphilitic and not with normal serum.

The suspensions used to date for the Wassermann and other serologic tests have been empirically determined.

Vernes' research, he declares, places it on an exact basis. The suspension found most convenient was prepared by grinding in a mortar 0.04 or 0.05 or 0.1 gm. pure ferric acetate with a little distilled water, then decanting, grinding anew with a little more distilled water and decanting, repeating this until there is no more of the ferric acetate in the mortar. Then more water is added to bring the whole to 250 c.c. The suspension is then heated to boiling in a porcelain capsule and boiled hard for twenty minutes, adding more water repeatedly to keep the level at 250 c.c. The fluid is then set aside to cool and is brought up to exactly 250 c.c. with distilled water. This fluid is then distributed in a set of small tubes, 2 c.c. in each, and to each tube is added the serum in progressively decreasing amounts as stated above. The periodical rhythm of precipitation or nonprecipitation differs characteristically with syphilitic and with normal serum. With a 0.04 suspension of the ferric acetate in 250 c.c. of water, precipitation with normal serum does not begin until past the figure 0.2 : 9 c.c., while with syphilitic serum it begins already with 0.2 : 3 c.c. Syphilitic serum thus displays greater precipitating power than normal serum, and the flaking zones are thus widened.

53. **Screw Extension for Fractures.**—Willems gives illustrations of a method for adjustable extension, driving a long screw into the condyles or above the malleoli on each side of the leg. Each screw carries a ring from which a chain is suspended, the lower ends of the chain holding a crossbar. The force for extension is applied to the center of this crossbar some distance below the foot. An upright fastened in the plaster splint permits suspension also, and a strap from the upright arch prevents the forepart of the foot from dropping into the equinus position.

### Progrès Médical, Paris

Dec. 1, 1917, **32**, No. 48

54 *Pyelonephritis Following War Wounds. R. Uteau and R. Schwab.—p. 403.
55 Tardy Meningitis. A. Challamel.—p. 404.
56 *Camp Bed. Bonnette.—p. 406.

Dec. 8, 1917, **32**, No. 49

57 *Recent Acquisitions in our Knowledge of Malaria. A. Bernard.—p. 413.
58 *Treatment of Malaria. Leenhardt and L. Tixier.—p. 424.
59 Hibernation of the Anopheles in Southeastern France. L. Léger and G. Mouriquand.—p. 426.
60 Management of Hospital for Malaria. C. Garin and C. Pasquier.—p. 427.
61 Novarsenobenzol in Treatment of Malaria. A. Bernard.—p. 429.

54. **Pyelonephritis after War Wounds.**—Uteau and Schwab report four cases in which pyelonephritis consecutive to a war wound persisted interminably, with complete failure of medical measures, up to two years. In three of the four men, functional tests showed the second kidney was not working quite properly—evidently a sympathetic disturbance. There was a foreign body in one case and the kidney was exposed and incised. The projectile was not found; it proved to be in the abdominal wall, but the nephrotomy was followed by prompt and complete subsidence of the pyuria, and they commend simple nephrotomy as the routine treatment in such cases. The only objection to it is that the men with simple pyuria from this cause may refuse to permit nephrotomy as they do not want to be cured and sent back to the front, not being incommoded by their pyuria.

56. **Camp Bed.**—Bonnette gives an illustration of a bed made from four planks. One is cut up to form the end supports which hold the other three planks firmly without screws or cords.

57. **Malaria in France.**—Bernard says that the campaign in Macedonia has resulted in the contracting of malaria by thousands of the French troops who have since scattered it all over France. He regards the definite cure or sterilization of the malaria patients as impossible, and hence destruction of the hematozoon is difficult. The best prophylaxis is to send the malarial soldiers to hospitals in a mountain district where there are no mosquitoes. The most promising outlook for treatment is by watching out for the appearance of schizonts in the blood. The gametes become transformed into schizonts and as soon as the latter have produced enough toxins, the attack of malaria develops unless the schizonts are destroyed by quinin or novarsenobenzol during this susceptible stage. By examining the blood every third day, this transformation into schizonts can be detected early and the schizonts can be killed off with these drugs as fast as they appear, and the attack can thus be warded off. It is hard to get the men to submit to these repeated examinations as they do not feel sick between the attacks. It has been found well to group the malarial men in farm colonies, with strict medical supervision; the results have been excellent. Nearly two pages of recent bibliography on malaria are appended.

58. **Treatment of Malaria.**—Leenhardt and Tixier extol the advantages of giving quinin by the intramuscular route as they have found it so effectual in their service, no further parasites being found in the blood. Time alone will tell whether the disease has been definitely eradicated. In over 5,000 injections of the kind in a five month period they have never had suppuration.

### Revue Médicale de la Suisse Romande, Geneva

December, 1917, **37**, No. 12

62 *Anatomic Effects on the Lung of Induced Pneumothorax. R. Burnand.—p. 729.
63 *Eosinophilia after Resection of Sciatic Nerve. N. Loewenthal.—p. 740.
64 *Creatinin Content of Blood. J. Tchertkoff.—p. 748.
65 *Prosthesis for the Nose. Veyrassat.—p. 754.
66 Case of Pneumic Hypertrophic Osteo-Arthropathy. G. A. Guye.—p. 760.
67 *Ileus Induced by Bunch of Glands. G. A. Guye.—p. 769.

62. **Anatomic Effects of Induced Pneumothorax.**—Burnand reports the findings in five cadavers. The progress of lesions in the other lung had resulted fatally notwithstanding the benefit from the induced pneumothorax in the lung first affected. The pneumothorax had lasted from three and a half to eighteen months. The necropsy findings in all testified to a manifest and intense curative action on the tuberculous focus from the compression. They show further that true anatomic healing is still remote or fragile, even when the clinical manifestations seem to demonstrate a complete cure. They testify further to the fact that artificially induced pneumothorax is after all merely a palliative procedure, which explains the mishaps later. All this should not discourage, he says, but should stimulate us to perfect the method with more prudence, more therapeutic perseverance, and greater caution in the use of the term "cured."

63. **Eosinophilia after Resection of Sciatic Nerve.**—Loewenthal gives a colored plate showing the findings in the inguinal glands after resection of the sciatic nerve in rabbits.

64. **Determination of Creatinin in the Blood.**—Tchertkoff describes a technic with which it is possible to detect grave insufficiency of the kidney by the creatinin content of the blood. With only 15 c.c. of blood serum it is possible to ascertain the creatinin content and also the indican and urea content, and thus obtain deep insight into the kidney functioning. He says that the normal creatinin content does not surpass 18 mg. to the liter of serum. Above 25 mg., retention is certain. First there is retention of urea, then of creatinin and, later of indican. As the kidney functioning improves they disappear in reverse order. The serum is freed from albumins with an equal quantity of a 20 per cent. solution of trichloracetic acid. After agitation it is filtered, and to 2.5 c.c. of the filtrate is added an equal amount of a saturated solution of picric acid and 1 c.c. of a 20 per cent. solution of sodium hydroxid. By the end of fifteen minutes the fluid changes in tint to a yellow or orange, proportional to the creatinin content. If the tint in ten minutes is still light yellow, the creatinin content is probably within normal range. Above 35 mg. to the liter, the tint shows orange or even red. With a colorimeter the exact figure can be determined.

65. **Restoration of the Nose.**—Veyrassat gives an illustration of the fine result obtained by using a sliver from the

tibia to form a support for the upper half of the nose which had been shot away. He then expatiates on the necessity for general anesthesia in such cases, as the measures for local anesthesia depress the vitality of the tissues and separate the layers of tissues.

67. **Ileus from Enlarged Glands.**—In the case described by Guye a tuberculous process in the hip joint had caused an inflammatory reaction in the prevertebral glands, and this in turn induced the obstruction of the bowel. Except for the sudden onset of symptoms, there was nothing to suggest acute invagination. The laparotomy disclosed no cause for the ileus except a bunch of ten enlarged glands adherent to the lumbar spine, and connected with the inguinal region by a chain of enlarged glands. No attempt at resection was made. There was no movement of the bowels until thirty-six hours later, and the gland tumor gradually retrogressed. The operation thus seems to have been superfluous but, owing to the difficulty of differentiation in such cases, it is better to err on the safe side and ascertain the nature of the tumor palpated, even although the general condition continues good. The operation was deferred in this case until the pulse suddenly ran up to 120, although the temperature kept normal and the child had vomited only twice in the last twelve hours.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 15, 1917, **47**, No. 50

68 *Maternity Tetany. H. Guggisberg.—p. 1713.
69 Is a Higher Birth Rate Desirable? A. Goenner.—p. 1722.
70 *Relations between Tuberculosis and Shriveling Processes in Liver and Kidney. S. Schönberg.—p. 1726.

68. **Tetany in the Pregnant and Parturient.**—Guggisberg comments on the comparatively frequent occurrence of tetany in pregnant or puerperal or nursing women although so few cases are reported. He thinks it must sometimes be mistaken for hysteria. It occurs more frequently in certain districts and at certain times. The symptoms generally appear first during the last half of pregnancy in women who have borne several children, and it returns in later pregnancies, in a more pronounced form and earlier. In severe attacks there may be total loss of consciousness. Sometimes there may be only one attack or there may be a series, with contracture in the intervals. One woman complained that she was unable to use her fingers in knitting during the intervals. There may be psychic disturbances; in one case there was loss of memory. Trophic changes in the hair, the nails and the crystalline lens were observed in some cases. The characteristic spasms affect mainly the arms although other groups of muscles may be involved. The Trousseau and Chvostek signs aid in differentiation; the former can be elicited only with tetany. The Erb phenomenon is also an important sign. The children of women with severe maternity tetany may be quite healthy or develop tetany themselves. The clinical picture of tetany suggests the action of some toxin. There is acidosis, an increase in the hydrogen ions in the blood, and there is much to sustain the assumption that the disturbance in the metabolism under the influence of the maternity deranges the functioning of damaged parathyroids, which under other conditions are equal to their task. Guggisberg removed the parathyroids from rabbits and then was able to bring on tetany at will by injecting placenta extract. This confirms the assumption that the endocrine function of the placenta is involved in the production of tetany. It is significant, he adds, that the so-called pregnancy toxicoses are practically never encountered in the puerperal tetany cases. The parathyroids from a cadaver might be grafted to cure severe tetany, but nothing in this line in treatment of puerperal tetany has been published. Parathyroid preparations have given good results in some cases, and even thyroid treatment, but they have failed completely in others, and serotherapy has also failed in the clinic although giving good results in experimental research.

Calcium is the main reliance in treatment. Guggisberg's experience with it confirms the favorable reports of others. In one case of very severe, recurring maternity tetany, with cyanosis and loss of consciousness during the attacks, he succeeded in arresting them by giving 1 gm. calcium lactate four or six times a day. The woman was seven months pregnant, and delivery occurred normally. Milk and vegetables are useful on account of the high calcium content. As little salt should be used as possible, to reduce the amount of sodium in the organism, thus clearing the field for the calcium salts. He warns that morphin, ergot, atropin, calomel, tuberculin, pituitary extract, chloroform and ether should all be avoided when there is a latent tendency to tetany, as they are liable to bring on an attack, as has been repeatedly confirmed in animals. As the attacks of tetany are accompanied by much pain, sedatives may be indicated, but chloral or bromids should be given the preference. The course of puerperal tetany is generally favorable but there are cases on record with a fatal outcome. Some advocate hastening the evacuation of the uterus, but he thinks that it is much wiser to leave this to Nature, smoothing the way for it and restricting medication to the minimum.

70. **Tuberculosis as a Factor in Chronic Kidney and Liver Disease.**—Schönberg has found cirrhosis of the liver quite common in tuberculous cadavers at Basel. In some cases no evidence of tuberculosis could be found elsewhere but the discovery of tubercles in the cirrhotic liver or contracted kidney confirmed the tuberculous element. Similar liver findings were encountered also in cattle. In the cattle they formed the connecting link between the experimentally induced cirrhotic processes in the livers of tuberculous guinea-pigs and the spontaneous cirrhosis of the liver in man. Hössly found cirrhosis of the liver in Greenland where there is no liquor drinking but where tuberculosis is very prevalent. Schönberg is convinced that tuberculosis is liable to play a predominant rôle in the development also of contracted kidney. Among the cases cited to sustain this view is that of a woman of 25 with the clinical symptoms of pronounced contracted kidney; necropsy showed a combination of arteriosclerotic and true contracted kidney. The kidneys were also studded with tubercles and tubercle bacilli were found, but no other signs of tuberculosis elsewhere could be detected. In another case the urine contained pus and tubercle bacilli supposed to come from the left kidney. This kidney was removed but showed no anatomic signs of tuberculosis, presenting merely the aspect of contracted kidney, except for the tubercle bacilli found in it.

### Policlinico, Rome

Dec. 9, 1917, **24**, No. 50

71 History of Introduction of Antimony in Treatment of Leishmaniosis. R. Jemma.—p. 1457.
72 Paroxysmal Hemoglobinuria in Child with Inherited Syphilis. V. Russo.—p. 1466.
73 Morphology of the Tubercle Bacillus. P. Mariconda.—p. 1467.

December, 1917, **24**, Medical Section No. 12

74 *Diagnosis of Pulmonary Tuberculosis. A. Signorelli.—p. 469.
75 Roentgenoscopy of Ileocolic Invagination. L. Mancinelli.—p. 484.
76 Analysis by Roentgenoscopy of Pains in the Stomach. P. Alessandrini.—p. 491.
77 Roentgenoscopy of Supernumerary Bones in the Feet. C. Guarini. —p. 498.
78 *Preventive Intravenous Vaccination against Meningitis. G. Quarelli.—p. 501.

74. **Diagnosis of Pulmonary Tuberculosis.**—Signorelli discusses this question from the military standpoint, and emphasizes in particular the importance of the roentgen findings.

78. **Vaccination against Meningitis.**—Quarelli relates favorable experiences with autogenous vaccines injected by the vein in prophylaxis of epidemic meningitis.

### Rivista Critica di Clinica Medica, Florence

Dec. 8, 1917, **18**, No. 49

79 *Metabolism in Exophthalmic Goiter. C. Capezzuoli.—p. 489. Commenced in No. 47, p. 469.

Dec. 15, 1917, **18**, No. 50

80 Relapses in Malaria. C. Bartolotti.—p. 501.
81 *Multiple Osteomyeloma with Albumosuria. A. Martiri.—p. 506.

79. **Metabolic Findings in Exophthalmic Goiter.**—Capezzuoli reviews representative literature on exophthalmic goiter, especially the results of operative treatment. His own experience suggests that authors might find on reexamination later that some of their cases reported as cures have had the symptoms return. This occurred in one of the two cases he

reports with minute details of the metabolic findings. The cure in the case of the woman of 27, after removal of four fifths of the thyroid, was so complete that even the various metabolic findings had changed to the normal type by the end of three months. The only symptom left was that the eyes still protruded somewhat, but not so much as before the operation. After several months of apparent cure the symptoms returned and the part left of the thyroid enlarged. By the end of the year the woman was having an attack of tetany every twenty or twenty-five days, but otherwise the symptoms never reached the intensity of the preoperative period until after a fright at the twentieth month. Then general agitation and attacks of unconsciousness with cyanosis were occasionally observed, in addition to the other symptoms, but the general condition kept good and the woman gained several pounds in weight during her two or three months in the hospital. The heart symptoms improved and under parathyroid treatment, phosphorus and bromids, the symptoms became much attenuated and there have been no serious ones since. If the case had been published within nine months of the operation, it would have been reported as a brilliant success from operative treatment. In some of the cases on record recurrences have been known after eight, nine or more years. Capezzuoli's general conclusions are that every case of goiter with a tendency to the exophthalmic type and evidences of a progressive course demands operative treatment without further delay unless contraindicated by advanced cachexia or heart or kidney disease or diabetes. A preliminary course of medical measures should always be tried and tried again. The heart symptoms are those that benefit most by operative measures, the exophthalmos least. Almost the main thing, however, he thinks, is to impress on the patient that the dietetic and medical restrictions will have to be kept up perseveringly after the operation as before, to ward off relapses.

81. **Osteomyeloma with Albumosuria.**—Martiri warns that the albumosuria may not appear for several months in cases of Kahler-Bozzolo disease, and it may fluctuate, so that lack of albumosuria does not disprove the diagnosis.

### Cronica Medica, Lima, Peru

December, 1917, **34**, No. 654

82 *General Paralysis. C. A. Bambaren.—p. 431.

82. **General Paralysis.**—Bambaren reviews the international literature of the last few years on the subject of general paralysis, and analyzes his own experience. No benefit was observed in his own cases in which intravenous injections of neosalvarsan were systematically given. In three other cases he gave intraspinal injections of mercurialized serum, a commercial preparation. In one case the pupil reflexes returned to approximately normal, but the psychopathic symptoms persisted unmodified. The spinal cord and brain seem to feel the action of the virus at the same time as the skin, that is, in the secondary phase of the disease, probably because they all are derived from the ectoderm. Hence the necessity for examining the meningeal reaction during this stage of syphilis, bearing in mind Fournier's statement that he found lesions of the central nervous system most frequent in persons who showed no or very slight lesions during the secondary phase. The cerebrospinal fluid may show globulins, pleocytosis and positive Wassermann reaction even when the Wassermann reaction in the blood is negative. Besides these biologic signs of impregnation of the nervous system with the virus, the physical and psychic symptoms aid in the diagnosis at an early stage or permit prophylactic treatment. In every case of general paralysis, spinal treatment should be tried or the medication applied directly to the subdural space and cavity of the ventricles. Among the methods of treatment in vogue, he thinks Ogilvie's serum salvarsanized in vitro has certain advantages (The Journal, Nov. 28, 1914, p. 1936). Remissions are noted in from 25 to 35 per cent. of the cases of general paralysis treated by these various measures where formerly, according to certain authorities, they averaged only 3.9 per cent. Of course treatment must be begun early to count on favorable results.

### Gaceta Medica de Caracas

Sept. 15, 1917, **24**, No. 17

83 *Staphylococcus Septicemia. R. M. Jimenez.—p. 155.

Sept. 30, 1917, **24**, No. 18

84 *Amebiasis. C. E. Salom.—p. 168.
85 Emetin in Superficial Leishmaniosis. A. da Matta.—p. 169.

83. **Staphylococcus Septicemia.**—Jimenez queries whether the tropical climate may not have been the determining factor in some cases described in which a small furuncle or acne tumor developed on the lip or nostril, and high fever set in with prostration, delirium and death within three days. He was unable to find in European records any such series of fulminating staphylococcus septicemia cases within a comparatively short period.

84. **Amebiasis.**—Salom remarks that, next to malaria, amebiasis is the most serious endemic in Venezuela. It appears in different forms in different districts but reaches its height during the warm weather and dies out as cold weather approaches. He calls attention to the third phase of amebiasis; after the intestinal and visceral phases there is liable to be a nervous stage, a polyneuritis of amebic origin. This latter phase is not mentioned in the classic descriptions, but he has known of cases in which fulminating and fatal polyneuritis developed in chronic ameba carriers. In others —who had taken emetin—the polyneuritis was peripheral and mild. It is probable that polyneuritis from this cause has sometimes been mistaken for beriberi. There is a severe epidemic of polyneuritis raging now in the mining district of Cuyuni; the diagnosis wavers between beriberi, malaria and amebic polyneuritis. Bacteriologic examination is the only means of differentiation. Emetin is the main reliance in treatment in all phases. In the polyneuritis phase he gives it subcutaneously along with strychnin, calcium and the glycerophosphates with heart tonics as needed. During the intestinal phase, he disinfects the bowels with salol or benzonaphthol in addition to the emetin subcutaneously. The diet is restricted at first to milk, tea and rice water.

### Revista Medica del Rosario, Argentina

December, 1917, **7**, No. 6

86 *The Viscosity of the Blood in Relation to Heart and Kidney Disease. R. A. Brandan.—p. 403.
87 Cholecystectomy for Gallstones. J. B. Abalos.—p. 434.
88 Noninfectious Elephantiasis. (Linfo-escroto.) J. Mazzini.—p. 463.
89 Prophylaxis of Tuberculosis in Argentina. C. Alvarez.—p. 472.
90 *Melanodermia plus Keratôdermia in Bell Ville. C. Alvarez.—p. 485.

86. **Viscosity of the Blood as Influencing Treatment in Heart and Kidney Disease.**—Brandan presents evidence to show the importance of the viscosity of the blood as an element in the clinical picture with chronic heart and kidney disease that must be taken into account in treatment. When the arterial pressure is high and the viscosity above normal, the indications are for a purge plus venesection. The latter by withdrawing whole blood leaves a vacuum into which rushes the water retained by the diseased kidneys. This reduces at once the excessive viscosity of the blood, while the purgation carries off the excess of fluids in the body which aid in keeping the arterial tension high. On the other hand, when the tension is high and the viscosity low, purgation is indicated but venesection should be avoided, especially when there is a tendency to hemorrhages. If the arterial tension is low while the viscosity is high, purgation is dangerous, as it withdraws the water from the blood leaving it with such viscosity that the heart is unable to manage it normally. Venesection, on the contrary, is always beneficial here as, in itself alone, it promotes diuresis and paves the way for the more effectual action of digitalis. He uses a viscosimeter that compares the viscosity of the blood with that of distilled water.

90. **Regional Melanodermia plus Keratodermia.**—The heading under which this subject is treated is "The New Disease Discovered at Bell Ville." Alvarez and others demonstrated typical cases and stated that they know of about forty cases in all. The main symptoms are the dark discoloration, mostly

on the trunk, with hyperkeratosis of palms and soles, disturbances in the peripheral circulation and in some cases ascites or neuritis. Death usually occurs in two years but sometimes not for four or five years. The affection seems to be restricted to the Rosario region, and all agree that the strong arsenic content of the drinking water is probably responsible for it. Pusso found in the Bell Ville water 0.0028 gm. arsenious acid—a proportion sufficient to account for this regional chronic arsenic poisoning. Goyenechea who has been studying it for four years noticed that poultry running free and drinking rain water seemed to be normal, but poultry confined and supplied with the family drinking water had unusually fine plumage but the liver was often abnormally large and all the organs showed signs of fatty degeneration. In man, anesthesia and paralysis such as are observed with arsenical poisoning are common, and also vasomotor and trophic disturbances and local anemia in feet and hands, sometimes accompanied by intense pain. One woman with goiter and large liver, improved materially under antityphoid treatment.

## Siglo Medico, Madrid

Nov. 10, 1917, **64**, No. 3335

91 *Intraspinal Treatment of Syphilis of the Nervous System. E. F. Sanz.—p. 846.
92 *Angina Pectoris. C. Calleja.—p. 849. Concluded in No. 3338, p. 910.
93 Pathogenesis of Cholelithiasis. A. Medina.—p. 852.

Nov. 17, 1917, **64**, No. 3336

94 Appendicectomy on Twelve Hours' Old Infant. M. Vargas.—p. 870.

91. **Intraspinal Treatment of Syphilis of the Nervous System.**—Sanz regards the use of mercurialized or salvarsanized autoserum or spinal fluid as rich in promise in treatment of tabes, general paralysis and cerebrospinal syphilis, but he warns that with the two latter affections the course is liable to have sudden ups and downs which might prove disastrous if a serious exacerbation happened to coincide with the application of this treatment. He cites from his own experience a case of general paralysis of hitherto mild course in a young woman with no other appreciable organic lesion. He proposed intraspinal treatment but she died the evening beforehand, with symptoms suggesting apoplexy. He regards this treatment as especially promising in tabes. No other treatment in this disease offers any chance of success. He always precedes this intraspinal treatment with a course of mercury and salvarsan intravenously, and he has never had any serious by-effects with tabes although he knows of such in the practice of others who are not so extremely cautious in technic and dosage as he is. In his experience with tabes, the majority of the subjective symptoms disappeared, the incoordination became more or less corrected and the general condition improved. Even the knee jerk returned permanently on both sides after the mercurialized autoserum treatment. The method seems to be undoubtedly effectual, but there is always a local reaction, pains in the lumbar region spreading to the limbs, with a dragging and other disagreeable sensations. Tabetics also shrink from having blood drawn to supply the necessary serum. The cerebrospinal fluid, it is said, does not contain enough albumin to saturate the mercury. He used mercuric chlorid, from 0.5 to 3 mg., for the injection repeating it a month later in the tabes cases, increasing from the smallest to the largest amount mentioned. He always mixed with it some of the cerebrospinal fluid just drawn, the total fluid injected being kept always less than the amount of the total spinal fluid withdrawn. In one case he treated a circumscribed lesion in the lumbar spinal cord by the intraspinal injection, and a violent reaction on the part of the meninges followed, with fatal outcome.

92. **Angina Pectoris.**—Calleja argues that the symptoms known as angina pectoris are of nervous origin, the result of some disturbance in the vegetative nervous system, causing paralysis of the muscles of expiration. Owing to this sudden paralysis, the individual is unable to expel the breath in his lungs but he keeps on inhaling, taking in deep breaths which increase the pressure in the chest and impede the circulation in the chest. Any one, he says, can induce similar painful sensations by breathing deep and holding the breath a long time. It is a neuropathy and not a cardiopathy, although the two may be associated. The primal cause is some intoxication, tobacco, alcohol, from overeating, lack of exercise, syphilis or other infectious cause. Any lesions found in the chest are casual, not causal. The immobilization of the thorax may be accompanied by high blood pressure, but he has had patients with normal pulse throughout an attack. Symptoms have been confused with causes. In the purely painful type, morphin is called for; in the type with extreme distress, amyl nitrite or trinitrin, or both in the mixed type. But the doses should be very small, not to superpose further toxic action on the nerves.

## Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 10, 1917, **2**, No. 19

95 *Spiral Incision Treatment of Varices. W. P. J. Hoogveld.—p. 1743.
96 *Prophylaxis of Contagious Diseases. H. Waller.—p. 1754.
97 Do Animals Suffer Pain? J. Roos.—p. 1756. G. van Rijnberk.—p. 1759.
98 Another Case of Splenomegaly (Gaucher). C. Ide.—p. 1761.
99 Factitious Edema of the Hand. P. H. van Roojen.—p. 1764.

95. **Spiral Incision Treatment of Varices.**—Hoogveld has recently reexamined thirteen out of nineteen patients who had been treated between 1908 and 1915 for extensive varicose veins by the Rindfleisch-Friedel method of a spiral incision. In eight of the patients both legs had been treated in this way. The outcome has confirmed that this method, notwithstanding its many drawbacks, deserves a place in treatment, especially of very extensive varices with complicating elephantiasis or leg ulcer, when simpler measures do not answer the purpose. Experience has shown that ligation of the saphena magna in the thigh should not be neglected. The number of turns of the incision depends on the extent of the lesions, the uppermost turn being made well above the upper visible enlarged veins. Primary healing of the incision is not desired; the aim is to induce the formation of a deep-reaching, solid cicatrix which, at least for some time, will prevent the vessels from becoming permeable again. None of the patients reexamined had had any disturbance from the severing of the nerves in the skin, and none were incommoded in any way by the scar. In five of the severer cases the results were most excellent. The ulcers healed and the edema and stiffness noted at first soon subsided. All had regained full earning capacity. The greater the number of turns the more effectually the desired purpose is realized. In one severe case, shown before and after, the spiral incision started above the knee and made five turns around the leg to the ankle; there is no trace of varicose enlargement to be seen on the legs now.

96. **Prophylaxis of Contagious Disease.**—Waller discusses various questions in this line saying that cattle are looked after by the state better than human beings, as there are only four medical inspectors for the whole of Holland while there are nine veterinary cattle inspectors. He queries how it can be explained that typhoid bacilli carriers cause so few infections in comparison to their number. Is it possible to distinguish between those with virulent and avirulent bacilli? He adds that during 1914 and 1915 examination of the drinking water gave constantly negative findings although typical cases of typhoid kept occurring. Contemplated legislation calls for examination of blood, urine and stools, but the patients will certainly object to having their blood drawn for epidemiologic purposes, as they derive no direct benefit from it, and as there is no specific treatment for typhoid, the physician's measures are not affected by the outcome. If the findings should happen to be negative, he might be placed in an embarrassing position. The law, Waller specifies, should make provision for suspicious as well as frank cases.

The difference in the severity of different epidemics is also to be borne in mind. Scarlet fever in Amsterdam has been so mild of late years that the aspect of the scarlet fever wards is like that of a vacation colony. In conclusion he emphasizes the difference between conditions in military and civilian life, the less close contact, the greater hardships when strict prophylactic measures are enforced, and the fact that the relations between civilian physicians and patients are not such as would justify imposing disagreeable and annoying measures. He urges that the staff of state medical officials should be enlarged and the enforcement of prophylactic measures be placed in their hands; otherwise such measures should be optional.

### Hospitalstidende, Copenhagen

Dec. 6, 1917, **60**, No. 49

100 *Meningococcus Infection and Meningitis. O. Thomsen and F. Wulff.—p. 1192.

Dec. 12, 1917, **60**, No. 50

101 Durable Gieson-Hansen Preparations. K. Sand.—p. 1221.
102 Determination of Spirochetes in Syphilitic Glands. B. Pontoppidan.—1227.

100. **Meningococcus Infection and Meningitis.**—Thomsen and Wulff state that early in 1917 there were a number of cases of meningitis in the Copenhagen district which differed from the classic type of epidemic meningitis in several respects. Of the forty-two patients all died but one. The exanthem was constant and pronounced; in some it was of the classic petechial type, but in others papular, and in one case it was of the scarlatinal type. Twenty-six of the patients were soldiers or sailors, and infection from the military was known in all but eight of the civilian cases. The search for meningococci was facilitated by marking off an ascites-agar plate into squares and inoculating the squares separately, day by day. They give colored plates of the findings and a cut of a plate thus marked off into fifty-one numbered squares. As the meningococcus requires oxygen for its growth it does not proliferate in the depths of a bouillon culture. By shaking up the ascites bouillon foam forms on top, and if the blood specimen is dropped on this foam it spreads out over its surface and, as the bubbles break, it drops down on the surface of the fluid. In this way the specimen was safely sent to the laboratory where it was set aside for forty-eight hours, and then loops were transferred to freshly prepared ascites-agar. They think this foam method might be useful also with gonococci and other obligate aerobic germs. They succeeded in cultivating meningococci from the blood in three cases one day after the beginning of the sickness; in a fourth case by the third day. In one case they were cultivated directly from scarified petechiae. During these meningitis cases, nine from their environment entered the hospital with the diagnosis "influenza" on account of fever, headache and pains. They all had "sore throat," and all developed an exanthem like those of the meningitis patients except for the petechiae. The spinal fluid was always found limpid and sterile. A comparatively mild meningococcus sepsis might have been the true diagnosis in these cases. All recovered promptly and completely. Their blood from one to three weeks later responded positively to the complement fixation test with meningococci and in six cases agglutinated them.

Among the conclusions from these experiences is that the majority of cases of meningitis must be regarded as metastatic complications of a primary infection of the blood. The meningococci may not be long in the blood stream and their number may not be large, so that bacteriologic examination of the blood may not give positive findings, especially if the culture procedures do not ensure ample supply of oxygen. The data presented seem to show that the meningococci vary in virulence at different periods, and that the virulence is enhanced by repeated passages through one nasopharynx after another. This hypothesis throws light on the varying severity of the cases, the greater virulence during the seasons when people are housed most and are most subject to catarrhal affections, coughs and colds. At other seasons the meningococcus may live as a saprophyte in the nasopharynx of those who have been in contact with meningitis cases. If they develop a catarrhal condition, they disseminate the germs in speaking, coughing, etc., and the passage to another nasopharynx may enhance the virulence of the germs. This would explain the long absence of cases of meningitis in one of the barracks. Then came an epidemic of cases resembling influenza but without exanthem. Then came a number of similar cases with exanthem and this epidemic in turn was followed by the epidemic of true and severe meningitis cases. This assumption explains further why carriers so extremely rarely develop meningitis, and why chronic carriers so seldom give rise directly to meningitis cases. The passage from mouth to mouth naturally occurs more readily, the greater the crowding. In conclusion the writers refer to a forthcoming *Festbind,* to be published by the National Serum Institute in honor of C. J. Salomonsen's seventieth birthday, in which they give further details of their experience and practical conclusions as to the management of carriers and prophylactic antimeningococcus vaccination.

### Hygiea, Stockholm

November 16, 1917, **79**, No. 21

103 *Intestinal Cysts. A. Hansson.—p. 1121.
104 *Prophylactic Appendectomy through Hernial Sac. L. Norrlin.—p. 1135.

103. **Intestinal Cysts.**—Hansson remarks that the correct diagnosis was not made beforehand in any of the forty-eight published cases of enterocystoma. As a rule it entails invagination. This occurred in his personal case, described with the necropsy findings. The patient was a girl of 6 who for several months had had diarrhea, sometimes with blood and slight fever. The cystoma was near the ileocecal valve. It projected into the lumen of the bowel and closely resembled Sprengel's case. The cavity of the cyst was filled with a putty-like mass. It did not open into the lumen of the bowel.

104. **Prophylactic Appendicectomy through Hernial Sac.**—Norrlin advocates removing the appendix as a prophylactic measure when operating for inguinal or femoral hernia. He has done this systematically in eighty-one cases, including two infants, 16 and 19 months old, and eleven persons over 50. All but ten were males. In all but one instance the appendix showed macroscopic changes, adhesions, stenosis, fecal concretions, etc. The microscope showed an acute inflammatory process in 25 per cent., and chronic processes in 65 per cent. of the sixty-seven cases examined with the microscope. In one case the appendix showed tubercles. His further experience has confirmed the advantages of this prophylactic procedure, which he has been advocating for five years. The healing and convalescence are the same as after simple herniotomy alone. In one woman he amputated the appendix through a left inguinal hernia. The operation was scarcely more difficult technically than with right herniotomy.

### Ugeskrift for Læger, Copenhagen

Nov. 29, 1917, **79**, No. 48

105 The Milk Supply of Copenhagen during the Summer of 1917. V. Schmidt. Commenced in No. 47. (A. Bjørum and V. Poulsen.) p. 1869.
106 Sour Milk Preparations. O. Jensen.—p. 1902.
107 *Disordered Heart Action in Soldiers. E. Jarløv.—p. 1904.

107. **Disordered Heat Action in Soldiers.**—Jarløv remarks that even among the Danish soldiers—who are not on a war footing—disordered action of the heart is common, although typical objective signs of pathologic conditions are seldom found. A large proportion of these men drift into the hospitals sooner or later. Of 840 men in the military infirmary in a recent two months' period, 75 had been sent to the hospital for certain or suspected heart disease. Thorough examination was made of 45 of these; valvular defects were found only in 12; in 7 cases nothing could be found to explain the symptoms except the change from a sedentary to the army life. Eight of the men showed unstable pulse, tremor and dermographism of the suprarenal type, but excessive thyroid functioning was evident in only one instance. All the above 27 cases correspond to the typical picture of disordered heart action. Of the remaining 18, 16 of the men had pulmonary emphysema, which readily explained the heart symptoms. In some they developed for the first time under the military training. The symptoms from emphysema are readily mistaken for heart disease. A casual bronchitis may be the first clue to the real cause of the disturbances. The most serious element in the matter is the influence on the man's mind when he learns that he is supposed to have a heart defect. This is assumed to be incurable, while true heart disease exempts from service. With soldiers, therefore, in particular, one cannot be too cautious in assuming the presence of heart disease.

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# THE TREATMENT OF HOOKWORM INFECTION

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The data that we present dealing with the therapeutics of oil of chenopodium and thymol are derived from our report to the International Health Board, Rockefeller Foundation, on the subject of the effect of hookworm infection on the working efficiency of the people of the Malay Peninsula, Java and Fiji.

On account of the importance of the subject of the treatment of hookworm infection among our soldiers at this time, the accompanying data have been abstracted from the report for immediate publication. The views here expressed are based on experiments in which the number of cases was, perhaps, too small for drawing satisfactory conclusions. So far as they compare the efficiency of various vermicides in different doses, therefore, they should be interpreted as being subject to confirmation by more extended investigation, rather than as being sufficient in themselves to establish a fact. It should be borne in mind also that the experiments we conducted were carried out in hospitals, and it may be that under less perfectly controlled conditions, such as obtain in the field, certain modifications in our recommendations would be found necessary.

Our work covered a period of about two and one half years, and included observations on the natives of the Malay Peninsula as well as Chinese and such East Indians as Tamils, Telegus, Malabaris, Pathans and Sikhs.

The research was extended to the Javanese, Malays and Chinese of the neighboring island of Java. Later, in order to make some control observations, the malaria-free island of Viti Levu, in the Fiji Archipelago, was visited, and natives, as well as indentured and free Indian coolies from Calcutta, were made the subject of investigation.

We found that among natives nearly 100 per cent. of whom had hookworm ova in their feces, the microscopic examination gave us no information as to the degree of the infection; for on treatment such people were found to harbor from one to a thousand or more hookworms. Some harbored from one to fifty hookworms without exhibiting any measurable degree of anemia; others harboring from 200 to 1,000 or more worms showed evidences of measurably severe anemia in the higher worm counts. It was necessary, therefore, to know exactly how many hookworms were being harbored, in order to compare the numbers of worms with percentages of hemoglobin, and thus ascertain the number of worms required to cause a measurable degree of anemia. To this end, large numbers of persons were treated with the most powerful vermicide at our command, so as to ascertain the total number of worms in each case.

It must be emphasized that in using a vermicide, one is employing a drug poisonous to man as well as to the worm, and the object should be to narcotize the worms and expel them together with the administered vermicide as rapidly as possible to prevent injury of the host. Special attention should be paid to insuring free purgation after the postvermicidal purge has been given. It is imperative that several stools be passed within two or three hours after the administration of this postvermicidal purge. If necessary, a second purgative dose should be given.

## RELATIVE EFFICIENCY OF VARIOUS DRUGS IN REMOVING HOOKWORMS

Preliminary tests with thymol and oil of chenopodium indicated very positively that in the dosages usually recommended (thymol, 60 grains; oil of chenopodium, 48 minims, or 3 c.c.), thymol was the weaker vermicide. Our confidence in the superiority of oil of chenopodium in the earlier stages of our work was based on necropsy findings, in which we noted the number of worms found in six cases in which the patients had received the maximum dose of oil of chenopodium, 16 minims (1 c.c.) three times, and who died later of tuberculosis, dysentery, diabetes or peritonitis. The percentage of removal of worms in this small series of cases was 99.4.

We attempted to measure the relative value of vermicides by the relationship between the number of worms removed by a drug and the total number of worms present. The total number of worms was found by giving full doses of chenopodium until, as far as possible, the stools were rendered negative for ova on microscopic examination.

The experiments were carried out on batches of adult male prisoners chosen at random except for the fact that care was taken to balance the nationalities carefully and not to compare a result obtained in Chinese with a result obtained in Tamils or Malays. This precaution is necessary in view of the fact that the Chinese harbor fewer worms and a greater proportion of ancylostomes than the Tamils or Malays, in whom most of the worms are necators. Because, as is shown in our report, it is more difficult to remove ancylostomes than necators and more difficult to obtain a high percentage of worms by treatment when there are few than when there are many, it is not fair to compare results obtained in Chinese with those obtained in Tamils or Malays.

The method adopted was to administer first the remedy to be tried, and in speaking of this treatment it is useful to call it the *trial treatment*. The worms removed by this treatment were carefully collected and counted.

After this, always at an interval of at least a week, a second treatment was given of oil of chenopodium, 1 c.c. in freshly filled capsules three times at hourly intervals. This was done to test the efficacy of the previous trial treatment by discovering the number of worms left behind after that treatment. A convenient term for this treatment is the *test treatment*. After the test treatment the stools were examined for ova, and in those cases that were found positive the patients were given an *extra treatment* of oil of chenopodium, 1 c.c. three times. The stools were again examined for ova, and if necessary, further treatments were given until, as far as possible, the stools were rendered negative for ova. These examinations for ova were always made a week after the treatment was given, and in most cases more than two weeks were allowed to elapse. This procedure avoids error due to any possible latency in ova production in the early days after treatment.

The total number of worms removed was added together; the percentage of worms removed by the remedy tried in the trial treatment gives a very fair idea of the efficiency of that treatment.

The preparation of the patients for these series was uniform throughout except, of course, in the batches used for finding the effect of varying the diet and the purge in a given treatment, in which cases the dose was kept constant throughout. The preparation was as follows: The prisoners had their ordinary morning meal at 11 a. m.; but at the afternoon meal, usually served at 3 p. m., kunji, or soft rice gruel, was given. At 4 p. m., 2 ounces of a concentrated solution of magnesium sulphate was given as a purge. This contains practically 1 ounce of the salt.

Next morning they had milk instead of their ordinary meal, and were given the treatment. The last dose of medicine was followed after an hour's interval by a second purge of magnesium sulphate, and then they were kept away from work and were locked up in the cells except when let out for exercise.

The stools were collected at 2 p. m. on the day of the treatment and at 7 a. m. and 2 p. m. on the following two days. The stools were washed and examined for worms till the end of seventy-two hours, which usually gave six stools per patient.

At the end of forty-eight hours, those patients who had two consecutive stools with no worms in them were released, provided that in every case at least four stools had been washed and examined. When prisoners had no stools at a washing, they were given another saline purge.

### DIFFERENCE IN VULNERABILITY OF SPECIES TO CHENOPODIUM

This was studied from the combined results of series in which oil of chenopodium was used as the vermicide (Table 1). It is seen that 96.8 per cent. of all necators present were removed by the first treatment, as compared with 76.6 per cent. of all ancylostomes. This shows that necators are less resistant than ancylostomes to a given dose of vermicide. The resistance of both species of worms increases with the size of the worm.

The species formula or proportion of *Ancylostoma duodenale* to *Necator* varies in different classes of persons. In the Southern States, *Necator americanus*, according to Dr. Stiles, is the species always encountered.

With Japanese, Chinese, North Indians, West Indians, etc., the percentage of *A. duodenale* to the total number of worms harbored runs up to 90 per cent. plus or minus. In Java two ethnic stocks long resident on the island had markedly different species formulas.

TABLE 1.—VULNERABILITY OF SPECIES

| | Total Worms, No. | Species | | | | Sexes | | | | | | | | Total Worms, by Sexes | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Necators | | | | Ancylostomes | | | | | | | |
| | | Necators | | Ancylostomes | | Male | | Female | | Male | | Female | | Male | | Female | |
| | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| 1. Total worms to be removed.... | 4,553 | 3,998 | ...... | 555 | ...... | 2,017 | ..... | 1,981 | ..... | 242 | ..... | 313 | ..... | 2,259 | 49.6 | 2,294 | 50.4 |
| 2. Worms removed by: | | | | | | | | | | | | | | | | | |
| First treatment.............. | 4,296 | 3,871 | 96.8 | 425 | 76.6 | 1,976 | 98.0 | 1,895 | 95.8 | 223 | 92.1 | 202 | 64.5 | 2,199 | 51.1 | 2,097 | 48 9 |
| Second treatment............. | 217 | 108 | 2.7 | 109 | 19.6 | 38 | 1.9 | 70 | 3.5 | 16 | 6.6 | 93 | 29.7 | 54 | 24.9 | 163 | 75.1 |
| Third treatment.............. | 39 | 19 | 0.5 | 20 | 3.6 | 3 | 0.1 | 16 | 0.8 | 3 | 1.2 | 17 | 5.4 | 6 | 15.4 | 33 | 84.6 |
| Fourth treatment............. | 1 | 0 | ...... | 1 | 0.2 | ..... | ..... | ..... | ..... | ... | ..... | 1 | 0.3 | ..... | ..... | 1 | * |

* Less than one-tenth of one per cent.

### COMPARISON OF THE EFFICIENCY OF VARIOUS VERMICIDES

In this series the comparison was made with four commonly used vermicides (Table 2). The quantity of oil of chenopodium was always measured by a graduated pipet, not by drop.

TABLE 2.—EFFICIENCY OF VARIOUS VERMICIDES

| Treatment | Valid Cases No. | Worms Removed by First or Trial Treatment, Per Cent. |
|---|---|---|
| Betanaphthol, 20 grains, in capsules, two doses with two hours' interval ...................... | 10 | 26.7 |
| Eucalyptus, 30 minims, chloroform, 45 minims, and castor oil to 12 drams, divided into two doses of 6 drams each and given with two hours' interval. | 10 | 46.9 |
| Thymol, 30 grains, in emulsion, two doses with two hours' interval ......................... | 10 | 88.6 |
| Oil of chenopodium, 1 c.c., in capsules, two doses with two hours' interval ........................ | 8 | 96.15 |

*Comment.*—In the comparison of drugs chosen and given in medium doses, oil of chenopodium appears to be the most efficient.

### COMPARISON OF THE EFFICIENCY OF OIL OF CHENOPODIUM IN VARIOUS DOSES

The following treatments were carried out on Chinese, and the preparation of the patients was uniform throughout (Table 3):

1. One c.c. three times at hourly intervals, or 3 c.c. in freshly filled capsules.
2. One c.c. twice with two hours' interval, or 2 c.c. in freshly filled capsules.
3. Two c.c. once, or 2 c.c. in freshly filled capsules.
4. Five-tenths c.c. three times at hourly intervals, or 1.5 c.c. in freshly filled capsules.
5. Five-tenths c.c. three times at hourly intervals, or 1.5 c.c. in one-half ounce of liquid petrolatum.
6. Twenty-five hundredths c.c. three times at hourly intervals, or 0.75 c.c. in freshly filled capsules.
7. Ten minims, or just over 0.5 c.c., in X's soft gelatin capsules.
8. Five-tenths c.c. of oil of chenopodium extracted from X's soft gelatin capsules.

*Comment.*—1. The relative inefficiency of X's soft gelatin capsules of oil of chenopodium is well shown in the seventh batch of this series, in which all the patients received exactly the same diet and previous purgation. That the thick walled soft gelatin capsules were at fault is proved by the results of the eighth group, which received the oil of chenopodium removed from the manufactured soft capsules and administered in freshly filled, hard gelatin capsules and in which the percentage of worms obtained was very good. In Group 7, the soft capsules dissolved too slowly to permit their contents to affect the hookworms distributed in the duodenum and the upper part of the jejunum.

2. The dosage used in our treatment with maximum doses is shown to be very effective, as it expelled 98.9 per cent. of the worms.

3. The treatment by 2 c.c. in one dose was an attempt to decide whether the tedious division of the treatment into three doses was really necessary. The first ten cases were so successful that fifteen other cases were taken to confirm or confute the result.

TABLE 3.—EFFICIENCY OF OIL OF CHENOPODIUM IN VARIOUS DOSAGES

| Treatment | Valid Cases No. | Worms Removed by Trial Treatment, Per Cent. |
|---|---|---|
| 1. Oil of chenopodium, 1 c.c., in capsules; three doses at hourly intervals, or 3 c.c. | 17 | 98.9 |
| 2. Oil of chenopodium, 1 c.c., in capsules; two doses with two hours' interval, or 2 c.c. | 8 | 96.15 |
| 3. Oil of chenopodium, 2 c.c., in capsules; one dose only, or 2 c.c. | 25 | 95.8 |
| 4. Oil of chenopodium, 0.5 c.c., in capsules; three doses at hourly intervals, or 1.5 c.c. | 9 | 95.4 |
| 5. Oil of chenopodium, 0.5 c.c., in liquid petrolatum, ½ ounce; three doses at hourly intervals, or 1.5 c.c. | 10 | 88.7 |
| 6. Oil of chenopodium, 0.25 c.c. in capsules; three doses at hourly intervals, or 0.75 c.c. | 10 | 80 |
| 7. Oil of chenopodium, 10 minims, or just over 0.5 c.c., in X's gelatin capsules; three doses at hourly intervals, or 30 minims | 10 | 66.4 |
| 8. Oil of chenopodium extracted from X's gelatin capsules, 0.5 c.c., in freshly filled capsules; three doses at hourly intervals, or 1.5 c.c. | 4 | 97.9 |

The final result of the single dose treatment (two thirds of the maximum dose) is highly creditable, with 95.8 per cent. removal of worms. It raises the question as to whether the troublesome repetition of doses is really worth while.

There were only three cases of vomiting, and only two cases of "disinclination to stand up" after the treatment.

4. The group that received only half the maximum treatment lost 95.4 per cent. of their worms, and it was thought advisable to ascertain whether a second half dose treatment would remove most of the remaining 5 per cent. of worms. There would be less toxic effect and less vomiting by this method of treatment.

Accordingly, a third series of treatments was carried out, in which two half-dose treatments of chenopodium were compared with two treatments of thymol in various forms (Table 4).

### COMPARISON OF TREATMENTS WITH OIL OF CHENOPODIUM AND WITH THYMOL

The following treatments were given twice, followed by a test treatment of oil of chenopodium, and the results obtained were compared:

1. Oil of chenopodium, 0.5 c.c., in capsules; three doses at hourly intervals.
2. Thymol, 20 grains, very fine powder, in capsules; two doses with two hours' interval.
3. Thymol, 20 grains, very fine powder, in capsules, with lactose, 20 grains; two doses at two hours' interval.
4. Thymol, 20 grains, ground to fine powder; two doses at two hours' interval.
5. Thymol, 20 grains, and lactose, 20 grains, in powder; two doses at two hours' interval.

TABLE 4.—COMPARISON OF TWO TREATMENTS OF HALF THE DOSE OF OIL OF CHENOPODIUM WITH TWO TREATMENTS OF THYMOL IN VARIOUS FORMS

| Treatment | Valid Cases No. | Worms Removed by Both Trial Treatments, Per Cent. |
|---|---|---|
| 1. Two treatments of oil of chenopodium, 0.5 c.c., in capsules, three times at hourly intervals... | 39 | 99.03 |
| 2. Two treatments of thymol in capsules, 20 grains twice with two hours' interval | 23 | 83.4 |
| 3. Two treatments of thymol, 20 grains, in capsules with lactose, 20 grains; two doses with two hours' interval | 10 | 79.4 |
| 4. Two treatments of thymol, 20 grains, ground to fine powder; twice with two hours' interval. | 10 | 80.6 |
| 5. Two treatments of thymol, 20 grains, and lactose, 20 grains, ground to fine powder; two doses with two hours' interval | 18 | 84.4 |

*Comment.*—In this treatment also, the superiority of oil of chenopodium over thymol in the doses given is well shown in that it removed 99 per cent. of the worms, while thymol removed about 80 per cent.

2. There seems very little to choose between giving thymol as a powder or in a capsule, and between combining it with sugar or giving it alone.

*A.* There is, however, a slight advantage in giving it as a powder, thus:

Thymol alone in capsule, 83.4 per cent. worms.
Thymol alone in powder, 80.6 per cent. worms.
Thymol with sugar in capsule, 79.4 per cent. worms.
Thymol, finely divided, with sugar in powder, 84.4 per cent. worms.

*B.* There is also a slight advantage apparent in combining it with lactose, thus:

Thymol in capsule alone, 83.4 per cent. worms.
Thymol in capsule with sugar, 79.4 per cent. worms.
Thymol in powder alone, 80.6 per cent. worms.
Thymol in powder with sugar, finely divided, 84.4 per cent. worms.

In another series of cases, larger doses of thymol were tried. Only one full test treatment of oil of chenopodium was given, and the stools were not examined for ova. Therefore, the percentage of worms removed will be a little higher when compared with the other series.

The dosages tried were:

Thymol, 30 grains, in powder, three times at hourly intervals, or 90 grains.
Thymol, 40 grains, in powder, three times at hourly intervals, or 120 grains.
Thymol, 1 dram, in powder, three times at hourly intervals, or 180 grains.

It will be seen from Table 5 that the 90 grain dosage gives a very good result, which is practically equal to the result obtained by the routine oil of chenopodium treatment.

We have shown that: Two treatments of 40 grains removed about 80 per cent. of the worms; the 60 grain dosage removed 88.6 per cent., and the 90 grain dosage removed 97.8 per cent. There is, therefore, a gradual improvement in efficiency with increase of the dose up to the 90 grain dosage. When the dose is increased beyond this, there is no improvement.

TABLE 5.—COMPARISON OF SUMMARIES OF TREATMENTS WITH THE HIGHER DOSE OF THYMOL

| Dosage | Valid Cases No. | Worms Removed by Treatment, Per Cent. |
|---|---|---|
| Thymol, 30 grains, in powder, three times, or 90 grains | 19 | 97.8 |
| Thymol, 40 grains, in powder, three times, or 120 grains | 19 | 54.2 |
| Thymol, 1 dram, in powder, three times, or 180 grains | 9 | 96.5 |

In Table 6, data are given comparing the vomiting that occurred in the thymol series with that which occurred in the chenopodium series.

TABLE 6.—INCIDENCE OF VOMITING AND THE EFFECT OF THAT VOMITING ON THE PERCENTAGE OF WORMS REMOVED

| | Thymol | Oil of Chenopodium |
|---|---|---|
| Dose given | 20 grains twice, or 40 grains | 0.25 c.c. 3 times, or 0.75 c.c. |
| Number of cases | 65 | 10 |
| Number of patients that vomited | 4, or 6.2% | None |
| Percentage of worms removed— | | |
| (a) In patients that vomited | 78.5% | No cases |
| (b) In patients that did not vomit | 78.5% | 80% |
| Dose given | 30 grains twice, or 60 grains | 0.5 c.c. 3 times, or 1.5 c.c. |
| Number of cases | 10 | 49 |
| Number of patients that vomited | None | 6, or 12.3% |
| Percentage of worms removed— | | |
| (a) In patients that vomited | No Cases | 98.6% |
| (b) In patients that did not vomit | 88.6% | 94.3% |
| Dose given | 30 grains 3 times, or 90 grains | 1 c.c. 3 times, or 3 c.c. |
| Number of cases | 19 | 20 |
| Number of patients that vomited | 3, or 15.8% | 3, or 15% |
| Percentage of worms removed— | | |
| (a) In patients that vomited | 97.9% | 100% |
| (b) In patients that did not vomit | 97.8% | 98.9% |
| Dose given | 40 grains 3 times, or 120 grains | No higher doses given |
| Number of cases | 19 | |
| Number of patients that vomited | 11, or 57.9% | |
| Percentage of worms removed— | | |
| (a) In patients that vomited | 44.3% | |
| (b) In patients that did not vomit | 90.6% | |
| Dose given | 1 dram 3 times, or 180 grains | No higher doses given |
| Number of cases | 10 | |
| Number of patients that vomited | 5, or 50% | |
| Percentage of worms removed— | | |
| (a) In patients that vomited | 93.2% | |
| (b) In patients that did not vomit | 97.0% | |

*Rate of Fall in Efficiency When the Dose Is Diminished.*—The efficiency of the maximum dose in the two drugs is practically equal; but when the dose is reduced, the efficiency is better maintained with oil of chenopodium than it is with thymol. This is shown in Table 7.

Thus, though both drugs produce about the same effect in their maximum dose, the half maximum dose of oil of chenopodium is superior to the two thirds maximum dose of thymol, especially in its effect on the ancylostomes, whereas, the quarter maximum dose of oil of chenopodium is markedly superior to the four ninths maximum dose of thymol.

The greater range of dosage with a satisfactory efficiency is a definite fact in favor of oil of chenopodium, and makes it preferable to thymol as a drug to be given to children.

*The Efficiency as Tested by the More Resistant Form of Worm.*—The effect of the two drugs on ancylostomes is an important point in relation to their relative value, as this species of worm has been shown to be more resistant than necators to the action of vermicides.

TABLE 7.—EFFICIENCY OF OIL OF CHENOPODIUM AND OF THYMOL WHEN THE DOSE IS REDUCED

| | Effect on Necators | | Effect on Ancylostomes | |
|---|---|---|---|---|
| Dosage | Removed by Thymol Per Cent. | Removed by Oil of Chenopodium Per Cent. | Removed by Thymol Per Cent. | Removed by Oil of Chenopodium Per Cent. |
| Maximum dose | 98.3 | 99.5 | 93.5 | 96.2 |
| Two-thirds maximum dose | 95.7 | .... | 57.9 | .... |
| One-half maximum dose | .... | 97.2 | .... | 80.1 |
| Four-ninths maximum dose | 76.0 | .... | 30.1 | .... |
| One-quarter maximum dose | .... | 88.3 | .... | 63.4 |

In the results given in Table 8, it is to be seen that the difference between the efficiency of the two drugs is much less in the case of the less resistant necators than in the case of the more resistant ancylostomes.

From this one may conclude that oil of chenopodium is more effective than thymol on the more resistant form of worm.

This is of importance when there is a high percentage of ancylostomes to be treated. For instance, in Tamils, in whom the ancylostomes are relatively few, thymol would be almost as efficient as oil of chenopodium; but in Chinese, West Indians, or North Indians, or others with a high percentage of ancylostomes, oil of chenopodium should be more useful in removing worms.

*Relative Failure of the Treatment.*—This is an important piece of evidence to consider in comparing the value of two drugs; for if one is more constant in its action than the other, it would be a point in favor of using that drug for general routine treatment. In choosing cases to be regarded as showing relative failure of a treatment, those which yielded 10 per cent. fewer of their worms than the average obtained in that treatment were selected, provided no vomiting had occurred.

TABLE 8.—EFFICIENCY AS TESTED BY THE MORE RESISTANT FORM OF WORM

| | Superiority in Efficiency of Oil of Chenopodium | |
|---|---|---|
| Dose | In Necators Per Cent. | In Ancylostomes Per Cent. |
| 3 c.c. of oil of chenopodium v. 90 grains of thymol | 1.2 | 2.7 |
| 1.5 c.c. oil of chenopodium v. 60 grains of thymol | 1.5 | 22.2 |
| 0.75 c.c. of oil of chenopodium v. 40 grains of thymol | 12.3 | 33.3 |

On this standard, 23.6 per cent of the 123 patients treated with thymol and only 7.6 per cent. of the seventy-nine patients treated with oil of chenopodium were classed as relative failures in treatment. This result is to be expected when one considers that a relatively insoluble powder is being compared with a penetrating oil, which would spread more readily than the powder throughout the intestine.

*Effect of Two Treatments of Smaller Dosage Than the Maximum.*—The following results show the efficiency obtained by giving two treatments of relatively small dosage:

Thymol: Two treatments of 40 grains:

Effect on necators: 2,680 removed out of 3,173, or 84.5 per cent.

Effect on ancylostomes: 96 removed out of 196, or 49 per cent.

Oil of chenopodium: Two treatments of 1.5 c.c.:
Effect on necators: 2,091 removed out of 2,099, or 99.6 per cent.
Effect on ancylostomes: 153 removed out of 167, or 97.5 per cent.

It is to be noted that the second treatment in the case of the thymol does not markedly increase the efficiency, which is still below that obtained by one dose of 60 grains of thymol.

On the other hand, the result of the two treatments with half the maximum dose of oil of chenopodium is seen to be better than that obtained with one full dose. This confirms the fact, previously noted, that small doses of oil of chenopodium are relatively more efficient than small doses of thymol.

It is of great importance also in showing that the best results may be obtained by giving two treatments of only half the maximum dose of oil of chenopodium. As the toxic effects of the drug would be practically negligible with the half dose, this is a great advantage in favor of oil of chenopodium.

*Ease of Administration.*—In both cases the drug must be freshly prepared for each treatment.

In the case of oil of chenopodium, the manufactured soft capsules were shown to be markedly inferior in their action to the freshly filled gelatin capsules. Thymol is a relatively insoluble solid, and in order to produce an even distribution of the drug in the intestine, it must be in a fine state of subdivision. To bring this about, the thymol must be freshly ground to a powder; if it is prepared some days before the treatment, it coheres into lumps. The admixture of an equal bulk of lactose enhances the efficiency of thymol.

An interesting illustration of the advantage, as a vermicide, of a diffusible liquid over a relatively insoluble solid is the fact that better results were obtained with thymol in the form of an emulsion than in the form of a powder, whereas with chenopodium, better results were obtained with the oil itself than with an emulsion of chenopodium.

*Preference from the Patient's Point of View.*—Fifty-eight patients, including both Tamils and Chinese that had received a thymol treatment followed by a chenopodium treatment, were asked individually after the second treatment which drug they preferred.

Only two of these preferred thymol, while one refused to give his opinion and said that each was as bad as it could be. This expression of opinion was made in spite of the fact that the memory of the thymol treatment had had a week's time to fade, while the memory of the chenopodium was more recent.

This experiment was controlled to a slight extent in a series of four cases in which oil of chenopodium was given first and was followed by thymol. They all voted for the previous treatment of chenopodium as being more pleasant to take.

### AFTER-EFFECTS OF TREATMENT BY CHENOPODIUM AND THYMOL

The minor after-effects are mainly subjective, and are very difficult to gage. They are only imperfectly susceptible of mathematical estimation. The general impressions from notes on a considerable number of cases treated with thymol and with oil of chenopodium are, however, compared in the summary given in Table 9. The symptoms are recorded in the order of their frequency and importance.

*Dizziness,* termed by the patients *pusing kapala,* or "turning of the head," was the most frequent complaint.

*A semicomatose state* was encountered not at all in the thymol cases and only rarely in the chenopodium series. The patients could not be roused to pay any attention to their surroundings. The pulse remained good; the blood pressure was taken in some of the cases, and was found normal. The effect, therefore, is probably a narcosis acting on the central nervous system, and is not cardiac in origin.

*Tingling of the hands and feet* was complained of only by the more intelligent patients. A few European patients mentioned this symptom, and the natives used the phrase *jalan darah;* that is to say, they felt the blood moving.

*Streaks of blood in the vomit* were occasionally noted. They were probably due to the strain of vomiting, whether thymol or oil of chenopodium was used. One case of bleeding from the nose after vomiting was seen.

Except with the 60 grain dose of thymol, which was administered to a group so much smaller than those receiving 40 or 90 grains that the results with the three doses are not strictly comparable, we see that *vomiting,* practically speaking, increases with the amount of drug given. In the chenopodium series, vomiting occurs in only 15 per cent. of the cases in the highest dosage given, that is, 3 c.c. The vomiting that occurs does not affect the efficiency of the treatment, for as Table 6 has shown, the patients that vomited showed as high a percentage of worms removed as the patients that did not vomit. In the thymol series also, up to the 90 grain dose, in which treatment 15.8 per cent. of the patients vomited, the patients that vomited showed the same percentage of worms removed as the patients that did not vomit. When 120 grains were given, the vomiting showed a sudden increase in incidence up to 57.9 per cent. of the cases. Those that vomited gave up only 44.3 per cent. of the worms, as compared with 90.6 per cent. in the patients that did not vomit. This shows that the limit of tolerance to the drug was exceeded, and the vomiting became severe and prompt enough to cause a considerable loss of the drug administered. The high percentage of worms removed after the 180 grain dose of thymol, in which 50 per cent. of the patients vomited, may be explained by the fact that although the patients who vomited gave up a considerable amount of the drug, the amount retained was nevertheless sufficient to effect a very satisfactory removal of worms.

The limit of tolerance was not reached in the chenopodium series, but it is probable that it would have been if slightly higher doses had been given.

This shows that by increasing the dosage of thymol it is not probable that one would be able to get better results than were obtained by the 3 c.c. dosage of oil of chenopodium.

In the treatments among another series of patients, however, the limit of tolerance for oil of chenopodium was reached at the dosage of 15 minims three times, or 2.8 c.c. Better results were obtained among these patients with the lower dosage of 10 minims three times, or 1.8 c.c. A series of nine patients treated with this dosage showed only 11.1 per cent. of vomiting, and yielded 98.9 per cent. of the worms.

A series of thirty-two cases in which no vomiting occurred in the second treatment is available for comparing the effects of the first treatments. On the first treatment fifteen of these patients, or 46.9 per cent., vomited, and yielded 93.1 per cent. of the worms; while seventeen of them, or 53.1 per cent., did not vomit, and yielded 96.3 per cent. of the worms.

The albuminuria which occurred with oil of chenopodium was by no means always renal in origin, as this drug seems to have an action in accentuating a latent gonorrhea similar to that possessed by oil of copaiba. In determining the presence of albumin, only the heat test was used, as the cold nitric acid test gives a ring of "oleoresin" in most patients that have been treated with chenopodium. The urine was examined before treatment and on the day after treatment, and only cases without albumin before treatment are included in the figures given. In no less than four cases, the trace of albumin was found to be associated with spermatozoa. These cases were rejected as not being due to the drug.

The 40 grain dosage of thymol produces very nearly the same amount of albuminuria as the half dose of oil of chenopodium.

In both series, a substance which reduces Fehling's solution was frequently demonstrated, showing that absorption and excretion in the urine occurred with both drugs. This fact is shown also by the detection of oleoresins in the case of oil of chenopodium, and by the dark colored urine and purplish black color obtained with ferric chlorid and sulphuric acid in the case of thymol.

TABLE 9.—COMPARISON OF EFFECTS NOTED AFTER TREATMENT WITH THYMOL AND WITH OIL OF CHENOPODIUM[*]

<table>
<tr><th>Symptom</th><th>After Thymol</th><th>After Oil of Chenopodium</th></tr>
<tr><td>1. Dizziness</td><td>Frequently noted</td><td>More common</td></tr>
<tr><td>2. Muscular incoordination</td><td>Noted</td><td>More marked</td></tr>
<tr><td>3. Inability to rise</td><td>Noted</td><td>Much more frequent</td></tr>
<tr><td>4. Semicomatose state (further stage of 2 and 3)</td><td>Not noted</td><td>Only rarely noted</td></tr>
<tr><td>5. Burning in stomach</td><td>Much more marked</td><td>Noted</td></tr>
<tr><td>6. Headache</td><td>More marked</td><td>Noted</td></tr>
<tr><td>7. Tingling of the hands and feet</td><td>None</td><td>Noted</td></tr>
<tr><td>8. Vomiting</td><td>
<table>
<tr><th>Dose, Gr.</th><th>Cases Treated</th><th>Cases Vomited</th><th>Per Cent. Vomited</th></tr>
<tr><td>40</td><td>65</td><td>4</td><td>6.2</td></tr>
<tr><td>60</td><td>10</td><td>0</td><td>0.0</td></tr>
<tr><td>90</td><td>19</td><td>3</td><td>15.8</td></tr>
<tr><td>120</td><td>19</td><td>11</td><td>57.9</td></tr>
<tr><td>180</td><td>10</td><td>5</td><td>50.0</td></tr>
<tr><td>Total........</td><td>123</td><td>23</td><td>18.7[†]</td></tr>
</table>
</td><td>
<table>
<tr><th>Dose, C.c.</th><th>Cases Treated</th><th>Cases Vomited</th><th>Per Cent. Vomited</th></tr>
<tr><td>0.75</td><td>10</td><td>0</td><td>0.0</td></tr>
<tr><td>1.5</td><td>49</td><td>6</td><td>12.3</td></tr>
<tr><td>3.0</td><td>20</td><td>3</td><td>15.0</td></tr>
<tr><td>Total........</td><td>79</td><td>9</td><td>11.4[†]</td></tr>
</table>
</td></tr>
<tr><td>9. Albuminuria</td><td>
<table>
<tr><th rowspan="2">Dose, Gr.</th><th rowspan="2">Examined</th><th rowspan="2">Positive</th><th rowspan="2">Per Cent. Positive</th><th colspan="3">Origin</th></tr>
<tr><th>Renal</th><th>Gonorrheal</th><th>Not Diagnosed</th></tr>
<tr><td>40</td><td>50</td><td>6</td><td>12</td><td>2</td><td>..</td><td>4</td></tr>
</table>
</td><td>
<table>
<tr><th rowspan="2">Dose, C.c.</th><th rowspan="2">Examined</th><th rowspan="2">Positive</th><th rowspan="2">Per Cent. Positive</th><th colspan="3">Origin</th></tr>
<tr><th>Renal</th><th>Gonorrheal</th><th>Not Diagnosed</th></tr>
<tr><td>1.5</td><td>52</td><td>7</td><td>13.5</td><td>..</td><td>..</td><td>7</td></tr>
<tr><td>3.0</td><td>39</td><td>8</td><td>20.5</td><td>1</td><td>4</td><td>3</td></tr>
</table>
</td></tr>
<tr><td>10. Deafness</td><td>Not noted</td><td>
<table>
<tr><th rowspan="2">Dose, C.c.</th><th rowspan="2">Total Number Treatments</th><th colspan="2">Cases of Deafness</th></tr>
<tr><th>Number</th><th>Per Cent.</th></tr>
<tr><td>1.5</td><td>000</td><td>0</td><td>0.0</td></tr>
<tr><td>3.0</td><td>446</td><td>5</td><td>1.3</td></tr>
</table>
</td></tr>
<tr><td>11. Death</td><td>None</td><td>Two, after two treatments of 3 c.c., administered with an interval of only four days between</td></tr>
</table>

[*] Figures cover 123 cases treated with thymol in doses ranging from 40 to 180 grains, and 79 cases treated with oil of chenopodium in doses ranging from 0.75 to 3.0 c.c.

[†] The higher percentage of total cases with vomiting after thymol than after oil of chenopodium may be attributed mainly to the administration to twenty-nine patients, in the case of thymol, of doses that exceeded the limit of tolerance.

*Deafness* occurred only after the high dose (3 c.c.) of oil of chenopodium, and usually only after the second treatment. It was seen in five cases out of 446 treatments, or in 1.3 per cent. of the cases. The deafness that did occur was slight and very transient in most cases, but one patient is known to have remained somewhat deaf for three months. It was always of the nerve deafness type.

*Death.*—In two cases a state of deep and prolonged coma ensued, ending in death after two or three days. This occurred after the second full treatment of oil of chenopodium, and when the second treatment followed within four days of the first. We found that chenopodium was still detected in the urine up to at least 126 hours after its administration, and it is quite possible that the second dose may have a cumulative action if it is given within this limit. At least a week should certainly elapse between the two treatments.

Both deaths occurred within ten days of each other at a time when it seemed necessary to expedite the work by giving two treatments within a week. After these two deaths, the period between treatments was lengthened, with the result that although many hundreds of treatments were given subsequently to persons of all ages and conditions, no other serious or fatal incident occurred.

### INFLUENCE OF THE PURGE

In one of the institutions, the language difficulties were great; and as we desired to ascertain by personal inspection rather than by interrogation the effect of chenopodium as influenced by the purge, we divided the squads of men into halves. Those on one side of the ward were given magnesium sulphate; those on the other side were given castor oil. The castor oil squad always showed the greater number of cases of dizziness and deafness; most of the cases of inability to rise and walk occurred is this group.

The urine of patients taking castor oil contained much heavier precipitates when tested for oleoresin than those that had taken magnesium sulphate.

Dizziness, and muscular incoordination were less with magnesium sulphate than with castor oil, compound mixture of senna or calomel.

### EFFECT OF VARYING THE DIET AND OF OMITTING THE FIRST PURGATIVE DOSE

In this series the same dose of oil of chenopodium was given in all cases, but a different scale of diet was given to each group of ten patients, all of whom were Chinese. Each group was subdivided into five patients, one half receiving a previous purge and the other half receiving no purge before treatment. All patients got the purge following the chenopodium treatment.

In this way we have two series of results to compare, (*a*) with purge and (*b*) without purge in each of the following groups:

Diet 1: Full diet all through the treatment.

Diet 2: Full diet all the day previous to treatment, but milk on the morning of treatment.

Diet 3: Rice gruel (*kunji*) on afternoon of the day previous to treatment, but milk on the morning of treatment.

Diet 4: Only milk during the day previous to treatment, and only milk on the morning of treatment.

It will be seen that Diet 3 is the one that was used in routine preparation for treatment, and Diet 4 approaches a little more toward a condition of starvation than that which was used in the preparation of cases. The results are shown in Table 10.

TABLE 10.—EFFECT OF VARYING THE DIET AND OF OMITTING THE FIRST PURGATIVE DOSE ON THE RESULT OBTAINED WITH OIL OF CHENOPODIUM

| | With Purge | | Without Purge | |
|---|---|---|---|---|
| Diet Used | Valid Cases, No. | Worms Removed, Per Cent. | Valid Cases, No. | Worms Removed, Per Cent. |
| Diet 1: Full diet all through the treatment | 5 | 44.5 | 5 | 57.1 |
| Diet 2: Full diet all the day previous to treatment, but milk on the morning of treatment | 4 | 88.7 | 4 | 87.5 |
| Diet 3: Rice gruel (kunji) on the afternoon previous to treatment, but milk on the morning of treatment | 4 | 92 | 5 | 95.7 |
| Diet 4: Only milk during the day previous to treatment, and only milk on the morning of treatment | 12 | 78.7 | 14 | 56.3 |

*Comment.*—There is a steady increase in the percentage of worms removed with the increase in amount of deprivation up to Diet 3, or the diet used in the routine preparation of cases. When the starvation is increased beyond this, a remarkable drop in the percentage of worms removed was noted.

Another group of twenty patients was treated with the extra deprivation Diet 4, and the drop in efficiency was confirmed.

The omission of the initial purge did not seem to have any effect in lowering the efficacy of oil of chenopodium except in Diet 4. The preliminary purge, therefore, may be omitted under certain circumstances.

### INVESTIGATION OF THE MODE OF ACTION OF EUCALYPTUS AND CHLOROFORM

For this purpose, one group of patients was given eucalyptus in castor oil only, and a third group was given the combined treatment. The fourth group was given first a treatment of eucalyptus and then a treatment of chloroform, and the worms obtained in each treatment were compared (Table 11).

TABLE 11.—MODE OF ACTION OF EUCALYPTUS AND CHLOROFORM

| Treatment | Valid Cases No. | Worms Removed by Trial Treatment, Per Cent. |
|---|---|---|
| 1. Eucalyptus | 7 | 0 |
| 2. Chloroform | 8 | 30.0 |
| 3. Eucalyptus and chloroform | 10 | 46.9 |
| 4. First trial treatment: Eucalyptus | 8 | 2.7 |
| 5. Second trial treatment: Chloroform | 8 | 49.3 |

*Comment.*—1. Eucalyptus ranks very low indeed as a vermicide.

2. The greater part of the effect of the combined treatment is due to the chloroform.

3. On the other hand, although eucalyptus does not remove worms to any extent, it seems to aid chloroform in its action, thus:

Chloroform by itself brought away 30 per cent. of worms.

Chloroform combined with eucalyptus removed 46.9 per cent. of worms.

Chloroform preceded by eucalyptus removed 49.3 per cent. of worms.

In another series, oil of chenopodium was administered with chloroform, castor oil and mucilage acacia, the dosage of oil of chenopodium being 30 minims in one series, and 40 minims in another. During the earlier treatments in this series, excellent results were obtained; but severe vomiting in certain of the cases considerably reduced the percentages of worms removed in the total cases; this, it was thought, was probably due to the effect of chloroform, so that while the vermicidal powers of chenopodium may be enhanced by chloroform, the increased amount of vomiting renders the combination less efficient.

### ADMINISTRATION OF CHENOPODIUM

We have shown elsewhere that the soft gelatin capsules supplied in sealed tins by certain manufacturers were relatively inefficient, and we recommend that the oil of chenopodium be administered in hard, dry gelatin capsules, filled a few hours before use.

TABLE 12.—COMPARATIVE COST OF THYMOL AND CHENOPODIUM *

| Thymol | Cost | Removal of Worms Efficiency Per Cent. | Oil of Chenopodium c.c. | Cost | Removal of Worms Efficiency Per Cent. |
|---|---|---|---|---|---|
| 40 grains | $0.06 | 73.3 | 0.75 | $0.014 | 80.0 |
| 60 grains | 0.09 | 88.6 | 1.5 | 0.027 | 95.7 |
| 90 grains | 0.135 | 97.8 | 3 | 0.055 | 98.9 |

*Calculated at thymol, 0.15 cents per grain, and oil of chenopodium, 1.84 cents per cubic centimeter.

### EFFECT OF CHENOPODIUM AND THYMOL ON WORMS OTHER THAN HOOKWORMS

Chenopodium is relatively just as efficacious in removing *Ascaris, Clonorchis* and *Taenia.* Even *Oxyuris* and *Trichuris,* which normally live in the appendix, cecum and large bowel, yielded to this drug. In two series of treatments the effect of thymol and oil of chenopodium in removing ascarides was ascertained by giving trial doses of thymol, and test doses of oil of chenopodium. When thymol in 45 grain doses was given, only 20 per cent. of the ascarides present were removed, and when 90 grains of thymol were administered the percentage was 32.7. In Java, the average number of ascarides per individual was in men 9.1, boys 12.4, women 13.7, and girls 25.0. The more powerful drug is required there to remove the large numbers of ascarides harbored.

TABLE 13.—SUMMARY OF COMPARISON OF THE VALUE OF THYMOL AND OIL OF CHENOPODIUM

| Thymol | Oil of Chenopodium |
|---|---|
| 1. The 90 grain dose produces a very satisfactory removal of worms. | 1. Three c.c. produced the largest vermifugal effect of any single treatment tried, but the result is only slightly superior to the corresponding dose of thymol. |
| 2. Higher doses, for example 120 grains, removed fewer worms because the vomiting that occurred reduced the amount of drug retained in the stomach to below the amount required for efficient removal of worms; but with 180 grains, though much vomiting occurred, the amount of the drug retained was still sufficient to effect a satisfactory removal of worms. | 2. The dose at which the vomiting causes loss of efficiency was not reached at one institution, although 3 c.c. were given. At another, 46.9 per cent. of vomiting occurred with loss of efficiency at the 15 minims three times, or 2.8 c.c. dosage. |
| 3. No serious toxic symptoms were noted even with the highest dose. | 3. The highest dose (i. e., 3 c.c.) occasionally produced toxic effects on the nervous system, such as nerve deafness and coma. |
| 4. No serious toxic symptoms were noted even with the highest dose. | 4. In the lower doses, 1.5 c.c. and under, no deafness or coma occurred. |
| 5. Diminution of the dosage produced a rapid falling off of efficiency. | 5. The efficiency was well maintained when the dose was reduced even down to a quarter of the maximum dose. |
| 6. Two treatments with a small dose did not produce a good summation in the results. | 6. Two half maximum doses produced a better result than the full maximum dose, and the highest percentage of worms removed was obtained by this treatment, i. e., 99.6 per cent. of necators and 97.5 per cent. of ancylostomes. |
| 7. Thymol was voted, by a great majority of the patients treated, as more unpleasant to take than oil of chenopodium. | |
| 8. The comparisons made under 5, 6 and 7 render thymol less suitable for use in the treatment of children than oil of chenopodium, as for children the smaller doses would be required. | |
| 9. The effect on the more resistant forms of worm has been shown to be less, dose for dose, with thymol than with oil of chenopodium. | |
| | 10. This renders chenopodium as the drug for choice in treating Chinese, West Indians or any other people with a high percentage of ancylostomes. |
| 11. Thymol, being a relatively insoluble powder, has less opportunity than chenopodium of becoming uniformly distributed throughout the intestinal contents. | 11. Chenopodium, being a thin oil, will become more evenly diffused along the intestine. |
| 12. Based on Consideration 11, the action of thymol was less uniform than chenopodium, and showed 23.6 per cent. of cases in which relative failure of the treatment occurred. | 12. Only 7.6 per cent. of the patients treated with chenopodium showed relative failure of the treatment. |
| 13. Thymol removes a proportion of the worms of species other than hookworms. | 13. Oil of chenopodium has been shown to be more effective in removing all the other species than thymol. |

## CONCLUSIONS

It would appear from the comparisons given in Table 13 that the half maximum dose (0.5 c.c. three times, or 1.5 c.c.) of oil of chenopodium is the treatment for recommendation as a routine vermicide.

It does not have the toxic effects of the full dose, and two treatments have the very satisfactory result of removing 99 per cent. of all worms present.

It has the additional advantage of a more uniform action, a greater effect on ancylostomes, and of being less unpleasant to take than thymol.

Thymol shows an advantage over this half maximum dose of oil of chenopodium in that, without producing toxic effects, the 90 grains' dosage produces a better result when single treatments are compared. This advantage disappears, however, when two half maximum treatments of oil of chenopodium are given.

Smaller doses compare unfavorably with a single half maximum dose of oil of chenopodium. A dose as large as 90 grains of thymol, if administered indiscriminately throughout the population, would probably give rise to serious symptoms.

## METHODS OF EXAMINING FECES

The following notes are appended for the information of any officers who may be interested in the methods we pursued in washing and examining the feces of our patients:

The examination of the feces of treated patients for worms, involving as it does the careful search through four or more stools from each patient, is a tedious process; and our constant aim was to secure the greatest accuracy.

The method we adopted was fairly uniform, and the details are as follows:

*Labeling.*—Each patient was labeled by means of a numbered ribbon or metal disk attached to his wrist, and he was given a chamber pot labeled with the corresponding number. Great care was taken to avoid the possible mixing of feces of different patients. In jails it was comparatively easy to avoid this, since each patient was confined to his cell. In hospital wards the chamber was placed by the patient's bed, and the dressers were given instructions to prevent the use by a patient of a chamber not his own. The patients themselves were also given explicit instructions. They were thoroughly drilled in remembering their numbers and in taking their places in right numerical order for treatment and for the changing of chambers. In the case of children, this drilling was facilitated by a scheme of rewards and punishments. In one series the possibility of error from mixing stools of different patients was controlled. At the time of treatment each patient was given a dose of small glass beads. These beads varied in color and size, and only one sort was given to each patient. The doses were so arranged that patients who occupied adjacent beds received doses of different colors or types. The patients continued to pass these beads for three or four days. Since there was no mixing of the different kinds of beads in the stools, it is fair to presume that there was no mixing of feces. In the whole series of treatments, the error from the mixing of feces of different persons must have been negligible. Eastern people are usually amenable and tractable, and this contributed largely to the successful conduct of our work. As a routine, the feces were brought to the place of examination twice daily, in the morning and at about 2 o'clock in the afternoon. They were usually carried in by the patients themselves. As the patients entered the laboratory, the numbers on the chambers and on the patients' wrists were compared, and a slip of paper with the corresponding number placed in the chamber with the feces. Each patient then received a new chamber properly numbered. A record was kept of patients who brought no stools, and a purge was given them when necessary.

*Washing Stools.*—Soft or fluid stools were ready to be washed at once. Very compact stools were often stirred in a quantity of water and allowed to soften somewhat before washing. In washing, the contents of a chamber, together with the numbered slip, were rinsed by a jet of water into a large sieve. The washing was done in the sieve under a jet of water. When a tap was available, the washing was done in the sink beneath it. In most cases there was no water piped to the laboratory, and it was necessary to use a stream siphoned through a rubber hose from some large container placed some feet above the ground. The lower end of the hose was provided with a pinch cock to regulate the stream.

A fine brass wire sieve was used with a mesh of 50 to an inch.

Close supervision was exercised to prevent splashing and consequent loss of material, and to see that no worms were carried from one stool to another by adhering to the sieve.

After washing, the worms with the remaining insoluble portion of the stool were rinsed, together with the labeled slip, into the chamber bearing the corresponding number.

*Removal of the Worms from the Washed Stools.*—The washed stools were distributed into photographic developing trays, a small portion into each tray. A dark brown colored tray was found to give the best background for the worms. The worms were picked out with needles or forceps and placed in Petri dishes containing physiologic sodium chlorid or diluted magnesium sulphate solution, and properly numbered. When a tray had been examined by a subordinate and the worms presumably all removed, it was always reexamined by one of us preferably on both white and dark ground. One of us could do this final inspecting for two or more assistants, depending on the number of worms that had to be picked out.

The original numbered slip was placed, number side up, under the cover of the Petri dish as a label. This paper slip, therefore, remained in contact with the contents of the stool from the time the chambers were received up to the final counting and recording of the worms, and was very effective in preserving accuracy. We made it a routine to examine at half-day intervals at least four stool collections from each person. The number that had to be examined was usually greater than that, since the washing in a case was not considered complete until two consecutive negatives had been obtained. It is important to get the last worms expelled, since the proportions of different species and sexes vary somewhat according to the interval following treatment.

*Counting and Classifying Worms.*—After every washing, a record was made of the numbers and sex of the different species.

The excess of sodium chlorid was drained off, and the Petri dish was flooded with boiling 60 per cent. alcohol. The worms are fixed by the alcohol and become rigid in the form characteristic of each species, thereby rendering differentiation of the species easy. Magnesium sulphate solution well diluted also serves well as a differentiating medium, and *Ancylostoma duodenale*, *Necator americanus*, *A. ceylanicum*, or other helminths take on characteristic appearances in it.

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# BALANTIDIUM COLI INFECTION IN OKLAHOMA *

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AND
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The infrequent occurrence of *Balantidium coli* infection in man has prompted the careful study and reporting of a case that occurred during the past year in the service of one of us (A. D. Y.). Additional interest in the case was stimulated by the fact that to the best of our knowledge this is the first case to be reported from the state of Oklahoma. Moreover, as amebic and bacillary dysenteries are not uncommon in this semitropical country, we are glad to call attention to this additional member, evidently endemic to this locality.

Since the first definite description of the *Paramecium coli* and the report of a case by Malmsten[1] and Loven in 1857, altogether less than 150 cases of the infection have been recorded in man. From a careful search of the literature by Strong[2] in 1901, infections by the *Balantidium coli* up to that time numbered 117, and included reports from Africa, Cochin China, Cuba, Finland, Germany, Italy, North and South America, the Phillipines, Russia, the Sunda Isles and Sweden. In this country, probably the first case was reported by Mitter[3] in 1891 in a patient from Iowa. Since then, Bel and Couret[4] reported a case from Louisiana, Grey[5] three from Arkansas, Deaderick[6] one from eastern Arkansas, Sistrunk[7] one from Minnesota, the Rockefeller Sanitary Commission[8] two cases from North Carolina and one from Mississippi, and Jennings[9] one from New York.

Thanks to the careful studies by Strong[2] and Solowjew[10] of human cases, and the observations of Brooks[11] on a fatal dysentery among the apes in the New York Zoological Garden, there is little doubt as to the infectious character of the *Balantidium coli.* These studies, together with those of Bel and Couret[4] on the pathologic histology of the infection, have shown that the parasites invade all the coats and vessels of the large intestine, together with the neighboring lymph glands. This invasion is associated with a hyperplasia of lymphoid and plasma cells and eosinophils in these structures. The shallow ulcers in the intestinal wall are probably due largely to a secondary invasion by bacteria at the point of entrance of the larger parasite, as the *Balantidium* is not to be found in these ulcerations.

Various modes of infection have been suggested by the several investigators. Leuckart [12] first showed the pig to be the normal host of the organism, and suggested that infection of a human being occurred by admission of the freshly voided parasites into the alimentary canal in the food or the drinking water. He also suggested the probable entrance of the organism into the human body in the encysted state. Klein[13] reported finding the *Paramecium coli* in sewage, and the parasite has also been found in the drinking water of London, which strongly suggests the possibility of this mode of infection. However, about 25 per cent. of reported cases appear to have occurred from direct contact with swine, or following the ingestion of food products made from pork. Chichulin[14] reported an entire family infected after eating sausages made from a hog which harbored *Balantidium.* The clinical history in our case suggests two possible chances that the infection was derived from the hog directly.

## REPORT OF CASE

*History.*—A white man, aged 60, born in Kansas, where he lived for thirty-eight years, when he came to Oklahoma, where he had since lived continuously for the past twenty-two years, could not remember any sickness of any severity during his life, and had not been confined to bed for illness for the past forty years. The family history was negative. The patient was admitted to the hospital, April 22, 1917, complaining of severe diarrhea, abdominal pains, and tenesmus. He had from twelve to sixteen watery stools a day.

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* From the Bierce Memorial Laboratory of St. Anthony's Hospital.

[1] Malmsten, P. H.: Infusorier sasom intestinaljar hosmenniskan, Hygiea, Stockholm, 1857, **19**, 491-501; Virchows Arch. f. path. Anat., 1857, **12**, 302.

[2] Strong, R. P.: Bull. 26, Bureau of Government Laboratories.

[3] Mitter, J. J.: Beitrag zur Kenntniss der Balantidium coli in menschlichen Darmkanale, Kiel, 1891.

[4] Bel, G. S., and Couret, M.: Jour. Infect. Dis., 1910, **7**, 5, 609.

[5] Grey: St. Louis Med. Rev., April 27, 1907.

[6] Deaderick: Endemic Diseases of Southern States, 1916.

[7] Sistrunk, W. E.: Intestinal Parasites Found in Individuals Residing in the Northwest, The Journal A. M. A., Nov. 4, 1911, p. 1507.

[8] Reports of the Rockefeller Sanitary Commission, 1911, 1912 and 1913.

[9] Jennings: New York State Jour. Med., 1912, **12**, 4, 179.

[10] Solowjew, N.: Centralbl. f. Bakteriol., Ref., 1901, **29**, 821-849.

[11] Brooks, H.: New York Univ. Bull. Med. Sc., January, 1902.

[12] Leuckart: Weighman's Arch., 1861, **1**, 80, Tafel V, Fig. AB; Die menschlichen Parisiten, 1863, **1**, 146, Fig. 21, and p. 744.

[13] Klein, E.: Brit. Med. Jour., 1896, **2**, 1852.

[14] Chichulin, G. N.: Voyenno-Med. Jour., 1900, 78, Med. Spec., pt., p. 2059.

The patient worked as a laborer, and one year before was feeding a small herd of twelve hogs. These animals all died of some unknown disease. During this time and up to eight months before, the patient was employed in a local packing plant as a "gut stripper," that is, in cleaning out the contents of the intestine. The patient stated that he was acustomed to stand ankle deep in hog dung, and that every day he was sprinkled with it and frequently got the fecal material in his mouth.

About eight months previous to admission to the hospital he began having frequent bloody stools and tenesmus, which continued with intermittent normal periods up to the present. During that time he had lost about 40 pounds in weight.

*Physical Examination.*—The patient was greatly emaciated and weak. The skin was dry. The pupils reacted normally to light and accommodation, but hearing was markedly reduced in both ears. Mentally he was stuporous, but otherwise the nervous system was good. The mouth was in a markedly septic condition from carious teeth and pyorrhea alveolaris. Otherwise the physical findings were immaterial. The temperature never exceeded 99 F., and was usually normal. The pulse averaged 78, and respiration 20 per minute. Protoscopic examination revealed the walls of the rectum and lower colon covered with thick, bloody mucus. When this was scraped away, many shallow, bleeding ulcers were seen. Repeated examinations revealed a light yellow liquid stool containing much mucus and blood, and swarming with *Paramecium coli.* No other parasitic or bacterial invasion was present. The urine examination was negative. The sputum examination was negative for amebas and *Balantidium.* Blood smears were negative for protozoa, anemias and leukemia. The hemoglobin was 80 per cent.; red blood cells, 4,610,000; white blood cells, 12,600; polymorphoneutrophils, 78 per cent.; lymphocytes, 21 per cent.; eosinophils, 1 per cent.

*Treatment and Course.*—Under treatment with enemas (15 grains of quinin in 1 quart of water) given as frequently as every fourth hour at first, and then gradually decreased in frequency, the organism had entirely disappeared from the stools by May 7, 1917. The patient was discharged from the hospital, May 8, with stools of normal consistency and free from parasites. At this time he was placed on compound solution of iodin (Lugol's solution), 3 drops, three times a day, and he continued this treatment for two months.

The patient was not again heard from until Jan. 7, 1918, when he returned complaining of an uncomfortable feeling in the abdomen, not painful, but of a twisting nature. Examination revealed a stool of normal consistency and color which contained an occasional *Balantidium coli.* The patient weighed 169½ pounds, a gain of approximately 29 pounds, and he stated that he had never felt better than during the past nine months. At present he is under treatment with quinin and iodin.

### THE BALANTIDIUM COLI

The parasite studied by us in this case belongs to the ciliated infusoria, and is commonly known as the *Balantidium coli,* or *Paramecium coli.* The body is nearly oval, one side being somewhat longer than the other, and it measures from 0.06 to 0.01 mm. in length and from 0.05 to 0.07 mm. in breadth. The anterior end shows a short, broad, funnel-shaped peristome situated a little to one side of the anterior pole, and running back toward the center of the body. The anus is terminal at the more pointed posterior pole. The organism is encased in a thick ectosarc thickly set with cilia which surround and extend into the peristome, about which their circulatory motion keeps up a continuous inward whirl. The endosarc shows ordinarily a bean shaped nucleus, two contractile vacuoles, and many bacteria, blood cells, and finely divided food particles. The surface of the animal shows the characteristic longitudinal striations. The body exhibits great permanence of form by reason of a seeming elasticity of the ectosarc, which allows it to assume all sorts of forms when in crowded quarters; but it always returns to the oval shape when in free fluid.

The organism moves forward rapidly with a rotary motion. In dying, it ceases the forward motion and begins to rotate. Its form becomes rounder, and the motion of the cilia slower. Small globular masses exude from the anus and peristome. Finally the parasite becomes a small, round, granular mass surrounded by a capsule, or shell.

Reproduction was observed by binary fission, but not by budding. No attempt was made to cultivate the organism in view of the repeated failure of other workers to accomplish this purpose.

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# CIRCULATORY FAILURE

## THE DIFFERENTIATION BETWEEN THAT DUE TO SHOCK AND THAT DUE TO OTHER CAUSES*

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The term "circulatory failure" characterizes any condition in which the arterial pressure and, consequently, the capillary stream are reduced to such an extent that, if long continued, the functions of the normal organs are impaired and those of previously deranged organs are prevented from regaining their normal activity.

Progressive circulatory failure is a frequent and serious accompaniment of the clinical condition to which long usage has conferred the term "shock." Does it follow, *ipso facto,* that all forms of circulatory failure are due to shock and that, therefore, the condition of the arterial pressure is an index of shock and a guide as to the prognosis and efficacy of remedial measures? Or is circulatory failure produced by various agencies, among which "shock" is only one? Again, is the circulatory failure in shock distinctive in character so that it can be differentiated from other forms?

An answer to these questions is of more than academic importance, for unless circulatory failure in all conditions is produced by shock and is of the same physiologic nature, it is probable that the treatment will vary in different cases and that the concerted attempts to discover a single remedy of value in all forms of circulatory failure is futile.

Complying with the request of the Committee on Physiology of the National Research Council to partake in a cooperative investigation of the shock problem, the work in the physiologic laboratory at Cornell Medical College was organized in the spring and autumn months of 1917 to investigate these phases of the shock problem, which are of fundamental importance. To this end the pressure changes occurring in the auricles, ventricles, pulmonary circulation and systemic arteries were investigated under light ether anesthesia in naturally breathing animals in which various forms of circulatory failure were induced.

### METHODS

In all experiments, the mean arterial pressure was continually recorded by a damped mercury manometer, and the respirations were likewise continuously registered by a tambour connected with a pleural cannula. These afforded a rough criterion of the state of the circulation and respiration in various forms of circulatory failure.

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* From the Physiological Laboratory, Cornell University Medical College.

In addition, other hemodynamic changes during circulatory failure were studied in different groups of experiments. In one series of animals the changes in the "effective venous pressure," that is, the difference between the intrathoracic and intra-auricular pressures,[1] were followed by the use of a differential water manometer. Such a manometer is made when the fluid-filled limb of a water manometer is connected to a sound filled with sodium sulphate solution and inserted, by way of the jugular vein, into the right auricle; while the air-filled limb is connected with a trocar inserted into the thoracic cavity. Naturally, the precaution must be observed that during the course of the experiment the openings of the pleural cannula do not become occluded by the lungs and that the venous sound remains free from clots.

In another group of animals, the variations of the pulmonary arterial pressure were recorded by a mean-pressure manometer. This was done, in animals that continued to breathe naturally, by inserting a cannula into a pulmonary artery and subsequently repairing the thorax, after the technic that I have described[2] in detail elsewhere. The results from this phase of the question are to be credited to the cooperative investigations of Miss A. Kuehner, Messrs. H. Belcher, H. Sooper, W. Dodd, R. Douglass, M. Holsted and J. Sutton, Jr.

In still another extensive series of experiments, the details of the pressure curves in the right auricle, right ventricle and common carotid were investigated by optically recording manometers at regular intervals during the progress of circulatory failure. The details of certain phases of this investigation will be subsequently reported. It is my purpose here to state the chief results briefly, and to emphasize their practical significance in diagnosis and treatment.

## TYPES OF CIRCULATORY FAILURE

The types of circulatory failure studied comprise those due to (1) exposure of the intestine; (2) hemorrhage; (3) the prolonged use of nitrites; (4) acute cardiac failure; and (5) the intravenous injection of oil and consequent fat emboli.

1. *Circulatory Failure Due to Abdominal Shock.*—The method *par excellence* of producing typical surgical shock consists in exposing the intestinal coils and allowing a stream of moist, warm air to blow over them. Experience showed that a more regular and more certain circulatory failure is induced when the intestinal loops are not manipulated. The course of circulatory failure thus produced may be divided into three stages. During the initial stage, lasting as a rule about thirty minutes after exposure of the intestine, the mean arterial pressure falls slightly or may be maintained, but in either case the arterial pressure variations recorded by optical manometers indicate that the volume of blood contained in the large arteries is reduced. The blood column ejected by the ventricular systole is thrown with greater vigor and recoils more than is normally the case. The pressure falls more rapidly throughout the systole and diastole, as the effective venous pressure during this stage is not affected or even increases. As the contour of the intraventricular pressure curves do not alter, as the heart rate, if it undergoes any change, increases, and as the pulmonary arterial pressure remains unaltered, the conclusion is reached that the reduction in the blood content and fall of pressure in the arteries is not due to a decrease in the minute volume of the heart, but to a reduction in the total arterial resistance.

During the second or progressive stage of circulatory failure, lasting through the next two to four hours, the arterial pressures progressively fall, and the optical tracings indicate that the volume of blood injected by the ventricle into the aorta during systole is relatively smaller than the amount leaving the arterial system peripherally during the interval of systole and diastole combined. As the effective venous pressure progressively lowers, as the intraventricular curves show evidence of diminished efficiency, and as the pulmonary arterial pressure is reduced, the conclusions are reached that (1) a deficient ejection of the ventricle occurs in spite of an increased heart rate, and (2) this is predominantly responsible for the fall of systemic pressures.

During the third stage, or the phase of complete circulatory failure, these changes are maintained or accentuated. The heart slows, and this contributes still further to the fall of arterial pressure, until the animal dies of respiratory failure.

Briefly summarized, circulatory failure in abdominal shock is characterized, in addition to the fall of arterial pressure, by a low peripheral arterial resistance, a reduced venous pressure, and deficient systolic discharge of the ventricles.

2. *Circulatory Failure Due to Hemorrhage.*—A reinvestigation of the sequence of events in hemorrhage by the methods indicated above confirmed my conception as to the sequence of dynamic events, published several years ago.[3] Briefly stated, if an artery of considerable size is opened, the total arterial resistance to the flow of blood from the aorta diminishes and the arterial pressures fall. The pulse pressure becomes greater, and the systolic and diastolic pressures decline more rapidly. The effective venous pressure does not decrease at once, the cardiac efficiency, as determined by the contour of the ventricular pressure curve, is unchanged, and the pulmonary pressure is unaltered, or may increase slightly if the heart accelerates. If the hemorrhage is from a vein, the systemic and pulmonary arterial pressures are unaffected by a similar loss of blood.

With the continued loss of blood the venous return is affected so much that the effective venous pressure is reduced, the cardiac discharge is impaired and, in spite of cardiac acceleration, the minute output of the heart is diminished. Pulmonary arterial and systemic arterial pressures then fall together, owing to this central factor as well as to the total vascular resistance, which remains below normal in spite of compensatory contraction in unimpaired vessels. If bleeding is unchecked, these events continue until death from respiratory failure supervenes.

It is apparent that the dynamic mechanisms operating in abdominal shock and from prolonged arterial hemorrhage are precisely alike. In both, a reduction of arterial resistance initiates the fall of arterial pressure; in both, a diminished venous return, a fall of effective venous pressure, and a deficient cardiac discharge are prominent factors in the fatal fall of arterial pressure.

3. *Circulatory Failure from Prolonged Use of Nitrites.*—It is exceedingly difficult in the dog to obtain

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[1] Henderson and Barringer: Am. Jour. Physiol., 1909, **23**, 350; ibid., 1913, **31**, 288.

[2] Wiggers, C. J.: Am. Jour. Physiol., 1912, **30**, 247.

[3] Wiggers, C. J.: The Pathologic Physiology of the Circulation During Hemorrhage, Arch. Int. Med., July, 1914, p. 33.

any permanent fall of arterial pressure through vasodilatation alone. As the "nitrites" on injection exert no *direct* effect on the circulation other than to produce a vasodilatation, their use seemed to offer the most advantageous method of producing a prolonged vasodilatation unattended by disturbances other than those that are secondarily called into play. Since the prolonged use necessary to maintain maximal vasodilatation causes the transformation of the hemoglobin to methemoglobin and so reduces the oxygen-yielding power of the blood, it is probable that the final circulatory failure following their prolonged use is attributable to other actions than the vascular effect alone.

The slow infusion of sodium nitrite or continued inhalation of amyl nitrite produces an initial rapid fall of arterial pressure. The fall is rarely below 80 mm., however, when systemic pressure is normal. The optical tracings during this stage show the same changes that are characteristic in abdominal shock, and indicate a reduced arterial volume due to a diminished total resistance. The heart is moderately or markedly accelerated, depending on the original degree of vagal tone. There is no evidence that the maximal degree of peripheral arterial dilation possible is able per se to reduce the effective venous pressure. It remains unaltered or rises if the cardiac acceleration is not too great, but may fall slightly when cardiac acceleration is extreme. The pressures in the pulmonary artery and left auricle rise,[4] probably on account of the cardiac acceleration and augmented minute discharge. The intraventricular pressure curves show no change from normal. After arterial pressure has reached its lowest level, it gradually recovers in spite of continued infusion or inhalation of nitrites. The arterial pressure curves optically recorded indicate that there is less disproportion between systolic injection and peripheral outflow. Since the pulmonary arterial pressure remains high and the heart continues to accelerate, this may be attributed to an increasing cardiac discharge. This stage of recovery may be short lived or continued for a considerable interval. It is followed by a period when both systemic and pulmonary arterial pressures fall, the heart slows, and the effective venous pressure increases slightly. These effects are evidently due to a failing heart, and lead rapidly to death. Whether this is due to a direct action of the nitrites on the heart or to deficient oxidation from excessive formation of methemoglobin is difficult to say.

To summarize, nitrites, through a reduction of peripheral resistance, cause a pronounced and rapid fall of arterial pressure. The dilatation thus produced does not markedly affect the effective venous pressure, while the rapid rate definitely increases the pulmonary arterial pressure. Prolonged vasodilatation, then, in itself does not lead to complete circulatory failure. This occurs after prolonged administration, owing to cardiac failure accompanied by an elevation of effective venous pressure.

4. *Circulatory Failure Following Acute Cardiac Failure.*—By acute cardiac failure is meant a failure of the inherent contractile power of the heart so that it is unable, when supplied by an adequate volume of venous blood, to transfer it to the arterial side. Such acute cardiac failure, superimposed on reduced peripheral resistance, is the cause of circulatory failure after nitrites. It is a frequent cause of death in cardiac diseases. It may be studied experimentally as an isolated factor in circulatory failure through the depressant effects of concentrated ether vapor or infusion of potassium salts.

In both cases the arterial pressure falls progressively. The pulmonary arterial pressure is also steadily lowered, but the effective right auricular pressure increases markedly, owing to the fact that blood is dammed back. The intraventricular pressure curves rise less steeply in spite of a higher initial pressure, and the heart rate is slowed.

5. *Circulatory Failure Following Intravenous Injection of Neutral Oil.*—Neutral olive oil, as such and in emulsions made by the use of soaps, lecithin and gum acacia, were injected into the femoral or jugular veins, in doses ranging from 0.5 to 24 c.c. per animal.

The smaller doses were without effect on the mean arterial pressure, but the pressure curves recorded from the right ventricle showed typical signs that the right ventricle was contracting against an increased resistance.[5] The change was not great enough to affect the mean pulmonary arterial pressure, as recorded, or the effective venous pressure, as measured by the differential manometer.

Larger doses (that is, above 5 c.c.) produced a fall of mean arterial pressure. The pressure in the pulmonary artery increased, and the effective venous pressure also was markedly increased. The intensity of the pressure changes depended somewhat on the amount of oil injected.

SUMMARY OF DYNAMIC CHANGES IN DIFFERENT FORMS OF CIRCULATORY FAILURE *

| Cause of Circulatory Failure | Arterial Pressure Change | Pulmonary Arterial Pressure Change | Right Ventricular Efficiency | Effective Venous Pressure |
|---|---|---|---|---|
| 1. Abdominal shock: | | | | |
| Early stage ....... | — | 0 | 0 | 0 or + |
| Late stage ........ | — — | — | — — | — — |
| 2. Progressive hemorrhage | | | | |
| Early stage ...... | — | 0 | 0 | 0 |
| Late stage ........ | — — | — | — — | — — |
| 3. Nitrites | | | | |
| Early stage ...... | — | + | 0 | 0 |
| Late stage ........ | — — | — | — | + |
| 4. Acute cardiac failure. | — | — | — | ++ |
| 5. Fat embolism ....... | — | ++ | — | ++ |

* Double plus and double minus signs indicate a pronounced increase and decrease, while single signs denote a slight or moderate change.

Larger doses produced a fall of mean arterial pressure. Simultaneously, the pulmonary arterial pressure and effective venous pressure increased markedly. These changes can be referred only to pulmonary emboli, the existence of which was also verified by microscopic examination kindly carried out by Professor Ewing. The intensity and rapidity of these pressure changes was not always proportional to the quantity of oil injected, but depended apparently on the number of lung passages that were clogged by the fat emboli. In the case of pronounced embolism, death occurred within a few minutes, because of respiratory failure consequent to the extremely low blood pressure. Incidentally, it may be pointed out that, in spite of the extreme distention of the right heart and enormous rise of venous pressure, auricular fibrillation never occurred, as verified by the electrocardiogram. If pulmonary embolism is less extensive, and an adequate number of pulmonary paths remain open, the arterial pressure becomes reduced, owing to the deficient discharge of the left ventricle and, after a variable lapse of time, may return toward normal. When this occurs, pulmonary arterial and effective venous pressures generally decline toward the normal level.

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[4] Compare Wiggers, C. J.: A Physiological Investigation of the Treatment in Hemoptysis, Arch. Int. Med., July, 1911, p. 17.

[5] Compare Wiggers, C. J.: Am. Jour. Physiol., 1914, **33**, 391; ibid., **35**, 140.

### PRACTICAL SIGNIFICANCE OF RESULTS

*Diagnosis.*—Pronounced types of shock offer no specific difficulty in diagnosis other than when the question of differentiation from progressive internal hemorrhage arises. The dynamic studies indicate that there is no essential difference in the circulatory failure following the two conditions, so that clinical differentiation on the basis of circulatory changes is not possible. The fact that in hemorrhage the hemoglobin percentage and red cell count are reduced by the dilution of the blood stream, while no such change has been reported in shock, may be of differential value, as suggested by Bainbridge and Bullen.[6]

The detection of the earliest stages of shock are of extreme importance, as in this phase the patient reacts more readily to remedial procedures. For this purpose the initial fall of arterial diastolic pressure has been proposed by Porter.[7] The results of this investigation indicate that, while a decline of diastolic pressure is the earliest evidence of circulatory failure in shock, it is not peculiar to it. To determine the fact that circulatory failure has begun, without a knowledge of the factor to which it is due, is of little value in the application of the proper remedial measures. We have thus far no circulatory sign or criterion by which the incipient state of shock can be recognized.

Before the state of shock has progressed very far, and while the circulatory condition is still amenable to therapeutic measures, the venous pressure has begun to decrease, as postulated by Henderson and his collaborators,[8] confirmed by Morrison and Hooker,[9] and again verified in this investigation. It is therefore important that the state of the venous pressure should be carefully followed in suspected cases of shock. For this purpose one may use the excellent apparatus of Hooker, when available and conditions permit its employment. It is even probable that some readily applied modification of the method suggested originally by von Frey may be sufficient. Von Recklinghausen[10] has suggested a single bedside test: One hand of the patient in the recumbent position is allowed to rest by his side, on the bed; the other placed on the thigh. If the veins in the former hand fill and in the latter collapse, normal pressure relations exist. If both collapse, venous pressure is low.

The combination of low venous pressure and a falling diastolic arterial pressure are conditions typical of circulatory failure in hemorrhage and shock alone. Their use in combination with hemoglobin determinations should be of clinical value in establishing the presence of circulatory failure due to shock.

*Treatment.*—In considering the treatment of circulatory failure in shock, the principles rather than the specific remedies can only be discussed. Experimental work shows that circulatory failure is initiated by a reduced peripheral resistance, but the condition does not become serious until the venous pressure falls. To counteract these mechanisms, the treatment must be directed to (1) overcome the reduced resistance, and (2) replenish the deficient venous return. For the former purpose, vasoconstrictor drugs, such as epinephrin, have been employed, either intramuscularly, intratracheally, as suggested by Auer and Gates,[11] intraperitoneally, as suggested by Cannon,[12] or intraspinally, as recently advocated by Auer and Meltzer.[13] To accomplish the latter need, intravenous infusions of physiologic sodium chlorid solution admixed with gum acacia, as recently suggested by Bayliss[14] and recommended by the British committee,[15] or graded intravenous infusion of glucose solutions, have been suggested by the experiments of Erlanger and Woodyatt.[16] The breathing of carbon dioxid mixtures has been recommended for a similar purpose, but on different grounds: by Henderson because they act chemically, and by Porter on the basis that the augmented respiration so induced mechanically favors the return of blood to the heart.

The fact is emphasized by this study that these and similar procedures aiming to augment venous pressure are based on principles that are sound, as regards circulatory failure in shock. They can be of little value in circulatory failure in any condition in which the venous pressure is already high. Thus, it would be of no avail to increase the venous pressure in forms of circulatory failure similar to that following the use of nitrites, in which a dilatation of peripheral arteries alone is concerned, for in such cases venous pressure is entirely adequate to supply the heart. A reduction of venous pressure by bleeding would seem to be a more rational procedure in the case of acute cardiac failure when a further increase in venous pressure might serve merely to overburden the already depressed heart. If circulatory failure on the battlefield, as held by Porter,[7] is indeed due to fat emboli, such as follow intravenous injection of oil, a further increase in venous pressure by any method is distinctly contraindicated, for it is precisely by the overdistention of the right heart, due to the high venous pressure, that the heart finally fails.

For these therapeutic reasons alone, the differentiation of circulatory failure, such as is found in surgical shock, from other types of circulatory failure cannot be emphasized too strongly.

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6. Bainbridge and Bullen: Lancet, London, 1917, **2**, 51.
7. Porter: Boston Med. and Surg. Jour., 1916, **175**, 854; Compt. rend. Acad. d. sc., 1917, **165**, 164.
8. Henderson: Am. Jour. Physiol., 1911, **27**, 152.
9. Morrison and Hooker: Am. Jour. Physiol., 1915, **37**, 86.
10. Von Recklinghausen: Arch. f. exper. Path. u. Pharmakol., 1906, **55**, 484.
11. Auer and Gates: Jour. Exper. Med., 1916, **33**, 757.
12. Cannon: Boston Med. and Surg. Jour., 1917, **176**, 859.
13. Auer, John, and Meltzer, S. J.: The Administration of Epinephrin by Intraspinal Injections, The Journal A. M. A., Jan. 12, 1918, p. 70.
14. Bayliss: Arch. méd. belges, 1917, **70**, 793.
15. Report of British Committee on Shock, transmitted to Professor Howell.
16. Erlanger, Joseph, and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, The Journal A. M. A., Oct. 27, 1917, p. 1410.

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**Welfare Service During the War and Reconstruction Period.**—In the *Bulletin of the National Conference of Social Work* Robert A. Woods, president, says that the entire system of the regular and usual philanthropic activities throughout the country is having new and special burdens laid on it on account of the war. In spite of increased cost of operation and depletion of staffs by calls into military service, the accustomed work of community agencies is more urgently needed than ever before. Among the conditions which emphasize this are "the subtle disorganization of family life, the unrest and emotionalism which affects young men and women, the noticeable increase in juvenile delinquency, the presence of new dangers to public health and vitality owing to inadequate food and fuel, the danger of lowered industrial standards, the undermining of family economic well-being due to increase in prices beyond wages," etc. A warning is given that we should not only take care of present conditions in these respects, but that we should be prepared for the period of reconstruction, which at farthest, will soon be on us.

# INTESTINAL TOXEMIA OF HIGH OBSTRUCTION *

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This case of acute intestinal toxemia, the result of high obstruction, seems to me to be worthy of report. I am in debt to the commanding officer, Major Haverkampt, and the staff of the provisional base hospital, Fort Oglethorpe, Ga., for permission to report the case and the clinical data.

Experimentally, this toxemia has received considerable mention, especially following the work of Whipple, Sweet and others. So far as I am aware, it has not been frequently described as a clinical entity. A substance or combination of substances, the exact nature of which is undetermined, has been isolated from the closed loops of the upper intestine, notably the duodenum. In concentration, this substance is extremely potent, producing rapid death in experimental animals.

## REPORT OF CASE

*History.*—E. V., aged 23, a private, was admitted to the base hospital, Aug. 18, 1917, complaining of a feeling of discomfort about the umbilicus and a "rumbling in the bowels." This was of several days' duration, and was associated with nausea and vomiting. His general condition was only fair. His temperature was 99 F., pulse 80, and respiration 20. He stated that he had had a similar attack about one year before.

*Physical Examination.*—The patient was a white man, weighing 146 pounds. His tongue had a brownish coating. He had frequent hiccups, associated with nausea and intermittent vomiting of small amounts, which were bile stained. The abdomen was slightly distended. Peristaltic movements were plainly visible in the large intestine. The liver and spleen were not palpable. A mass was not palpable; there was no rigidity, but there was some tenderness on deep pressure.

*Treatment and Course.*—The patient's facies was that of a sick person, and yet the physical signs were very indefinite. This intensely anxious and sick facies continued more and more marked throughout the disease. On the night of his admission, a warm olive oil enema seemed to relieve him.

August 20, he had several attacks of periodic pain in the abdomen, beginning in the epigastrium, and extending to the umbilicus anteriorly and to the right flank posteriorly. Nausea and hiccups continued, with vomiting of large quantities of material, becoming more and more bile stained. This contained much mucus. Headache, at this time, was a prominent symptom. During several consultations, the question of obstruction was considered, but operative procedure was decided against. From August 20 to August 27, the general condition continued about the same, with a profound toxemia developing. This did not manifest an activity. There were no delirium, no meningeal symptoms, and no reactions. The temperature ranged between 97 and 98 F., but the patient was overwhelmed. The bowels moved freely three times during this interval, and on the 28th, following magnesium sulphate, they moved copiously. Vomiting and weakness continued. The patient was rational, remained quiet in bed, felt cold and chilly, and, between vomiting intervals, seemed as though all resistance to any factor had disappeared. On the morning of the 29th, a decided change for the worse took place. The patient became unconscious without delirium; he resisted movements but slightly, attempting to roll from side to side, especially to the left. The respirations were shallow but not rapid; the pulse was regular and of fair volume, while the extremities were blue, cold and dry. There was no evidence of shock or collapse, and there were none of the symptoms of active uremic toxemia.

The main phase seemed to be an intense asphyxia against which there was no reaction on the part of the individual, either in the way of an autogenous immunization or to very active drug stimulation. Strychnin, whisky and other stimulants had no effect.

The urine early showed a trace of albumin with many hyaline casts. The blood was negative for malaria, negative on culture, and the leukocyte count 6,000. Death occurred, August 29, at 5:30 p. m.

*Necropsy.*—One hour later, examination of the body revealed a well nourished man in whom rigor mortis had not appeared. The livor was moderate posteriorly and not present anteriorly. The pupils were dilated and equal, and the conjunctivae clear. The lips were dry and slightly cracked.

The chest presented no fluid. The heart was small, contracted and contained very little clot or blood. The musculature of the ventricle was bronzed with an underlying pallor and was associated with a flabbiness. The aortic intima was raised in an arborescence of ridges, and had lost some of its elasticity.

The right lung in its dependent position was solid and, on section, presented patchy pneumonic consolidations with intermingling areas of edema. The liver was large, blue and boggy and, on section, much blood exuded. The spleen was somewhat enlarged, slaty blue and, on section, the pulp was firm and the follicles were not visible. The stomach was considerably distended with gas, and a liquid, semidigested, bile-stained content. This distention extended through to the duodenum and along about 10 inches of the jejunum. At this point, an obstruction was encountered. This consisted of an intussusception. The intussusceptum was about 4 inches long, while the intussuscipiens was about 8 inches. The intestinal wall, at this point, was thick and boggy, and the mesenteric vessels were distended, with hemorrhage into the surrounding mesentery. The intussusception was easily straightened out, and a small mass in the intestinal wall was palpated. When the intestine was opened, the mass was found to be a fixed, well circumscribed, fleshy tumor arising from the jejunal mucosa, and was adenomatous in nature. The mucosa in the jejunum above and in the duodenum was thick, boggy and bluish black, but not necrotic. No other tumor masses were encountered.

The kidneys were large, swollen and blue with an underlying pallor; the cortex bulged decidedly on section, and was increased in width, with a moderate granularity. The capsule was adherent, and some of the larger vessel mouths gaped open.

*Diagnosis.*—The cause of death was duodenal toxemia due to high obstruction. The contributing factors were adenoma of the jejunum, producing intussusception, and acute hemorrhagic jejunitis and terminal hypostatic pneumonia. There were brown atrophy with acute parenchymatous myocarditis of the heart; intermediate intimal arteriosclerosis; healed apical tuberculosis; passive congestion of the liver; chronic diffuse splenitis (splenic tumor probably malarial), and acute parenchymatous nephritis with passive congestion and arteriosclerotic glomerulitis.

## COMMENT

The case is interesting from many standpoints, but especially from that of intestinal toxemia of high obstruction. It seems to be well established, at least experimentally, that there is a potent toxin following high obstruction. Experimentally, this substance has been isolated from purely intestinal origin. In this case, necessarily pancreatic and liver origin cannot be ruled out. In view of the fact that gross changes were not prominent in either one of the latter organs, while marked changes were present in the intestinal wall, it would seem safe to assume that the bulk of the toxin was of intestinal source.

The patient gave a history of symptoms at first mild and later becoming more intense. This was manifested by a severity in the illness unaccounted for on purely gross morbid changes. For several days before death, he had the facies of impending death. The poison was profound without being irritative. There was no associated delirium; there was none of the activity of meningeal irritation; there was not the reaction and collapse of hepatic or uremic toxemia. The forceful effects of asphyxia, noticed especially the day before death, puts the etiologic toxin in the class of potent chemicals.

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* From the pathologic laboratory of the provisional base hospital, Fort Oglethorpe, Ga.

The kidney insufficiency probably helped to accumulate the toxin, but, considered by itself, apparently played a minor rôle.

The physical question of the small tumor acting as the starting point for intussusception is not uncommon. In the records of the McManes Laboratory of the University of Pennsylvania there are several similar cases. These are mostly secondary tumors, as carcinoma and one very interesting case of secondary hypernephroma.

### SUMMARY

1. The case illustrates a small adenoma of the jejunum as the starting point for an intussusception.
2. This intussusception resulted in high obstruction of the intestine, with marked changes in the intestinal wall at this point.
3. These intestinal changes produced a toxemia.
4. This toxemia was extremely potent, and ended in death.
5. The manifestations were those of an asphyxia without stimulative effects.

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# DETERMINATION OF THE TYPE OF PNEUMOCOCCUS IN THE SPUTUM OF LOBAR PNEUMONIA

## A RAPID, SIMPLE METHOD [*]

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As a result of the observation that a boiling alkaline hypochlorite solution would not destroy the precipitable substance of bacteria, we developed a rapid method for the preparation of a concentrated precipitin antigen from bacteria.[1] The same method was found to be applicable to the preparation of a precipitin antigen from pneumonia sputum. In an appreciable proportion of specimens the type of pneumococcus present could be identified by this method in from one half to one hour after the receipt of the sputum. More recently, Mitchell and Muns[2] have reported a less complicated method for the preparation of an antigen from sputum. Their reports, as well as the results of our attempts to shorten the time in carrying out the mouse test according to the method of Blake,[3] indicated that many sputums are comparatively rich in soluble antigen. This being so, the solution of the pneumococci in the sputum, the object of the alkaline hypochlorite method, would be unnecessary.

Although the sand method of Mitchell and Muns is comparatively simple, we were certain, because of the facts given, that a still simpler method could be devised. One of the steps in the hypochlorite method involved the removal of the coagulable albumins. We had noted that the specimens yielding positive results were usually very rich in coagulable albumins, which one would expect to be the case in an inflammatory exudate of pulmonary origin. In fact, the presence of albumin has been used for diagnostic purposes, especially for the examination of sputums from pulmonary tuberculosis. A trial showed that sputums having the appearance of being actually raised from the lung coagulated more or less firmly when heated to 100 C. On this basis we evolved the following rapid method of preparing a precipitin antigen directly from sputum:

### TECHNIC

From 3 to 10 c.c. of the sputum, depending on the amount available, is poured from the sputum container into a test tube. This is placed in boiling water for several minutes or longer until a more or less firm coagulum results, which will occur if the specimen is a suitable one. The coagulum is then broken up with a heavy platinum wire or glass rod, and saline is added. Just enough saline should be added so that, on subsequent centrifuging, there will be sufficient fluid to carry out the test. If too much is added, the resulting antigen may be too dilute. In some instances little or no saline is necessary, as sufficient fluid separates from the coagulum.

After the addition of the saline, the tube is again placed in boiling water for a few minutes to extract the soluble antigen from the coagulum, the tube being shaken several times during the heating. The broken clot is then thrown down by centrifuge, and the clear supernatant fluid used for the test. To hasten the appearance of the reaction and to obtain a reaction even should the antigen be dilute, we layer the antigen over the "type" serums, using the latter undiluted. Two-tenths c.c. of the three "type" serums are placed in narrow test tubes, and the antigen added from a capillary tube with a rubber teat. If the tubes containing the serum are tilted and the antigen dropped slowly on the side of the tube just above the serum, no difficulty will be encountered in obtaining sharp layers, as the undiluted serum is sufficiently higher in its specific gravity. The tubes are then placed in the water bath at from 50 to 55 C. and observed after several minutes.

If a fixed type was present in the sputum, and should the sputum have been rich in antigen, a definite contact ring is seen in the tube containing the homologous serum. With sputums less rich in antigen, the ring may develop more slowly, and it will be less marked. Some experience is necessary in detecting the less marked contact rings and in differentiating them from an apparent ring which may be confusing, if one of the serums is darker in color, giving thus a sharper contrast with the supernatant antigen. The true ring is more or less opaque, and this quality can be seen by tilting the tubes and looking at the area of contact against a dark background, for example, the lower edge of a dark shade raised to just above the level of the eyes. The advantage of the ring test is that a ring may be evident, whereas definite clouding or visible precipitate may appear only after longer incubation, or may be so slight even after an hour's incubation as to leave one in doubt. It is well to shake the tubes after twenty minutes, as many of the specimens will show definite clouding or precipitate either at once or on further incubation, thus checking the ring reading. All of the observations given in the accompanying table were read within one-half hour, and the majority were evident in less than ten minutes.

### RESULTS

The table gives the results thus far obtained. The quality of the sputum is noted and also the degree of coagulation, as it is evident on comparing these data with the outcome of the test that the success of the test depends on the quality of the sputum submitted.

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[*] From the Bureau of Laboratories, Department of Health, New York City.

[1] Krumwiede, Charles, Jr., and Noble, W. Carey: Jour. Immunol., to be published.

[2] Mitchell, O. W. H., and Muns, W. E.: Jour. Med. Research, 1917, **37**, 339.

[3] Blake, F. G.: Jour. Exper. Med., 1917, **26**, 67.

The specimens examined are the routine samples submitted to the laboratory by private physicians, and no special care was taken in the selection of the sample. The results with the sand method of Mitchell and Muns, the ring test being used, are given whenever sufficient material was available for duplicate tests. A few examinations by the method of Avery[4] are also given because they are based on the results of broth cultures incubated from five to eighteen hours. The method, therefore, may be employed as a check method, even though the tubes are inoculated too late for examination on the same day. Further observations are necessary, however, as to the possible disturbing influence of overgrowth by other organisms after a longer period of incubation than five hours, which might lead to a negative result. Sterile citrated horse blood was employed in place of the defibrinated rabbit blood advised by Avery. The layer method was not used with the Avery method, as the broth does not layer well. The results were finally checked by mouse inoculation or the isolation of pure cultures directly from the sputum. All the Group IV results were checked by mouse inoculation, to exclude the possibility of the presence of small numbers of pneumococci of the fixed types.

RESULTS *

| No. | Quality of Sputum | Coagulation | Coagulation Method |  | Sand Method |  | Avery Method |  | Result of Final Check Test: Type or Group |
|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Type | Degree of Reaction | Type | Degree of Reaction | Type | Degree of Reaction |  |
| 1 | Good | + | III | + | III | + | .. | .. | III |
| 2 | Good | + | III | + | III | + | .. | .. | III |
| 3 | Good | + | I | + | .. | .. | .. | .. | I |
| 4 | Good | + | III | + | III | + | .. | .. | III |
| 5 | Mucoid | — | — | — | — | — | .. | .. | I |
| 6 | Good | + | II | + | II | ± | II | ± | II |
| 7 | Good | + | III | + | — | — | .. | .. | III |
| 8 | Good | + | — | — | — | — | .. | .. | IV |
| 9 | Good | + | II | + | II | + | .. | .. | II |
| 10 | Slimy | — | — | — | .. | .. | .. | .. | II subgroup |
| 11 | Fair | ± | I | ± | I | × | I | × | I |
| 12 | Salivary | — | — | — | — | — | — | — | IV |
| 13 | Good | + | II | + | II | ± | II | + | II |
| 14 | Good | + | I | ± | I | × | .. | .. | I |
| 15 | Salivary | — | — | — | — | — | I | + | I |
| 16 | Good | + | I | + | I | + | I | + | I |
| 17 | Good | + | II | + | .. | .. | II | + | II |
| 18 | Fair | + | III | + | .. | .. | — | — | III |
| 19 | Good | + | — | — | .. | .. | — | — | IV |
| 20 | Good | + | I | + | .. | .. | I | + | I |
| 21 | Salivary | — | — | — | .. | .. | .. | .. | I |
| 22 | Good | + | — | — | — | — | — | — | IV |
| 23 | Salivary | — | — | — | .. | .. | — | — | Streptococcus |
| 24 | Mucoid | — | — | — | — | — | — | — | Streptococcus |
| 25 | Good | + | III | + | III | + | .. | .. | III |

* The symbols indicate, for degree of reaction: +, marked reaction; ±, fair reaction; ×, slight reaction; for type: —, no reaction; .., test not done.

The coagulation method failed in four instances in which fixed types were present, but in each case the sputum was an unsatisfactory sample, which was evident on inspection, and coagulation also was absent. If coagulation does not occur, there is little use in proceeding with the method. In some instances in which coagulation has been slight and the extract opalescent, dilution of the extract has cleared this sufficiently so that a ring reaction could be seen. In these instances, naturally, the content of antigen in the sputum was large. We have attempted to coagulate the mucoid types of sputum by adding egg albumin. This has failed, as on subsequent extraction with saline the mucus goes into solution, and a clear antigen cannot be obtained.

We have obtained in this series somewhat more successful results with the coagulation method than with the sand method. To our mind the advantage of the former is the lessened labor in performing the test, and the greater cleanliness. It would seem that the rapid method, checked by the Avery method, would suffice for the majority of specimens if they are satisfactory in quality. The only necessity of mouse inoculation would be when both give no reaction with type serums, or when the specimen is obviously unsatisfactory for the foregoing methods. Even without mice, which are difficult to obtain at present, the two methods could be employed with considerable success as a preliminary to serum administration. With satisfactory specimens, few cases would fail to receive the serum because of unsuccessful tests. For statistical purposes as to incidence of type, the methods naturally would give somewhat incorrect results.

The advantage of the rapid method, that one can supply the messenger delivering the sputum with the appropriate serum in most of the cases for which type serums are available, and the great gain to the patient through earlier administration of the serum, need little comment. These advantages should help materially in popularizing the administration of serum to patients outside of the larger hospitals.

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[4] Avery, O. T.: Determination of Types of Pneumococcus in Lobar Pneumonia, The Journal A. M. A., Jan. 5, 1918, p. 17.

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# HEMORRHAGIC DISEASE IN NEW-BORN

## TREATED BY INJECTION OF CITRATED BLOOD IN THE SUPERIOR LONGITUDINAL SINUS

OSCAR BERGHAUSEN, B.A., M.D.
CINCINNATI

The following case report may be of interest to the general profession, since it shows that the superior longitudinal sinus may safely be punctured when bleeding occurs in the new-born, and that citrated blood may be successful in controlling the hemorrhage. This method was employed as a last resort, after I had tried without success to introduce the blood through a prominent vein at the elbow and on the left side of the neck. A fair-sized steel needle was introduced in the sinus, and when blood began to flow, between 150 and 200 c.c. of the father's blood in 2 per cent. sodium citrate solution was introduced rather slowly, the blood continuing to drop from the needle whenever the syringe was detached. The method is so simple that it probably will become the one of choice in the future. Citrated or whole blood can readily be introduced in this way, and the amount of blood necessary can be readily determined by the improvement in the condition of the patient, because the effects are usually immediate. A pale, apparently lifeless infant is quickly transformed into a rosy and crying baby.

Subsequently it was learned that Knox[1] had previously employed the same method successfully in treating an infant which had passed from 3 to 5 ounces of tarry blood-stained material, evidently a hemorrhage from the intestinal tract. Knox used 50 c.c. of the mother's blood in 60 c.c. of sodium citrate solution, introducing 15 c.c. of the mixture in the longitudinal sinus and the rest in small quantities intramuscularly into the buttocks, the improvement being gradual. In this case intramuscular injections of 20 c.c. of the noncitrated paternal blood had been of no avail, but the injection of between 150 and 200 c.c. of citrated paternal blood in the longitudinal sinus was followed by immediate improvement.

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[1] Knox, J. H. M., Jr.: Case of Hemorrhagic Disease in New-Born Treated by Indirect Transfusion, Arch. Pediat., **34**, 771.

### REPORT OF CASE

Jan. 13, 1918, Mrs. R. S., aged 24, after being in labor three days, was delivered of a male child, forceps being necessary. The forceps injured the soft parts over the back of the head, over the left eyebrow, and the inner side of the upper lip. The bleeding could not be controlled, although sutures, epinephrin, a blood-coagulating substance and pressure were used locally. Neither parent could give a history of a bleeder in the family. Twenty-four hours after the delivery, Dr. Charles Heisel asked me to see the patient. At this time 20 c.c. of the paternal blood was introduced intramuscularly into the buttocks and the back. The bleeding had not ceased by the following morning, when the condition of the child made a transfusion of blood necessary. About 250 c.c. of the father's blood in 25 c.c. of 2 per cent. sodium citrate solution were collected. Fully 50 c.c. of this mixture were lost in attempts to introduce the blood after the vein at the elbow and on the left side of the neck had been laid bare. As a last resort, it was determined to puncture the superior longitudinal sinus, although a recent writer[2] had warned against such a procedure in a case of hemorrhagic disease in the new-born. After the blood began to drop from the needle, from 150 to 200 c.c. of the citrated blood were introduced, the blood continuing to drop from the needle each time that the syringe was detached. Improvement in the condition of the infant ensued while the operation was in progress. January 15 and 16, the rectal temperature measured 102.2 at 9 a. m., but on the morning of the 17th it measured 98.2. The bleeding has not recurred. The stool was normal throughout. The urine was scanty during the first day, but was passed freely after the transfusion.

19 West Seventh Street.

# *Military Medicine and Surgery*

## SOME HERNIAS THAT DISQUALIFY FOR MILITARY SERVICE, WHETHER OPERATED ON OR NOT

JOSEPH COLT BLOODGOOD, M.D.
BALTIMORE

Men who have been operated on successfully for inguinal hernia and show no sign of recurrence at the time of examination are accepted for general military service, both among applicants for enlistment and among registrants for the selective service. It is now under consideration to accept both applicants for enlistment and registrants in the selective draft who are suffering with inguinal hernia of certain types, and to subject them to operation after they have become soldiers. This will undoubtedly admit many men otherwise physically fit into the Army.

There is, however, a small group of hernias, which can be easily recognized at the first examination, for which up to the present time operations failed to result in a cure in from 20 to 50 per cent. of cases. I called attention[1] to this small group of inguinal hernia in 1899. Among 243 cases of inguinal hernia, this type occurred in eleven instances, about 4.5 per cent. Among these eleven cases there were six recurrences, more than 50 per cent., in from six weeks to six months after operation. In the larger group, 232 cases, there were only two recurrences, less than 1 per cent., and in these two cases the wound had broken down.

In this smaller group the hernia need not necessarily be large, or present any of the signs and symptoms of the so-called complicated hernia. This type of inguinal hernia, however, can be recognized when the patient is examined lying flat on his back. If the finger is pressed against the scrotum and pushed up into the external ring, as the index finger passes through the external ring (the hernia having been reduced), in the larger number of cases it meets an obstruction (the conjoined tendon) and is deflected upward and outward, following the course of the inguinal canal. In this smaller group the index finger meets no obstruction, but enters at once into the peritoneal cavity, and in some cases the opening is so large that when the index finger is flexed it can palpate the pubic bone in the region of the symphysis. Now and then one gets this impression to a slighter degree; but if the patient is asked to raise his head, the contracting rectus muscle pulls tight the relaxed conjoined tendon, and the finger of the experienced examiner at once detects that the conjoined tendon is not absent or obliterated, but simply relaxed.

In those cases in which this examination detects the complete absence of the conjoined tendon, the ordinary operation for inguinal hernia, according to my investigations up to 1899, failed to cure in about 50 per cent. of the cases.

The majority of operators today admit about 5 per cent. of recurrences in all cases of hernia. I am of the opinion that the majority of these recurrences are not due so much to the fault of the ordinary operation as to the type of the hernia and the absence of the conjoined tendon.

After this observation in 1898, I devised and published a description of the transplantation of the rectus muscle to take the place of the conjoined tendon — a method independently worked out by Woelfler in 1898. Later, Halsted modified the transplantation of the muscle by turning down a pedunculated flap of the anterior sheath of the rectus. Later observations of these cases have shown that the percentage of recurrences has been reduced to about 15 or 20; the exact figures have not been worked out. But there is no doubt that some recurrences still take place.

For this reason I take this opportunity to call attention to this group, with the hope of getting the opinion of surgeons with large experience in the operation for hernia.

When we have all the evidence at hand, we may be able to advise the surgeons who will have charge of this large operative work to be on the lookout in their examinations for this group, and to discharge these men from general military service. It is my opinion that it is possible to select this group at the complete examination at the cantonment, and these applicants or registrants should be rejected, saving the government the expense incidental to the operation and later discharge for a recurrent hernia.

I would appreciate the expression of opinions by my colleagues on this point.

904 North Charles Street.

**Medical Inspection.**—The authority which has the right to compel attendance at school has the added duty of insisting that no harm shall come to those who go there.—*Health Bull.*

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[2] Unger, L. J.: Transfusion of Unmodified Blood, The Journal A. M. A., Dec. 29, 1917, p. 2159.

[1] Bloodgood, J. C.: Johns Hopkins Hosp. Rep., 1899, **17**, 277.

# VALUE OF ROENTGEN RAY IN DIAGNOSIS OF PULMONARY TUBERCULOSIS IN WAR TIME

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The entire medical profession has for some months been deeply interested in the many problems connected with the war. Although later questioned, early reports of an alarming amount of tuberculosis in the French army among the men in the trenches, as well as those behind the lines, focused attention on this phase of the medical problem. The question of excluding the tuberculous from the army, especially from that part destined for overseas activity, has seemed to many to be most pressing at this time.

It is clearly evident to any one who has made even a cursory inquiry into the medical examinations of the national army that no army has ever been so well examined. My object is not to criticize but to attempt to show how, along one line, even greater efficiency might be obtained.

The early diagnosis of early pulmonary tuberculosis is always a difficult problem, and among recruits difficulties are heaped on difficulties. Symptoms, either real or imaginary, lead the patient to the physician, and the latter by various examinations seeks evidence confirmatory or contradictory of his suspicions, based certainly at first on symptoms. In fact, some hold that symptoms, without physical signs, demand treatment, while physical signs, without symptoms, require only careful watching. Some recruits, as Bushnell[1] says, are so eager to go to France that they conceal the fact that they have had tuberculosis. Others may conceal it for a time in hope of being mustered out before being sent into active service on account of "developing," as they would have it believed, pulmonary tuberculosis in the line of duty. A third group may not wish to go at all, and symptoms are developed out of the whole cloth. These and still other factors cause many to believe that previous symptoms are of little weight in the diagnostic scale. Men with definitely evident symptoms at the time of examination need no mention in this discussion.

With symptoms and previous history of such uncertain value, we are thrown back on objective findings to exclude pulmonary tuberculosis from the Army. It is not my intention to discuss physical signs; but no one will deny, I am sure, that fairly extensive pulmonary disease may exist with few or no physical signs. Such instances are luckily not frequent; but slight physical signs were barely to be discovered by the method of examination I have seen practiced at Plattsburg and Camp Devens, unless hypersecretion of mucus was so located as to be discoverable on coughing.

According to Bushnell,[1] an examiner can go over twenty-five men in an hour, and in the Army could later re-examine the suspects more carefully. I have watched the procedure at Plattsburg and have practiced it at Devens, and it may be of some interest to describe it briefly as I saw it practically applied. At Plattsburg the men were of a higher order of intelligence—all were in hopes of obtaining commissions. At a certain hour the men were stripped to the waist and formed in as many lines as there were examiners, three in this instance. An orderly asked each man if he had ever had pleurisy, pneumonia, had spat blood, had cough lasting over a month, or had any tuberculosis in his family. If an affirmative reply was received to any of these questions, or if he seemed to be in poor shape, the man was requested to report later for a special examination. The men remaining in line were instructed how to exhale, cough and inhale. The chest was auscultated, after the man had coughed roughly about twenty-five to thirty times, on the front and back, in a period of from one to two minutes. If no râles were heard, the man was passed; but if râles or suspicious sounds were detected, he, too, was ordered back for special examination. These special examinations were made under more favorable conditions, and I do not believe that many men with adventitious sounds in their chests escaped detection. At Camp Devens all men with suspicious histories or suggestive physical signs or poor physique were requested to wait for their examination or a re-examination until the others had been examined. I do not wish to belittle the excellent examinations that have been and are being made in many camps; but I should like to draw attention to the fact that medical officers doing such work may grow stale; that it is very difficult to make some intelligent men cough correctly, and that it is impossible to explain the matter to an ignorant man or one who does not speak English, French or German. These conditions may be unusual, but should be considered.

For these reasons, which have no doubt occurred to every one, the value of the roentgen ray in the Army examinations has been widely discussed. Some would have had every man in our Army examined by roentgen ray, others only those with suspicious symptoms, while a third view was to reserve it for those with suspicious physical signs. If thousands of men were to be examined by roentgen ray and hundreds of thousands of dollars expended on such work, it would become necessary to show very conclusively that it was worth the price.

In the first place, our medical experience along these lines has pursued some such course as this: (1) The occurrence of symptoms; (2) the seeking of medical advice, and (3) the taking of the roentgenogram. Along this well beaten track many have passed, and our data are backed by years of experience. So far as I know, few oppose the roentgenographic study of men with suspected or even definite pulmonary physical signs, and I believe that there is a roentgen ray outfit at each cantonment to do such work. At two of the officers' training camps, however, there has been none, and we luckily had an opportunity of studying twenty-one men with physical signs, or suspicious symptoms, from the first Plattsburg encampment. To them I shall refer later.

But such experience as I have mentioned does not cover the case under consideration, for in the National Army we may assume that in from 90 to 95 per cent. of the instances we are dealing with men in apparently good health and without symptoms. What data have we of roentgenographic studies of such individuals? Unfortunately, I have been able to find but one study, and that only on fifty physicians and medical students. This study, by Hamman and Baetjer,[2] revealed by physical examination eleven as normal, eighteen with right apical signs, twelve with left apical signs and nine as having both sides involved. A study of the physical examinations as published showed only one or two with the indeterminate râle, but a large number with fine râles, slight dulness or some variation from normal of the breath sounds. The plates taken were flat plates, and the results as published would not, in the light of our knowledge of today, suggest strongly that more than two of the forty-six persons examined by the roentgen ray had definite roentgenographic evidence of pulmonary tuberculosis. Major Baetjer has been good enough to let Mr. Sampson and myself go over some of these plates. When we compared them with our own and with those of Major Cole we found that in the main all of us agree, for, as already mentioned, Baetjer had found only two definite cases.

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[1] Bushnell: Am. Rev. Tuberc., 1917, **1**, 325.

[2] Hamman, Louis, and Baetjer, F. H.: Pulmonary Physical Signs and Roentgen-Ray Findings in Healthy Adults, Arch. Int. Med., November, 1914, p. 757.

It is unnecessary for me to point out that roentgen ray plates are shadowgraphs; that the flat plate is the summation of all the shadows that lie in each plane of the rays, and that stereoscopic plates resolve more or less these summations of shadows into their constituent shadows, and at times cause to disappear what might have been considered to be an increase over the normal shadows.

To establish a norm in roentgen ray work is most important. Many have become very expert in reading flat plates; and indeed all the original work was done with flat plates. However, in very early cases slight shadows are often puzzling, and shadows lying under a rib are often difficult of interpretation. The stereoscope aids greatly in this, for the shifting of the tube separates some shadows from those of the ribs and clavicle, and a thickened root shadow may resolve into normal constituents. I have mentioned these facts because there has been much difference of opinion. Some have held that in Army work only stereoscopic plates should be made, together with a flat plate taken in the opposite direction. Another group has affirmed that a single flat plate is sufficient.

Major Cole,[3] whose untiring efforts in the interest of this work cannot be too highly praised, took roentgenograms of 100 men to determine if one flat plate would reveal lesions sufficiently gross to arouse the question of possible rejection. Posterior-anterior stereoscopic and flat anterior-posterior plates were taken and it was decided that the single flat plate was sufficient for work in which only gross lesions need to be detected. It should, however, be borne clearly in mind that many are just as sure that in the study of a patient stereoscopic plates are always to be desired, for the reasons previously mentioned. Fortunately, they are not necessary here, for they require five times as long to take, develop and read as a single flat plate. The same objection applies more fully to the use of the fluoroscope, which, in view of its uncertainties of interpretation and other objections, seemed to be unsuitable for this work.

### STUDIES OF THE NEW YORK NATIONAL GUARD

This study of 100 men was made on some members of the Twelfth Regiment of the New York National Guard, which had seen service on the Mexican border and had been subjected to several examinations by Army medical men.[4] Some of them, however, had been recruited since the regiment returned from the border. While the physical examination of the lungs may not have been as searching as if performed by lung specialists, nevertheless the strict requirements, such as the requirement of weight, must have ruled out many doubtful recruits. It was, however, decided to subject these 100 men to a careful, independent, comparative study of the roentgen ray and pulmonary physical findings. Dr. James Alexander Miller, with a staff of able assistants, made the examinations. In all, roentgenograms of 100 men were taken, and in ninety-two cases the plates were satisfactory for study. Six men were roentgenographically positive for tuberculosis, one possibly had sarcoma, and one possibly Hodgkin's disease. In one the presence of a cavity was entirely overlooked by the physical examiners, and three men showed physical signs without roentgenographic findings. The physical examination and the roentgenogram agreed in five cases, and all eight were rejected. Major Baetjer (and a number of others, among them J. A. Miller, E. R. Baldwin and H. W. Biggs) agreed with Major Cole's interpretation of those plates that showed tuberculous changes.

It is easy to come to the conclusion, after a study of these results, that if only from 4 to 6 per cent. of the men recruited were proved tuberculous and liable to relapse, the number was great enough to justify considerable expense to exclude them from the Army. In 600,000 men, for example, 4 per cent. would total 24,000, and the pensions such men would and should receive might easily run into the millions of dollars.

These facts were presented to Governor Whitman, who has ever had a keen grasp of public health matters, and he set aside $1,500 for a study of a thousand men in the Sixty-ninth Regiment of the New York National Guard. Major Cole was again in charge of this study, and was assisted by Major LeWald and a number of other experienced men. It was hoped by this experiment to demonstrate the posibility of taking plates of every soldier in the National Army, and to do so as rapidly as the physical examination of the lungs could be made.

The study showed that with two staffs or groups of roentgen ray men a thousand plates could be taken, developed and read in a day. The work would be rough, but many lesions would no doubt be revealed that would otherwise escape detection, and I refer not only to pulmonary lesions, but to osseous, vascular and cardiac lesions as well. The mechanical detail of this work will no doubt be reported by Major Cole at some later time. In the plates of 1,030 men of this regiment, about 1,000 were useful for study. Of these, thirty-four were found to have such definite parenchymatous shadows that Major Cole and Lieutenant Allison would advise rejection. The plates of thirty-two others strongly suggested definite tuberculous lesions. Baldwin, Heise, Sampson and I went over these plates very carefully, and on account of changes which we interpreted as old lesions, would reduce Cole's figure of thirty-four to twenty-eight, and add the six to the doubtful cases, making thirty-eight. These six cases and some of the other doubtful plates, had they been found in patients with symptoms, could have been interpreted, no doubt, as showing definite tuberculous changes. Dr. H. M. Biggs and Major Lewis Connor agreed in the main with these interpretations.

The physical examination of these men was undertaken by a group of good clinicians under Major Connor of Cornell. The results of their examinations was most interesting. Of the entire regiment (about 2,200 men), they certified six for rejection on account of pulmonary tuberculosis. Of these six, four showed lesions in the roentgen ray plate and were rejected, while the other two had negative plates and were accepted. Of the four rejected, only one fell in the group of the thousand already examined by roentgen ray, and his plate revealed advanced disease. In other words, in the 1,000 men examined by roentgen ray, thirty-four (accepting Cole's readings) were positively tuberculous and should have been rejected, but on physical examination only one was discovered. At Dr. Biggs' suggestion, Major Connor and his assistants re-examined twenty-six of these thirty-three men. The others were away or in the hospital and could not be re-examined. The men were of course all made to cough, and each was examined by three physicians. Abnormal physical signs were discovered in one or more men, and they were rejected. Three others were rejected also on the history of previous symptoms.

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[3] Major Lewis Gregory Cole is chairman of the Committee on Roentgenology of the Medical Advisory Board of the National Council of Defense.

[4] This study of members of the New York National Guard was made possible through the interest and cooperation of General Stotesbury and Major Berry of the New York National Guard. It was conducted under the auspices of the Subcommittee on Tuberculosis of the Medical Advisory Board of the National Council of Defense. To the suggestions of the chairman of this committee, Dr. H. M. Biggs, many of the studies are due.

This great discrepancy between roentgenograms and physical signs emphasizes the fact either that in apparently healthy men, shadows on roentgenographic plates do not bear the same significance that they do in patients with symptoms, or that in many apparently healthy men roentgenographic study will reveal tuberculous pulmonic changes before symptoms of such intensity as to attract attention arise and long before physical signs indicative of pulmonary disease are to be discovered. The latter assumption may explain those sad cases in which the patients suddenly develop extensive physical signs and pass, so to speak, at a bound from a stage of doubt to a stage of well developed disease. It might be argued, as it has been, I hear, in the West, that in those doubtful cases a very rigorous training at first would soon suffice to bring out the fact whether or not tuberculosis was present in a cryptic form. No doubt this would happen, and there is no doubt, too, that a man useful to society and self-supporting in his occupation would be rendered thereby an invalid and at times a public charge. The question, then, concerns not only the Army but also the whole body politic.

### COMPARISON OF FINDINGS

Reference has been made to the examination of the men at Plattsburg who, during the first encampment, were examined at or near its close. These men had been subjected to all the physical exercise incident to active service, and probably more, but had not been exposed to much inclemency of weather, such wetting and chilling as occurs, for instance, on the Belgian front. What a wealth of information on the relation of roentgenographic shadows to tuberculosis and exercise we should have had if a roentgenogram of every man had been made! How much good to our future generations might have resulted if we are to subject all our boys to military training! At the first Plattsburg camp about 4,445 men were examined, and twenty-one were referred to Mr. Sampson for roentgen ray examination. Of these, nine were found to have definite parenchymatous lesions, and three were later disqualified for service abroad; but only three were rejected, while three received no commission but were dropped and were not rejected. All these men were examined near the end of their training, and probably some men with positive cases had already resigned.

It is of great interest to compare the roentgenographic findings in these men with those discovered by Baetjer in his forty-six and by Cole in his thousand. The majority of the Plattsburg men had definite physical signs, some fairly extensive. The roentgenograms of the nine positive cases all showed a definite parenchymatous lesion, while a study of Baetjer's cases revealed only two with such a lesion. In Cole's thousand cases we find thirty-four (or twenty-eight) with such lesions. Granting that had Hamman and Baetjer's patients been recruits they would have been rejected by physical signs and roentgenograms, 2 or 4 per cent., or even 1 or 2 per cent., it is interesting to compare these figures with the others, 0.2 per cent. for the Plattsburg cases and 0.4 per cent. for the Sixty-ninth Regiment.

These, so far as I can determine, are the direct data on which we must form our opinion as to the value of the roentgen ray in pulmonary tuberculosis in the Army.

Mr. Sampson and I have attempted to compare some of our definite cases at Trudeau with these. We selected ten patients with as early parenchymatous lesions as we could find, and found that only three of them had never had tubercle bacilli in the sputum. We then replaced these by three others who had had positive sputum. It is not an easy matter to separate these plates from those of Baetjer or Cole, for they are all much alike. It might be argued from such plates that they mean little without symptoms, and much with; that the owners have a tuberculosis that only by chance becomes clinical and of moment, and that hence it is a good chance that such plates are of small import. It is of interest to note that these plates all fall in that group of Bushnell's which he says must depend on positive physical findings for rejection. Of our ten patients, only three had moderately coarse râles, and so seven would have been passed, of whom some had tubercle bacilli in their sputum within two months of the time of examination. It is curious, further, that we do not see more of such cases, when we take plates of patients with slight or no symptoms, on account either of their nervousness or of possible exposure to infection. The great incidence of pulmonary tuberculosis between the ages of 21 and 31 should also be kept in mind.

To consider this problem from a business standpoint is interesting. Whether or not we accept as correct Major Connor's decision to reject four more men out of the thousand of the Sixty-ninth Regiment examined roentgenographically, we cannot deny that the roentgen rays led him to the consideration of this step. If he was right, and I am convinced that he was, the roentgen ray plates led to the detection of 0.2 per cent. more men with tuberculosis than were discoverable by careful physical examination. If we conclude that these men would have broken down with pulmonary tuberculosis either during training or on active duty overseas, we can readily see what an economy would result were such methods with similar results to be applied to the whole National Army. If we accept the number of men in camps as 1,000,000, 0.2 per cent. would be 2,000 men. It is easy to see how their pensions and keep would mount up if, say, they lived five years, and cost the country in pensions and maintenance $1,000 a year. The total would be $10,000,000, or 5,000 times what it would have cost to prevent the development of the disease.

It is taken for granted that each cantonment has an expert roentgenographer to examine all suspected patients among the National Army; but Major Cole is of the opinion that a rather larger percentage of the roentgenographers connected with the Army are not experts in the interpretation of roentgenograms of the lungs.

It is taken for granted that, like the French Army, our Army will have clearing stations behind the front lines, to which all soldiers with suspected pulmonary tuberculosis will be sent. Here an expert roentgenographer is as necesary as an expert in tuberculosis, or as an expert in nose and throat disease. Major Rist tells me that in the French clearing stations 90 per cent. of the men admitted as tuberculous are returned to the front as having no tuberculosis; and Major Cole has found only 10 per cent. of the men referred to him from the camps about New York City with a diagnosis of probable pulmonary tuberculosis to show evidence of it on roentgen ray plates.

It is taken for granted that all institutions to which soldiers will be sent on their return from overseas service will be equipped with efficient roentgen ray staffs. I am told that in Canada the most difficult problem is to be able to decide whether or not some soldiers returned for pulmonary tuberculosis are really suffering from it.

If these assumptions can be taken for granted, it remains for us to consider the advisability of examining by roentgen ray a large number of men in our Army. I had planned to discuss the practicability of such a measure, into which Major Cole has gone in detail. I can only say that he considers it perfectly practicable and no more time consuming, and even much less, than the physical examinations made as I have described. The expense for each man amounts to the pay for a private for one day—one dollar. The question of storage is of no moment, for 45,000 plates can be stored on shelves about a room 15 feet square.

## CONCLUSIONS

To summarize the many reasons that have been assigned for using roentgen ray plates in the examinations of the National Army, it may be said that among others they are:

1. To accept men with acute and nonimportant bronchitis whose physical signs may simulate those of pulmonary tuberculosis.
2. To reject men with advanced pulmonary tuberculosis whose physical signs suggest a slight lesion.
3. To verify the presence of lesions indicated by physical signs.
4. To detect deep seated acute or subacute pulmonary tuberculosis when only indefinite physical signs exist.
5. To reveal various nontuberculous pulmonary diseases in early stages.
6. To detect and verify cardiac, arterial and osseous changes.
7. To reveal old basal pleurisies.
8. To establish a permanent record of each soldier.

The value of antityphoid vaccination had not been conclusively proved by Sir Almroth Wright's work in South Africa, according to a recent statement by the late Major Janeway, and it remained for Colonel Russell of the United States Army, by his work with the vaccine on the Mexican border, to establish its great scientific and practical value. Objections to the use of the roentgen rays in the United States Army have been made for the reason that this is no time for scientific experimentation. It is inconceivable that Colonel Russell's work encountered no opposition, but it has been the means of saving thousands of lives. It was a scientific experiment based on sound premises and redounds to the glory of the United States Army. Some venture to believe that today the premises on which the use of the roentgen ray in the Army depends are sound and everyone wishes to see the Army win new laurels by demonstrating its value. This brings us to the important point of reliability of roentgenograms. That some lesions may escape detection may be granted, for the time being. That the shadows we accept as definite for pulmonary tuberculosis can be simulated by those of other diseases cannot be denied; but they do so so rarely that we may disregard them. This leads us, for example, in Cole's cases, to a diagnosis of parenchymatous pulmonary tuberculosis in thirty-four (twenty-eight) cases undiagnosed by ordinary clinical examination. The results at Plattsburg would lead us to suppose that most of these men will go through training in good shape. What will happen when life in rainy weather in flooded trenches begins is only conjecturable. Rhinitis, coryza and bronchitis are, from all accounts, very frequent. The injurious effects of repeated severe colds, whether due to adsorption of antilytic substances in the blood by the various organisms which may penetrate into the blood stream under such conditions and so subject the latent focus to lysis, or to other causes, the fact remains that repeated attacks of these minor ailments do bring about relapse in some patients with pulmonary tuberculosis. From our studies of patients with parenchymatous lesions, we fear greatly that the subjection of the men to such conditions may result disastrously, and we would hesitate to recommend men having such plates for overseas service. Such beliefs are based on a study of plates taken of persons with symptoms either real or imaginary. For the benefit of future drafts, for the benefit of the whole civil population, I feel that I cannot urge too strongly that roentgenograms be taken of at least 10,000 men of the National Army. I would not suggest now that men with only parenchymatous roentgen-ray lesions be discharged at this time, but that a future study of the results of the strain of army life on this group and on the group without roentgen-ray pulmonary changes be made and definite conclusions drawn, conclusions which will, I believe, be of great value.

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**Report of Bureau of Mines.**—The annual report of the director of the Bureau of Mines for the fiscal year ended June 30, 1917, among other things, sets forth prominently the work and researches of the bureau on problems connected with preparation for and prosecution of the war. Among them are problems relating to the nitrate supply, raw materials for sulphuric acid, war gases and gas masks, nickel, manganese, mercury and potash supplies, petroleum products, coal, explosives, etc.——Among the more important achievements of the year were the following: More than 4,800 miners were trained in mine rescue and first aid work, covering twenty-three states. By the end of the year 46,873 miners had been trained by the bureau since its organization. Sixty-three accidents, fifty-seven of which were at mines, were investigated, and 103 men were rescued. At nineteen of the sixty-three accidents, breathing apparatus was worn. Twenty-two rescue and first-aid contests were held throughout the country. More than 39,000 miners attended lectures on these subjects. An interesting finding from tests made is that lime can be used instead of caustic soda in the regenerators of oxygen breathing apparatus. Further improvements have been made in the Gibbs oxygen breathing apparatus. First aid methods and materials, as well as mine-rescue methods, were revised and standardized. Other studies relating to mine safety concerned explosive dusts and gases, permissible explosives and mined fires.

# NATURE AND TREATMENT OF WOUND SHOCK AND ALLIED CONDITIONS

[EDITORIAL NOTE.—In August, 1917, the Medical Research Committee (Great Britain) appointed a Special Investigation Committee to undertake the coordination of inquiries into surgical shock and allied conditions, with a view to the better correlation of laboratory and clinical observations. The following were asked to serve on this committee:

Prof. E. H. Starling, M.D., F.R.S. (Chairman).
Prof. F. A. Bainbridge, M.D., F.R.C.P.
Prof. W. M. Bayliss, D.Sc., F.R.S.
Prof. W. B. Cannon, M.D. (Harvard University).
Lieut.-Col. T. R. Elliott, M.D., F.R.S., R.A.M.C.
John Fraser, M.D., F.R.C.S. (Edin.).
Prof. A. N. Richards, Ph.D. (University of Pennsylvania).
Prof. C. S. Sherrington, M.D., Sc.D., F.R.S.
Col. Cuthbert Wallace, C.M.G., F.R.C.S.
H. H. Dale, M.D., F.R.S. (Secretary).

The first report on "Intravenous Injections to Replace Blood" was published as a special Bulletin, Nov. 25, 1917. The second, on "Investigation of the Nature and Treatment of Wound Shock and Allied Conditions," given herewith, was issued for official use, Dec. 25, 1917, and Sir Walter Fletcher, secretary of the Medical Research Committee, has given his consent to the publication of the papers in The Journal, as has also the military censor.

In sending the report, Dr. Cannon writes:

> "The work was done in a casualty clearing station a few miles from a part of the line where there has been constant fighting for three years with scarcely any change. Only the most serious cases which could not be reasonably moved any farther back were left with us for the town was repeatedly shelled and the station was twice bombed by aeroplanes during my stay. London, with its air raids, is a Paradise by comparison."

The series includes six articles. On account of lack of space, two or three tables are omitted from The Journal. The first three articles follow in this issue of The Journal; the rest will appear next week. The complete series will be reprinted as a pamphlet, which will be sent on receipt of 10 cents in stamps.]

## CLINICAL STUDY OF BLOOD PRESSURE IN WOUND CONDITIONS *

JOHN FRASER
Captain, M. C., R. A. M. C.
AND
E. M. COWELL
Captain, R. A. M. C., S. R.
FRANCE

### INTRODUCTION

For a period of over two years we have been reading and recording the blood pressures in a variety of wound conditions. Certain of the observations have been sufficiently interesting to warrant their recordance.

The results may be summarized under various headings:

(*a*) Control blood pressure readings.

(*b*) The blood pressure as observed in wound conditions.

(*c*) Blood pressure readings as studied subsequent to various intravenous infusions.

(*d*) Observations on the blood pressure in the first week of convalescence.

The readings published in this paper have been made at a casualty clearing station, except where otherwise stated.

### A. INSTRUMENTS EMPLOYED AND METHODS OF INVESTIGATION

We have employed several forms of mercury manometers, and of these generally the "Riva-Rocci" instrument. Lately we have been using a spring sphygmomanometer. It would appear that the mercury instruments give the most accurate readings of the systolic pressure, but it is difficult to obtain with them a correspondingly exact reading of the diastolic pressure. The spring instrument, which from a mechanical point of view cannot be as accurate as a mercury column, certainly gives a more easily appreciated reading of the diastolic or minimum pressure. A great advantage of the former is its adaptability and small compass, allowing it to be easily carried in the pocket. With this instrument, many pressure observations on recently wounded men were made in the trenches, and in the advanced dressing stations of field ambulances. In certain cases in which the peripheral pulse can hardly be appreciated, it is necessary to read the pressure by means of the stethoscope. Such readings are very accurate, and a result can be obtained when no pulse can be felt.[1] Readings have been made of the systolic or maximum pressure, of the diastolic or minimum pressure, and of the pulse pressure.

### B. CONTROL BLOOD PRESSURE READINGS

A very large number of control readings were made from healthy soldiers. As was to be expected, a wide range of results was obtained. The readings of the systolic pressure were slightly lower than the records one would have accepted as normal in civil practice. Over a wide series of cases the average systolic or maximum pressure worked out at from 110 to 120, and the diastolic or minimum pressure at from 70 to 80, while the pulse pressure averaged 40 mm. We made what may be considered an interesting observation, that among soldiers engaged in the actual fighting, more especially infantrymen, the average systolic pressure worked out at a higher figure than among men of the same regiment in support, where they were only exposed to occasional fire.

It was noticed that the raised pressure of the fighting man tended to drop quickly when he was resting away from the firing line; for instance, a systolic pressure of 140 mm. dropped to 110 mm., or even to 100 mm.

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* Discrepancies between the methods reported in this paper and those reported in later papers are accounted for by the fact that this paper had been completed and presented to the Medical Research Committee before the work which appears in the subsequent papers was begun.

[1] Latterly we have used this method to the exclusion of all others.

Observations were made on a series of pilots and observers before and after a two hours' aeroplane bombing raid; the average systolic pressure was 135 mm., and it remained constant on return. In only one case the pressure was raised by 10 mm.

### The Blood Pressure as Observed in Various Wound Conditions

Pressure readings taken in the line on various types of wounds, at very short intervals after the patient had been wounded, show two distinct groups.

1. *The hypertension group*, in which the systolic pressure varies from 150 to 160 or even 170 mm.

2. *The hypotension group* (with primary shock), in which the pressure varies from 40 to 90 mm.

In the number of cases examined at this early period, there were practically none that occupied an intermediate position, that is, showing a normal blood pressure.

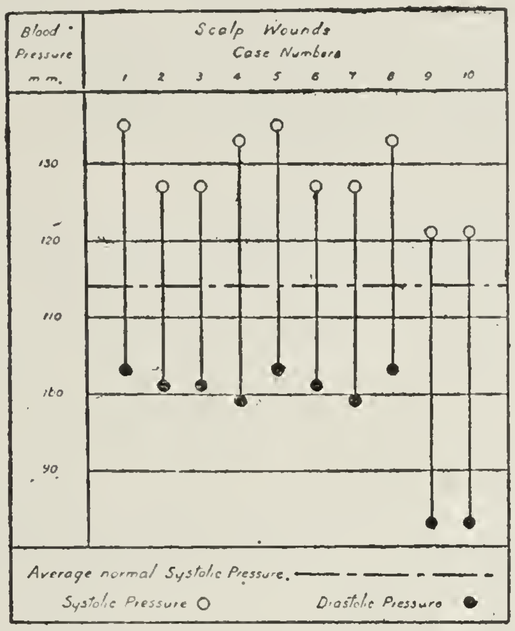

Chart 1.—Blood pressure in scalp wounds.

The pressure of patients in group 1, after resting and the journey to the casualty clearing station, gradually falls, and in the case of a normal recovery with rest in bed the systolic pressure remains at a steady level between 110 and 120 mm.

In Group 2, the patients are cold, often pulseless, and many of them suffer from severe thoracic or abdominal wounds. Occasionally the anatomic lesion appears to be entirely out of proportion to the physiologic reaction; for example, a simple bullet wound of the buttock was accompanied by a systolic blood pressure of 50 mm. at the end of the three hours.

In this group intense primary shock is present, and with the occurrence of hemorrhage, secondary shock develops and the pressure continues to fall.

Following the application of treatment, arrest of hemorrhage and pain, with rest and warmth, the blood pressure may become partially reestablished.

#### A. HEAD WOUNDS

1. *Scalp Wounds.*—These showed a slight elevation in blood pressure readings; all the cases which we had an opportunity of examining varied between 120 and 130 in systolic pressure, with a mean diastolic pressure of 100.

2. *Compound Fracture of Skull with Dura Intact.*—These cases showed a high systolic pressure; with one exception all the cases that we had an opportunity of examining registered a systolic pressure of 140 mm. and over.

The single exception showed a systolic pressure of 100 mm., but such a low reading could be explained by the fact that associated with a very extensive fracture of the bone there was profuse hemorrhage from the meningeal and scalp vessels.

3. *Penetrating Wound of Skull, That Is, Compound Fracture, Dura Torn and Foreign Body Retained.*—On examination of these cases it was found that as a rule a low blood pressure was registered. The systolic pressure varied from 60 mm. to 112 mm. over a series of cases. It was interesting to observe that the diastolic pressure closely corresponded to the systolic pressure with a correspondingly low pulse pressure. We can offer no explanation of this feature, which was relatively constant throughout this type of case. The wounds were such as not to result in increased intracranial pressure.

4. *Perforating Wounds of Skull.*—In types of perforating wounds—that is to say, with entrance and exit wounds—the blood pressure readings could be divided into two groups, one in which the systolic reading was high, varying from 310 to 170 mm., and a second group in which the readings were low, varying from 100 to 110 mm. This subdivision corresponds to a certain anatomic distribution. The first group of high pressure readings consisted of those in which the through-and-through wounds involve the ventricles, and were accompanied by hemorrhage into the cavities of the ventricles.

In the second group the wounds had involved the brain more or less superficially, and generally occurred in varying axes of the frontal and occipital regions.

Daily readings in patients recovering after operation for the second type of wound show that the systolic pressure is maintained at a constant level of from 110 to 120 mm. as long as convalescence is uncomplicated. The onset of meningitis is accompanied by a rise of blood pressure corresponding to the increase in the intracranial tension.

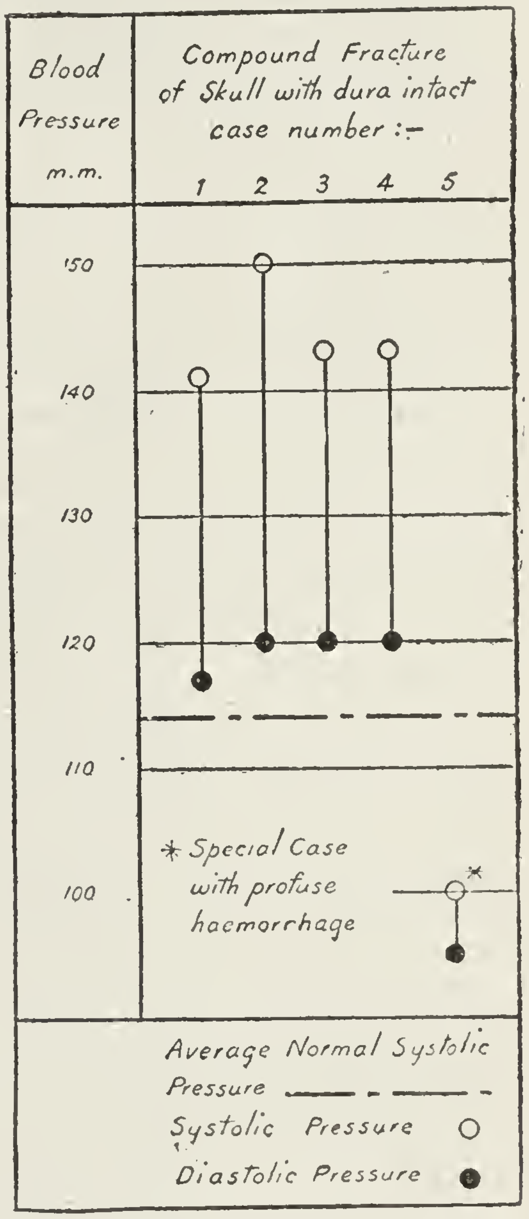

Chart 2.—Blood pressure in compound fracture with dura intact.

5. *The Effect of Anesthesia on the Blood Pressure Readings of Head Wounds.*—It was in regard to answering this question that our attention was first directed to blood pressure readings in various wound

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[2] As the result of further observations made in the front line trenches, the pressures of early wounded are divided into three groups (Cowell, E. M.: Initiation of Wound Shock, The Journal A. M. A., to be published): (*a*) Trivial wounds, in which there is no alteration in pressure or tension. (*b*) Moderately severe and not immediately endangering life, in which there is no primary shock, but in certain circumstances secondary shock develops. (*c*) Severe wounds, in which unavoidable primary shock is present.

conditions. We had noticed a sequence of events somewhat as follows:

A man is admitted with one of the severe types of head wounds associated with tearing of the meninges and laceration of the brain; no examination is made of the blood pressure; operation is performed within an hour or two following admission. In the later stages of the operation and subsequently, a case, which before operation had appeared promising, now entirely alters, the pulse rate becomes very rapid, unconsciousness deepens, the respiration rate is greatly increased, the patient becomes bathed in the most profuse perspiration, the temperature usually falls to a subnormal level, and death very rapidly supervenes.

TABLE 1.—SUMMARY OF ABDOMINAL CASES

| No. and Clinical Condition | Special Features | Blood Pressure |
|---|---|---|
| 1 Wound of back; extraperitoneal wound of colon | Very slight hemorrhage; peritoneal cavity not opened | 120 sys.<br>90 dias |
| 2 Wound of small intestine | General peritonitis; large amount of blood | 100 sys.<br>70 dias. |
| 3 Multiple wounds of small intestine | Large amount of free blood | 85 sys<br>60 dias. |
| 4 Small wound of anterior abdominal wall; two perforations of stomach | Moderate amount of blood in peritoneum | 70 sys.<br>40 dias. |
| 5 Wound apparently perforating abdomen | Operation showed no perforation | 128 sys.<br>100 dias. |
| 6 Wound apparently perforating abdomen | No operation; recovery... | 130 sys.<br>100 dias. |
| 7 Large shell wound of abdomen | Injury to liver, colon and duodenum | 50 sys.<br>? dias. |
| 8 Supposed wound of abdominal cavity | No perforation ......... | 150 sys.<br>100 dias. |
| 9 Four perforations in small intestine | Large amount of blood in peritoneal cavity | 100 sys.<br>80 dias. |
| 10 Perforation of cecum and transverse colon | General peritonitis; small amount of blood | 110 sys.<br>90 dias. |
| 11 G. S. W. apparently perforating abdomen | Operation showed an extraperitoneal wound of rectum | 125 sys.<br>100 dias. |
| 12 G. S. W. abdomen..... | Nonperforating ......... | 140 sys.<br>100 dias. |
| 13 G. S. W. abdomen..... | Nonperforating ......... | 138 sys.<br>100 dias. |
| 14 Two small wounds of small intestine; very stout man | Very slight hemorrhage.. | 140 sys.<br>95 dias. |
| 15 G. S. W. abdomen..... | Injury to liver; abdomen full of blood | 138 sys.<br>100 dias. |
| 16 G. S. W. abdomen..... | Injury to right kidney... | 140 sys.<br>100 dias. |
| 17 G. S. W. abdomen.... | Injury to left kidney.... | 130 sys.<br>90 dias. |
| 18 G. S. W. abdomen..... | Wound of liver; extreme hemorrage | 105 sys.<br>70 dias. |
| 19 G. S. W. abdomen..... | Injury to prostate and bladder | 90 sys.<br>60 dias. |
| 20 G. S. W. abdomen..... | Injury to liver ........ | 130 sys.<br>90 dias. |
| 21 B. W. abdomen........ | Extraperitoneal wound of bladder; slight hemorrhage | 140 sys.<br>100 dias. |
| 22 G. S. W. abdomen..... | Four perforations; small intestine; about 1 pint free blood | 120 sys.<br>95 dias. |
| 23 G. S. W. abdomen..... | Four perforations jejunum and 1 in colon; about 1½ pints of free blood | 120 sys.<br>93 dias. |
| 24 G. S. W. abdomen..... | Injury to pancreas and spleen; about 1½ pints of free blood | 125 sys.<br>90 dias. |
| 25 B. W. abdomen........ | Simple perforation of colon; no free blood | 110 sys.<br>80 dias. |
| 26 G. S. W. abdomen..... | Perforated spleen, bruised kidney and colon; about 1 pint of free blood | 136 sys.<br>105 dias. |
| 27 G. S. W. back......... | Six perforations; small intestine; profuse hemorrhage | 50 sys.<br>20 dias. |
| 28 G. S. W. abdomen..... | Lacerated liver and kidney; about 2 pints of free blood | 110 sys.<br>85 dias. |
| 29 G. S. W. abdomen..... | Bruising stomach; no hemorrhage | 120 sys.<br>90 dias. |
| 30 G. S. W. abdomen..... | Tear of colon and small intestine | 120 sys.<br>90 dias. |
| 31 B. W. pelvis........... | Observed in A.D.S.; exact wound unknown; long carry over the open | 50 sys.<br>30 dias. |
| 32 B. W. pelvis........... | Observed in A.D.S.; probable small intestine lesion | 45 sys.<br>? dias. |
| 33 G. S. W. abdomen..... | Observed in A.D.S.; probable small intestine lesion | 125 sys.<br>80 dias. |

It was difficult to discover any explanation of such a rapid change. The time was too short for sepsis to be the explanation, the amount of hemorrhage was never sufficient to explain the condition, and the injury itself was not one that involved any immediately vital part.[3] We began examining the blood pressures in these cases, and from such an examination we believed we had found the explanation of the disaster.

These are cases with a blood pressure which is either low or unstable. If operation is performed during the early stages of the case, the effect of the anesthetic, together with the extensive opening of the skull, is such as to produce a very marked fall of pressure. The level is so low that no further rise is secured, and the patient succumbs to a condition that clinically resembles acute shock.

As an example of the unstable type of blood pressure, we have seen a case in which the systolic blood pressure before operation registered 164 mm.; taken immediately after operation the pressure had fallen to 16 mm. Death followed within thirty minutes.

With a view to overcoming the danger, our procedure was altered in two ways. If possible, operation was delayed for twenty-four and even for forty-eight hours, until, by successive readings, one had assured oneself that the pressure had acquired some degree of stability; the second modification was that in doubtful cases and in cases which demanded immediate operation, the operation was performed either with a local anesthetic or while the patient was under the influence of scopolamin and morphin. Since these modifications were adopted, disasters such as we have described have not been observed.[4]

6. *Summary of Results of Examination of the Blood Pressure in Head Wounds.*—1. Scalp wounds show no appreciable alteration in blood pressure.

2. Cases of compound fracture of the skull with dura intact show a relatively high blood pressure, averaging above 140 mm.

3. Penetrating wounds of the skull with free drainage are generally associated with a low blood pressure —from 60 to 112 mm.

4. In perforating wounds the blood pressure would appear to vary according to the anatomic distribution of the wound. If the wound has involved the ventricles, the blood pressure is high, varying from 130 to 170 mm.; if the wound is more superficial and has not involved the ventricles, the blood pressure is low, resembling the class in Summary 2.

5. The blood pressure subsequent to wounds of the head is apt to be unstable. If operation is performed under general anesthesia before the blood pressure has become stable, disaster is liable to ensue. The possibility of such an ill result can be diminished by delaying operation until the blood pressure has become stable or by performing the operation under local anesthesia.

### B. ABDOMINAL WOUNDS

Before an analysis is made of the blood pressure in this type of wound, it will be of advantage to include a very brief summary of the cases, their clinical condition and relative blood pressures (Table 1).

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[3] Observations published in a later number of this series (Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection, The Journal A. M. A., this issue, p. 531) show that this condition was probably related to a developing acidosis.

[4] These methods were employed before the rationale of preparing patients for operation as given further on (Cannon, W. B.: Fraser, John, and Cowell, E. M.: The Preventive Treatment of Wound Shock, The Journal A. M. A., to be published) had been worked out.

From such a study as the table contains, the question arises: Can one with any degree of certainty draw definite conclusions from the blood pressure in supposed wounds of the abdominal cavity? We believe that we can with a minimum of error draw certain deductions.

First there are certain points to be considered. Cases 1 to 20 were observed at a casualty clearing station after a comparatively short journey, that is, within from three to six hours after being wounded. In Cases 21 to 30, with the exception of Case 27, more than ten hours had elapsed between receipt of the wound and admission to the casualty clearing station; in these the primary shock had abated. Patient 27 was observed within six hours of being wounded. Patients 31, 32 and 33 were seen at an advanced dressing station, Patients 31 and 32 within three hours of being injured, and after a long and difficult carry over dangerous ground, and during a bitterly cold night. Patient 33 was quite fit when seen in the advanced dressing station, but very shortly afterward suffered marked collapse. Such a patient as this has been known to walk a mile after sustaining a penetrating wound of the abdomen, involving injury to the small intestine, and showing during this time a normal blood pressure and pulse. These patients soon become worse, and the collapse is then very intense.

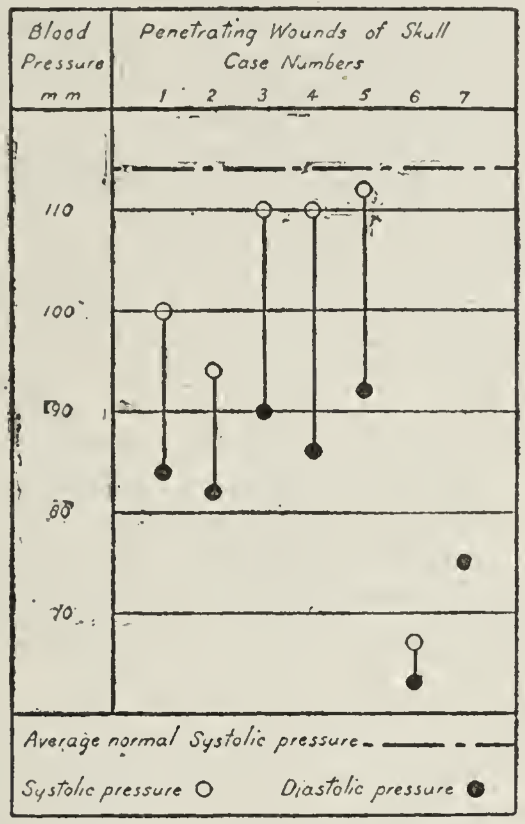

Chart 3.—Blood pressure in penetrating wounds of skull.

The deductions we have thought it justifiable to draw are briefly as follows:

1. In patients seen on arrival at a casualty clearing station within six hours of being wounded, if there is an intraperitoneal injury of a hollow viscus, the blood pressure is low. In the series of cases of this description which we examined the systolic pressure varied from 50 to 100 mm.

2. When a period of from six to ten hours has elapsed, the pressure will probably have risen, for the primary wound shock is now beginning to pass off—the rest on the stretchers, the warmth and the sedative action of morphin are beginning to have effect.

3. At a period later than ten hours, the pressure begins to fall and a shocklike condition becomes evidenced; the change is due to sepsis and to loss of blood (secondary wound shock).

4. Perforating wounds of solid viscera of moderate severity appear to be associated with a relatively high blood pressure: wounds of the liver and kidney often exhibit a systolic reading of from 130 to 140 mm., and this even in cases in which the hemorrhage is considerable. We have observed a tear of the liver in the case of a soldier run over by a limber, in which the systolic pressure of 140 was maintained for twenty-four hours. At the end of this time the pressure fell suddenly and the patient succumbed.

5. Perforating wounds of the viscera which do not open into the peritoneal cavity are associated with a practically normal blood pressure, as in Case 1, an extraperitoneal wound of the colon, and Case 11, an extraperitoneal wound of the rectum.

6. Large wounds of the parietes are generally associated with a lower blood pressure than small wounds, even though the former may have produced much less visceral destruction than the latter. This is probably explained by the fact that in the former instance peritoneal blood readily escapes, while in the latter the hemorrhage continues to be retained.

We have made several observations regarding the effect on the blood pressure of opening the peritoneal cavity. Briefly, we found that if the abdominal cavity contained a large amount of blood, there was a very rapid fall of pressure as soon as the peritoneal cavity was opened, and the blood allowed to escape. If, on the other hand, the abdominal cavity did not contain much blood, the opening of the abdomen was followed by a temporary rise in blood pressure by as much as 20 mm. After ten minutes the blood pressure fell to slightly below the figure that it registered before operation.

### C. CHEST WOUNDS.

A summary of chest cases is given in Table 2.

From these readings there are a few conclusions that may be drawn:

1. Large open wounds of the chest with free entrance and exit of air are accompanied by a profound fall of blood pressure; this is evidenced in Case 9.

2. Patients with uncomplicated closed wounds of the chest who arrive at the casualty clearing station well cared for show normal pressure.

3. When severe internal hemorrhage has occurred and the patient has been exposed to the cold for some hours, or when infection has become established, hypotension is present and progressive.

4. Patients whose chest wounds are complicated by perforation or laceration of the diaphragm behave in the same way as Class 2 or 3.

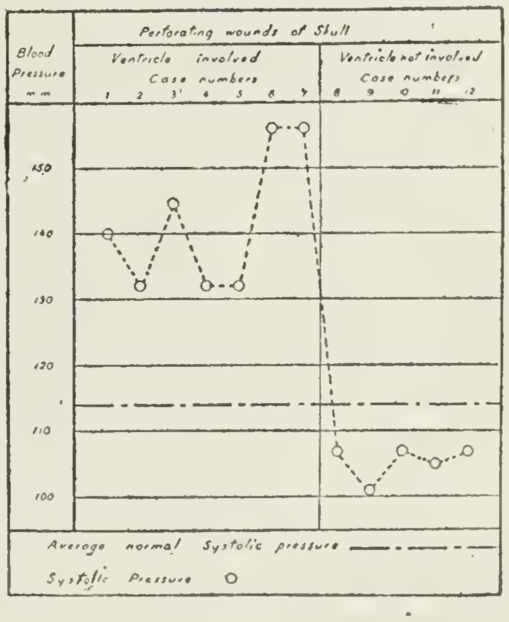

Chart 4.—Blood pressure in perforating wounds of skull.

The high pressure recorded in Case 15, under the influence of rest and morphin, rapidly dropped to 120, and remained so for the remainder of the time the patient was under observation. In Case 16 the pressure gradually dropped with the onset of a septic pericarditis.

### D. MULTIPLE WOUNDS AND WOUNDS OF EXTREMITIES

Out of a large number of observations we have selected a summary, representative of different types of wounds (Table 3).

1. Compound fracture of the lower extremity, seen in the casualty clearing station, was generally associated with a considerable fall in blood pressure, more marked when the fracture affected the region of the knee joint. Undoubtedly the blood pressure reading was largely affected by the amount of hemorrhage that had occurred. One finds in such a case as Case 6—a severe compound fracture of the tibia with a very small amount of hemorrhage—a systolic blood pressure registered of 143. On the other hand, Case 4—a compound fracture in the neighborhood of the knee, accompanied by severe hemorrhage—registered a systolic blood pressure of only 30.

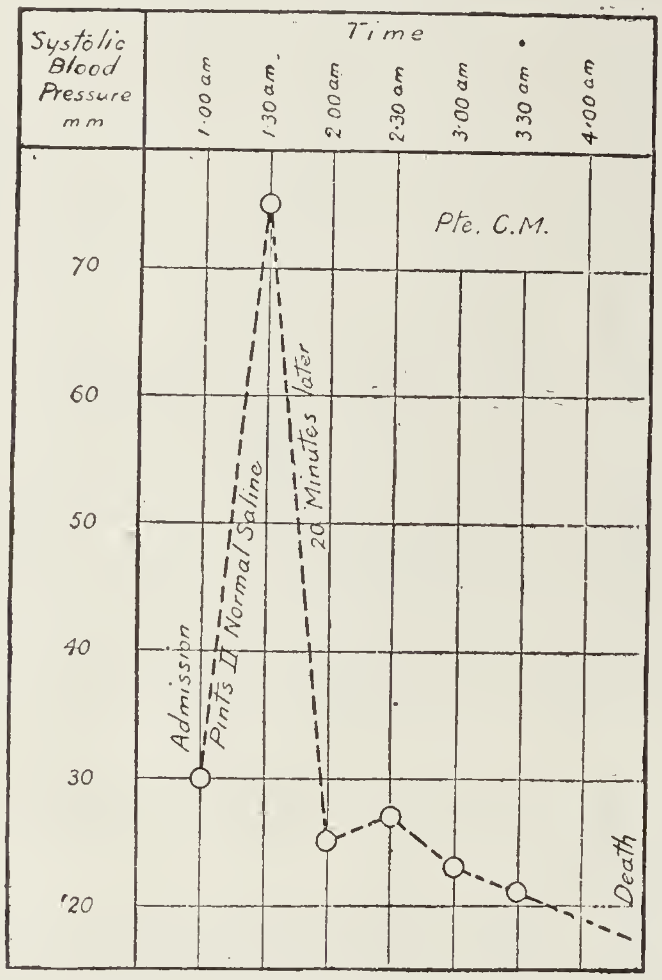

Chart 5.—Systolic blood pressure with administration of 2 pints of physiologic sodium chlorid solution.

2. One might expect compound fracture of the upper extremity to affect the blood pressure less than fracture of the lower extremity. We were surprised to find the comparatively low pressure which compound arm fractures generally registered; the remarks that are made as regards hemorrhage in wounds of the lower extremity equally apply in this connection.

3. In face wounds there is not much alteration of the blood pressure, unless there is an associated compound fracture of the face bones, when the pressure is generally lowered.

4. Multiple wounds of the body and extremities were accompanied by a considerable fall in blood pressure.

## Blood Pressure Readings as Studied Subsequent to Various Intravenous Transfusions

### A. PHYSIOLOGIC SODIUM CHLORID

For many years the intravenous infusion of physiologic sodium chlorid solutions (0.9 per cent. sodium chlorid) has been extensively used in shock and in collapse after hemorrhage. We confess we have been greatly disappointed with the results obtained, and blood pressure readings confirm the clinical disappointments that we have experienced. Chart 5 is typical of many that we have recorded.

Private C. M. was admitted with a simple fracture of the right humerus and a severe shell wound, involving the right knee. The wound was sustained at 9 p. m., and he was admitted to the advanced dressing station by 10 p. m. He was then in a collapsed and pulseless condition. He was treated by the application of warmth, and half a pint of physiologic sodium chlorid solution was given subcutaneously in each flank. By 1 a. m., that is, three hours after admission to the advanced dressing station, his condition was said to have so far improved as to warrant his removal to the casualty clearing station. On admission to the casualty clearing station he was found to be extremely collapsed; a radial pulse could only occasionally be felt; the systolic blood pressure barely registered 30 mm. of mercury; no diastolic pressure was read. Two pints of physiologic sodium chlorid solution were administered intravenously; immediately the systolic pressure rose to 75 mm., but after a period of about twenty minutes it rapidly began to fall, and within one hour after the administration it had fallen actually to a lower level than before the infusion had been given. There was no further rally, and death occurred about three hours later.

The blood pressure (systolic) readings are graphically recorded in Chart 5.

It would appear that the introduction of the physiologic sodium chlorid solution induced a condition of hydremic plethora—that is, a dilution and increase in the total volume of the blood. The kidneys, the skin and the lymph channels excrete the excess of fluid, there is profuse perspiration, and presently the blood is actually less in bulk and more concentrated than it was before. This is in keeping with the observations of Lazarus Barlow, who has shown that the specific gravity of the blood at first falls from 1.064 to 1.054, and later rises to 1.067; in other words, there is at first a dilution of the blood and afterward an actual concentration.

### B. RINGER'S SOLUTION AND ITS MODIFICATIONS

The fluid known as Ringer's solution has the following composition: sodium chlorid, 0.9 per cent.; potassium, 0.03 per cent.; calcium, 0.02 per cent., and a trace of sodium carbonate.

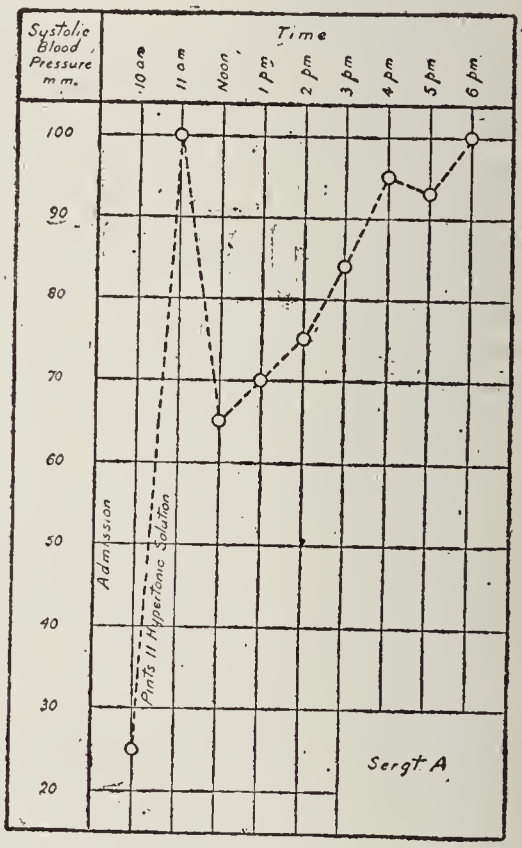

Chart 6.—Systolic blood pressure with administration of 2 pints of hypertonic solution.

In place of this we have been using a hypertonic solution, as recommended in a publication of the Medical Research Committee, and constituted thus: sodium chlorid, 2 gm.; potassium chlorid, 0.05 gm.; calcium chlorid, 0.05 gm.; water, 100 c.c.

From its intravenous use we have obtained satisfactory results, and the clinical history and blood pressure chart of a typical and successful case is recorded.

Sergeant A., R. F. A., was admitted with a severe shell wound of the pelvis, injury to the bladder and prostate and profuse bleeding. On admission the respective pressures were: systolic, 90 mm.; diastolic, 60 mm. Immediate operation was necessary. Subsequently there was intense collapse—the systolic pressure registered only 25 mm., the diastolic pressure about 20 mm. Two pints of hypertonic solution were administered intravenously, and in immediate response the pressures rose, respectively, to 100 mm. and 80 mm. One hour later they had fallen to 65 mm. and 50 mm. Thereafter the pressure steadily began to rise, and six hours later it had reached 100 mm. and 80 mm.

The readings were maintained, and an eventual recovery was made.

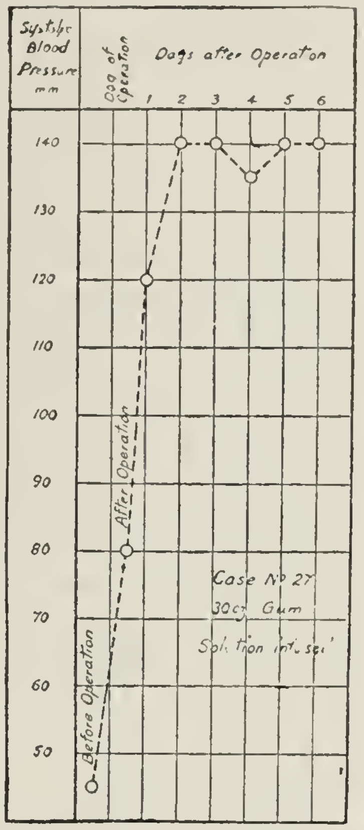

Chart 7.—Systolic blood pressure with administration of an infusion of 30 ounces of gum solution.

Chart 6 graphically illustrates the blood pressure (systolic) readings in this case.

### C. COLLOIDAL SOLUTION

At the suggestion of Prof. W. Bayliss and Col. Cuthbert Wallace, A. M. S., we have used intravenously in cases of hypotension due to profound shock and the toxemia of gas gangrene a solution of gum acacia.

We had first arrived at the formula we have used with undermentioned cases, when the report of the Medical Research Committee was published, March 24. The formula we employ is as follows: calcium chlorid (B. P.), 0.075 gm.; sodium chlorid, 1.325 gm.; gum acacia, 2 gm.; water, 100 c.c. A double strength solution is conveniently made and kept in sterilized bottles—sterilization should be repeated each week. This solution is made up as follows: calcium chlorid (B. P.), 13 grains; sodium chlorid, 232 grains; gum acacia, 350 grains; water, 1 pint.

In comparison with the formula recommended by the Medical Research Committee, we give less sodium chlorid and more calcium chlorid, while we omit the potassium salt entirely. With this solution good results have been observed when from 15 to 20 or even 30 ounces of the solution are given intravenously. The solution was given slowly at the rate of 5 ounces in five minutes, and its heat maintained at a temperature of about 120 F. in the reservoir. It passed from the reservoir through a compte-gouttes chamber and entered the body by means of a small glass cannula tied into cephalic or saphenous veins. The infusion was repeated after twelve or twenty-four hours, if necessary.

Chart 7, taken from Case 27, is added to illustrate graphically the blood pressure (systolic) response in a successful case.

From a study of the cases quoted above it may be seen that the pressure almost invariably rises within a few minutes of the infusion being begun. This fact often enables the necessary operative treatment to be carried out, even in the worst type of case which presents itself at a casualty clearing station—such a case, for example, as shows a hypotension pulse with general collapse and associated with shock, hemorrhage and toxemia.

When it has been possible to remove the source of infection, the rise of pressure is progressive in the subsequent twenty-four hours, and the pressure is maintained during the early critical days of convalescence.

In Case 27 the patient was admitted apparently moribund. After an hour's rest with warmth and rectal glucose-saline injection, he was submitted to laparotomy; there were about 2 pints of free blood in the peritoneal cavity, and six perforations of the intestine required suture. Intravenous infusion of gum was commenced with the operation. When the operation was completed, thirty minutes later, the pressure had risen to 80 mm., and a fair pulse was palpable at the wrist. The following day the pressure was 120 mm.; it rose later to 140 mm., and remained at this figure during an uneventful convalescence.

### D. DIRECT BLOOD TRANSFUSION

We have had an opportunity of observing in several cases the results of direct blood transfusion. The transfusion was necessary on account of severe arterial hemorrhage, and was carried out by the direct method, as suggested by Basset and Fullerton. The time of the transfusion varied from fifteen to twenty-two minutes. It is difficult to estimate with any degree of exactness how much blood was transferred during these respective periods, but we calculate roughly that from 500 to 700 c.c. would be about the proper estimate.

The following are the notes and the blood pressure chart of one of these cases:

Lieutenant ——, admitted with a severe shell wound of the left thigh: the femoral vessels were torn; no tourniquet had been applied, and the patient was practically moribund from loss of blood.

After the local wound had been dealt with a donor was secured, and direct transfusion of blood begun. Transfusion was continued for fifteen minutes. Clinically there was a most dramatic improvement, and within the course of a few hours the pulse rate had fallen from 150 to 95. The systolic blood pressure on admission was very difficult to estimate; but it was estimated at about 20 mm. Before the transfusion had been completed it rose to 115; one hour later it had fallen to 100. At the end of another hour it had risen to 110, and about this level it remained for the first twenty-four hours; thereafter it attained and remained at a level of about 120.

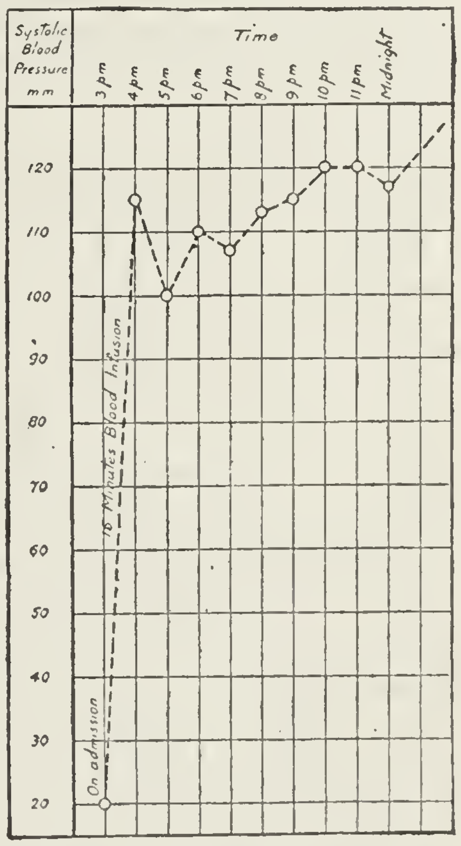

Chart 8.—Systolic blood pressure with fifteen minutes of direct blood transfusion.

The blood pressure readings were as shown on charts.

### E. GLUCOSE SOLUTION

We have no records of blood pressure readings following the infusion of hypertonic glucose solutions.

### F. OTHER MEASURES

From time to time various drugs are advocated, such as pituitary solution, epinephrin, caffein, camphor, etc. At present there is not sufficient evidence to show that one of these drugs takes precedence over the others.

### G. CONCLUSIONS

1. In cases of profound shock accompanied by loss of blood, excellent results are obtained from direct blood transfusion.
2. Injection of the calcium hypertonic gum solution will produce an immediate rise of pressure in hemorrhage cases or cases of hypotension, complicated by toxemia.

This rise may tide the patient through an operation. If the source of the infection is removed, the tension will remain supported.

3. In milder cases of shock and hemorrhage, infusion with hypertonic saline is useful.
4. Results obtained after infusion with physiologic sodium chlorid solution have been unsatisfactory.

### Pressure Observations in the First Week of Convalescence as an Aid to Prognosis and to Treatment

An extensive number of pressure charts have been collected, showing the behavior of the tension not only before and during operation, but also in the first week of convalescence. We have thus a series of controls that show such complications as the onset of sepsis or gas gangrene, and illustrate the subsequent history of intravenous infusion for shock, hemorrhage and toxemia.

An uncomplicated wound running a favorable course shows a steadily maintained blood pressure. With the onset of gas gangrene or sepsis there is a sudden fall in pressure (Case 13). Occasionally a long sustained hypotension pressure reading may be observed (Cases 9 and 12), even though the patient is quite well and no sepsis is present.

A steadily rising or maintained high pressure reading, even in a severe wound, may be taken as a most favorable prognostic sign (Cases 2 and 6).

We acknowledge our indebtedness to Col. Cuthbert Wallace, C. M. G., A. M. S., and to Professor Bayliss, for repeated suggestions and assistance; to Lieutenant-Colonel Winder, R. A. M. C., and Lieut.-Col. A. H. Safford, R. A. M. C., for permission to investigate the subject; to Lieut.-Col. T. R. Elliot, R. A. M. C., and the Medical Research Committee for the various instruments which were employed in the investigation.

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**Dust in the Lungs.**—Lehman, working with white lead dusts, found that from 35 to 43 per cent. by weight of that entering the nostrils reached the lungs, the rest either being finally swallowed or breathed, blown or sneezed out of the nares. Insoluble dusts that do reach the finer bronchioles or air cells are taken up by wandering cells or phagocytes and carried into the tissues, or by means of their sharp edges or points work their own way in and there give rise to local inflammation, followed by an increase of fibrous connective tissue, especially marked around the small blood vessels and air passages. This firm, nonelastic fibrous tissue replaces the normal, more elastic tissue and crowds and contracts the small air passages. The former prevents the normal expansion and contraction of the lungs with respiration and the latter causes dilatation of the terminal air cells due to increased resistance to expiration and hinders the normal flow of blood in the lungs, so lessening the amount of oxygen taken up by the blood and the amount of carbon dioxid given off. This slows up normal tissue metabolism and lowers the general body tone, lessening resistance to disease, especially to infections of the respiratory tract. Such fibrosed lungs yield more readily to attacks of infective bronchitis and pneumonia, and many claim also they make excellent soil for the development of tuberculosis.—Henry Field Smyth, M.D., Dr.P.H., in *Scientific Monthly.*

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# SOME ALTERATIONS IN DISTRIBUTION AND CHARACTER OF BLOOD IN SHOCK AND HEMORRHAGE

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### Introduction

The importance of traumatic shock as a serious complicating factor of wounds and of surgical operations, and its mysterious nature, have combined to stimulate investigation into its causes and into methods of dealing with it. That investigation of shock has been difficult and baffling is indicated by the number and variety of the theories put forth to account for it. The difficulties lie not only in the obscure character of shock itself, but also in complications introduced by attendant conditions, such as hemorrhage and sepsis. Under these circumstances the most hopeful mode of obtaining insight is by gathering as many facts of observation as possible, with the chance that the facts may suggest the nature of the process or processes that are occurring.

The observations of Sherrington and Copeman[1] that intraperitoneal operations on animals raise the specific gravity of the blood, the confirmatory studies of Cobbett[2] and also of Vale,[3] indicating a concentration of the blood in conditions that induce shock, and the experiments of Mann,[4] showing that the amount of blood stagnant in the tissues of an animal in shock may be more than 50 per cent. above the amount in the normal animal—all these evidences indicate that examination of the blood might yield significant facts. Warfare provides shock cases in large numbers. At a casualty clearing station, where only the most severely wounded were admitted for treatment, we have had an unusually favorable opportunity to study their conditions, and at Col. Cuthbert Wallace's suggestion we undertook observations on the physical features of the blood in these cases. The present account is based on records of observation in ninety-eight cases of shock and hemorrhage, and in fourteen control cases.

The routine examination consisted of a count of the red blood corpuscles (referred to henceforth as "red count"), estimation of the hemoglobin by use of the Haldane hemoglobinometer, and determination of the percentage of corpuscles in the blood, either by capillary hematocrit or by larger graduated tubes, if the amount of blood permitted. When desirable to keep the blood for some time unclotted, potassium oxalate crystals were added in minimal amount; but when this was done, the hematocrit readings were made at once in order to avoid any change of corpuscle volume through the action of the added salt.

Although the blood examinations were made in a routine manner, we have kept in mind certain ques-

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1. Sherrington and Copeman: Jour. Physiol., 1893, **14**, 83.
2. Cobbett: Shock, in Allbutt: System of Medicine, London, 1897, **3**.
3. Vale: Med. Rec., New York, 1904, **46**, 325.
4. Mann: Surg., Gynec. and Obst., 1915, **65**, 380.

tions to which we hoped to find more or less definite answers:

1. Are these changes in certain physical features of the blood peculiar to cases of shock and of hemorrhage?
2. Are there typical postoperative blood changes in these cases?
3. What are the effects on the blood of intravenous infusions?
4. May the data provided by blood examinations be helpful in prognosis?

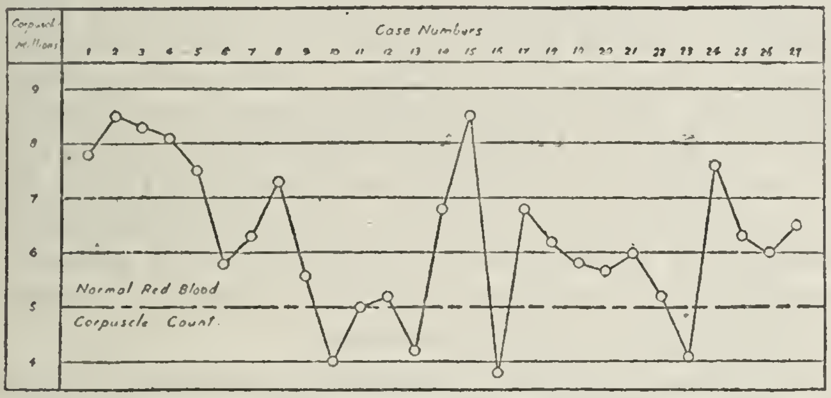

Chart 1.—Red corpuscle counts in twenty-seven cases of severe shock.

We propose to present and consider our results under these headings.

### THE BLOOD CHANGES PECULIAR TO SHOCK

In discussing the blood changes in shock it will be desirable to distinguish between cases of severe or extreme shock, as seen at the casualty clearing station, and those of moderate character. To some extent the judgment of these conditions is based on an extensive clinical experience of one of us (J. F.) in connection with blood pressure determinations in shock cases.[5] Combined with this clinical judgment were pressure readings. Roughly, the moderate cases had a systolic pressure over 90 mm. of mercury, and the severe cases not over 70 mm.

The first noteworthy characteristic of the blood in shock is a high capillary red count. In Chart 1 is presented the red count in twenty-seven cases classified as severe traumatic shock. In all but eleven of the cases the count was 6 million corpuscles or higher, and in eight cases it was more than 7 million corpuscles.[6] When hemorrhage as a complicating factor tending to reduce the blood count is considered, these high counts are striking. They indicate that in shock a concentration of the blood occurs, at least in the superficial capillaries.

Whether or not the concentration found in capillary blood is true of all the blood can be determined by counting capillary and venous samples taken at the same time. When this is done, a more or less marked discrepancy between the two is revealed. The capillary samples have been taken from widely separated parts of the body—from the lobe of an ear, from a finger or from a toe; the venous samples from an arm vein. In Chart 2 are plotted the observations in seven cases of severe shock, four cases of moderate shock, and five cases in which no shock was present. The strikingly higher capillary than venous red count in the severe cases, amounting frequently to 2 million corpuscles, was reduced in the moderate cases, but even in these the difference is still nearly a million corpuscles per cubic millimeter.[7] In the final group of cases, in which no shock was present, the capillary count was uniformly slightly higher than the venous, but as compared with the results in the other two groups, the difference is neglible. These observations have been made independently by two observers. Bürker[8] states that in the same person blood from the finger tip and ear is the same with reference to hemoglobin content and red counts within an error of 1 per cent., and that blood from an elbow vein, when flowing free, is indistinguishable from that of the ear or finger. Control observations made by us on normal individuals did not reveal greater differences than 3 per cent. between capillary and venous counts; and comparative counts of capillary and venous blood taken before rising from bed in the morning proved that the discrepancy is not due merely to inactivity. From the foregoing considerations it is clear that the difference between capillary and venous red counts varies roughly with the degree of shock, and, since the venous count is approximately normal, the difference is due to concentration of the blood or stagnation of corpuscles in the capillaries.

In all probability the low temperature typical of patients in shock is an important factor in producing the increased corpuscular content of the capillaries. It is known that blood drawn from a cold finger contains a larger number of corpuscles in a given volume than that drawn from the same finger after it has been warmed.[9] In cases of shock, simultaneous counts of venous blood and samples from capillaries of the ear, the finger, and the mucous membrane of the mouth show significant differences. In one case of slight shock the venous red count was 5,360,000, the ear and finger capillary counts 6,450,000 and 6,280,000, respectively, and the buccal count 5,600,000. The capillaries of the mouth, less exposed to loss of heat than those of the skin, contained blood nearer the venous blood in concentration than did those of the skin, but still indicating stasis.

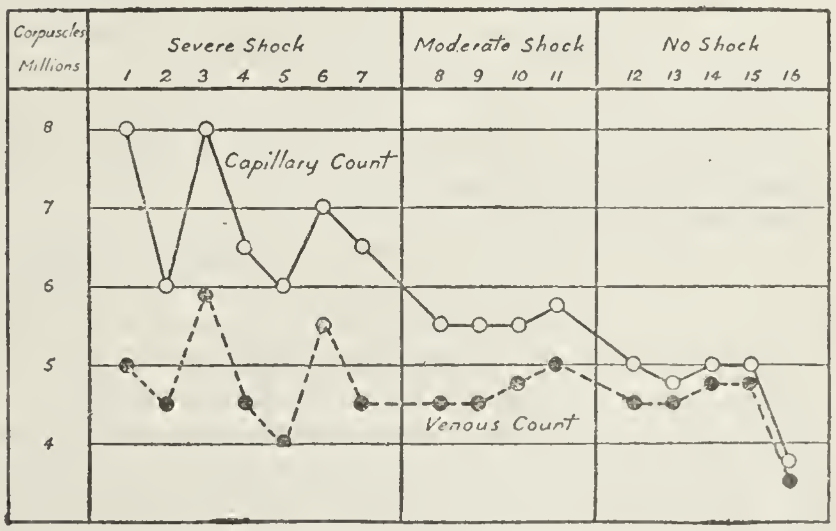

Chart 2.—Comparison of red counts, capillary and venous, in cases of severe and moderate shock, and in patients without shock.

When the capillary stagnation has become established, it does not promptly disappear. We have seen a patient who had recovered from severe shock, but whose hands from wrist to finger tips, in spite of being warmed, were still bluish-gray with stagnant blood.

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[5] Fraser, John, and Cowell, E. M.: Clinical Study of Blood Pressure in Wound Conditions, THE JOURNAL A. M. A., this issue, p. 520.

[6] These counts were made by means of a Thoma instrument made by Hawksley; it was compared with a Thoma-Zeiss instrument, and a difference of only 10,000 corpuscles in 5,000,000 was found.

[7] Capt. E. Emerys-Roberts has reported to us verbally that he has made similar observations in cases of shock, and recently the results have been confirmed by Capt. Eric Taylor.

[8] Bürker: Tigerstedt's Handbuch der Physiologischen Methodik, Leipzig, 1912, 2, Part 5, p. 4.

[9] Gulland and Goodall: The Blood, London, 1914, p. 61.

Hematocrit determinations of the volume per cent. of corpuscles in capillary and venous blood have also been made. In each instance duplicate tests were carried out in order to avoid any error that might arise from adhesion of blood to the wall of the capillary tube. The results confirmed the discrepancy between capillary and venous samples that was found in the counts. The capillary corpuscle volume was greater than the venous by amounts ranging from 12 to 33 per cent.

TABLE 1.—VENOUS AND CAPILLARY RED COUNTS, WITH HEMATOCRIT AND HEMOGLOBIN READINGS, IN SOME CASES OF LOW BLOOD PRESSURE

| Initials* | Blood Pressure | | Red Counts (in millions) | | Hematocrit | | Hemoglobin | |
|---|---|---|---|---|---|---|---|---|
| | Diastolic | Systolic | Venous | Capillary | Venous | Capillary | Venous | Capillary |
| P. K. | 34 | 52 | 3.8 | 5.6 | — | — | — | — |
| A. S. | 38 | 62 | 4.5 | 6.4 | 30 | 41 | — | — |
| E. G. | 40 | 64 | 6.2 | 8.5 | 30 | 47 | 88 | 113 |
| F. H. | (near | death) | 4.0 | 6.0 | 31 | 43 | — | — |
| D. H. | 48 | 64 | 4.2 | 5.5 | 37 | 41 | 80 | 95 |
| S. D. | 48 | 72 | 4.7 | 5.3 | 30 | 35 | 75 | 84 |
| W. W. T. | † | 50 | 5.3 | 6.4 | — | — | 92 | 98 |
| W. C. | 58 | 76 | 4.5 | 5.5 | — | — | — | — |
| S. F. S. | 58 | 80 | 4.9 | 5.3 | — | — | — | — |
| T. R. | 70 | 92 | 5.2 | 5.6 | 39 | 44 | 107 | 111 |
| J. H. C. | 80 | 102 | 5.8 | 6.9 | 41 | 45 | 95 | 105 |

* Further information about some of these patients may be obtained by finding these initials in Table 1, Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection.

† Irregular.

The difference between capillary and venous blood in shock was further confirmed by hemoglobin determinations. In cases thus compared, the capillary hemoglobin readings exceeded the venous by amounts ranging from 6 to 29 per cent. In the case cited at the end of the second paragraph above, the hemoglobin reading of the blood in the still abnormal fingers was 114 per cent., that of the recovered capillaries of the ear, 104 per cent.

A comparison of some of the blood counts and hematocrit and hemoglobin determinations in our cases is presented in Table 1.

As mentioned before, shock is frequently complicated by hemorrhage. In these conditions the capillary red count may be low, but when compared with the venous red count the discrepancy between the two at once appears. In other words, when hemorrhage complicates shock, the blood in the peripheral capillaries contains relatively more corpuscles in a given volume than that in the veins, though in both the number is reduced.

Observations from day to day on the capillary blood in cases of shock have shown that there is gradually a drop to normal or below in the count and in the hemoglobin and hematocrit readings. In some instances this return to normal has occurred on the second day; in others it may not have been completed for three or four days. A fairly typical case of the slower recovery is the following:

Case 69 a.—Private L. was admitted suffering from wounds of the face and arm, with fracture of skull; early gas infection, severe; moderate shock.

The red count on admission was 7,510,000; the next day it was still high (7,560,000); on the third day it fell slightly to 7,280,000, and on the fourth day it was 5,610,000. Counts made on five days during the following week disclosed no further important change. The hemoglobin and hematocrit readings likewise fell during the first three days, though not so sharply as the red count. The record is presented in Chart 3.

The influence of cold in producing stagnation or concentration of blood in the capillaries has been mentioned. It is in the capillary region that the corpuscles are most exposed to contact with the vascular wall, that is, in this region and in the finer arterioles friction is greatest, and the energy stored in the arterial pressure is mostly used up. When arterial pressure is low, as in shock, there is naturally a tendency of the blood corpuscles to gather in the place of greatest resistance.[10] And if these channels are differentiated by cold, so that some (the warmer) offer easier courses, and others (the cooler) more difficult courses for the blood to take, the accumulation of corpuscles, especially in the capillaries of the skin and limbs, may reasonably be accounted for as a partial stasis. The blood thus checked in capillary areas would be out of currency, and by failure to return to the heart would contribute to a lowering of arterial pressure.

### The Blood Changes Peculiar to Hemorrhage

Many wounded men have lost much blood; they are not suffering from infection, and they appear to have only such elements of the shock complex as the hemorrhage itself may induce. The question arises as to whether under these circumstances examination of the blood discloses any features that will differentiate hemorrhage from shock.

Blood counts of hemorrhage cases show several distinctive features. The capillary red count is usually much lower than that of shock alone, but is by no means as low as the pallid appearance of the patient might lead one to suspect. In twenty-one cases classified chiefly as hemorrhage, the average capillary count at the time of admission or shortly thereafter was about 5,000,000 corpuscles, with variations ranging from 5,800,000 to 3,900,000. In a few of these cases in which the venous blood was also counted, it proved considerably lower than the capillary count. This is what might be expected, for in severe hemorrhage the blood pressure is reduced, and the cooling of the body induces stasis, just as in shock.

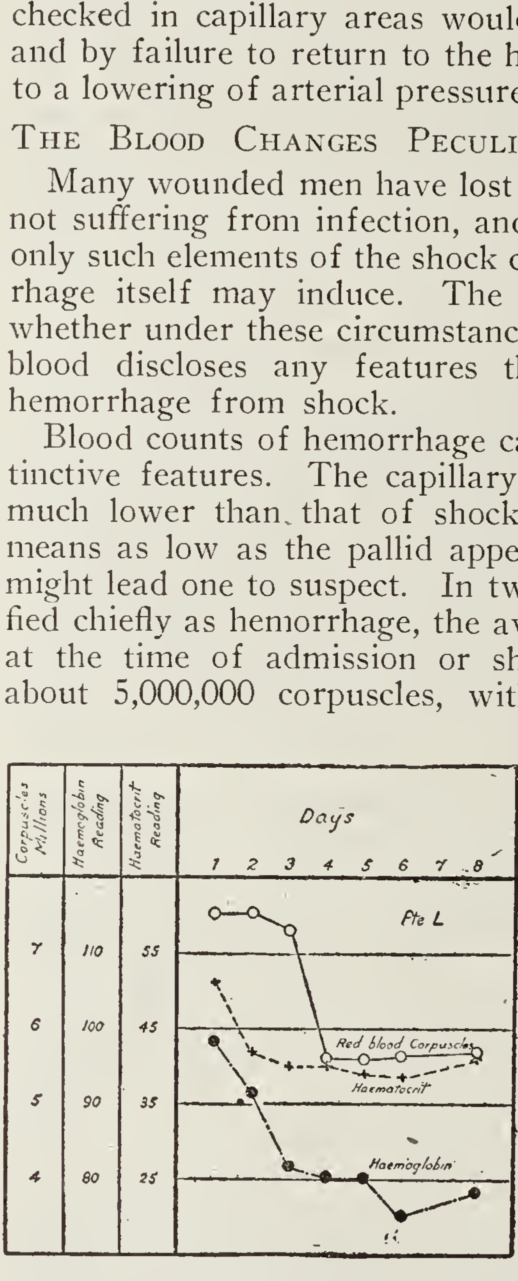

Chart 3 (Private L.).—Count of red corpuscles, with hematocrit and hemoglobin readings.

Another feature of hemorrhage that seems fairly characteristic is a relatively low hemoglobin reading. In the twenty-one cases of hemorrhage, the hemoglobin percentage was 72. If a count of 5,000,000 corpuscles is taken as normal, the color index would be only 0.72, and even with 6,000,000 taken as normal, the index is only 0.9. In shock cases the index is aproximately 1, with 6,000,000 corpuscles regarded as the normal number.

The primary reduction in the count and in the hemoglobin percentage in cases of hemorrhage is followed by a further fall. The following instance is illustrative:

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[10] Cohnstein and Zuntz: Arch. f. d. ges. Physiol., 1888, **42**, 326.

Private G. was admitted with severe wounds of the left leg. Both tibial vessels were severed, and there had been profuse bleeding. There was marked pallor of all cutaneous and mucous surfaces. The blood examinations on admission and on successive days disclosed a fall, and later the beginning of recovery. On admission the red count was 5,100,000, the hemoglobin 68 per cent. For the next three days both figures fell; on the third day the red count was 3,070,000, the hemoglobin 39 per cent. This tendency continued, but at a slower rate, until the sixth day, when the count was 1,900,000 and the hemoglobin 35 per cent. From this point a betterment began, and on the eighth day the count was 2,550,000, the hemoglobin 38 per cent. On the fifth day there were present in the blood film very small cells resembling microcytes. Throughout the examination no poikilocytosis was observed.

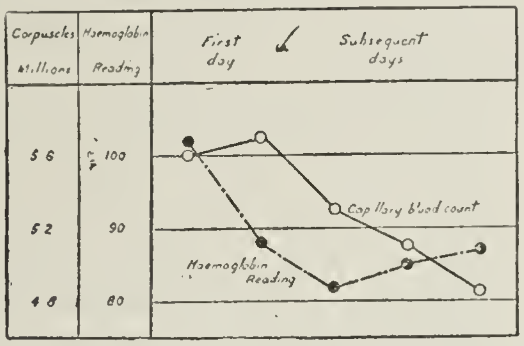

Chart 4.—Red count and hemoglobin percentage in a case of hemorrhage.

We have had several opportunities of confirming, on men who have served as donors in the transfusion of blood, the changes seen in the foregoing case. In these conditions there could be no question of shock or sepsis. The initial red count of the case illustrated in Chart 4 was 5,600,000, the hemoglobin 102 per cent. Transfusion was performed by the direct method, and it was estimated that about 700 c.c. of blood passed from the donor. Some hours later the capillary count was still high, 5,700,000, but the hemoglobin reading had fallen to 88 per cent. The changes during the next few days are shown in the chart. The typical posthemorrhagic fall occurred, but the hemoglobin was relatively lower than the count. In shock cases with hemorrhage as a noteworthy feature, there is usually a relatively low hemoglobin content of the blood.

We may infer from the foregoing evidence that a low hemoglobin reading is highly suggestive of a hemorrhage's having occurred.

### Postoperative Blood Changes

Tracing the course of blood changes in shock cases has led to numerous observations being made both before and after operation. In all these cases the operation was performed with warmed ether as the anesthetic. The results of the observations may be thus summarized:

(*a*) When an operation is associated with considerable bleeding, both hemoglobin and red count are reduced; but, as in the hemorrhage cases, the hemoglobin falls relatively more than the count. This observation has been confirmed in numerous instances. The following case is illustrative:

Case 18 a.—The patient had a severe compound fracture of femur. Before admission the hemorrhage had been slight; the red count was 5,600,000, hemoglobin 90 per cent. The necessary operation was accompanied by much bleeding, and the count then was 4,600,000, the hemoglobin 50 per cent. The fall in the hemoglobin percentage in this case was excessive; as a rule it amounted to about 10 per cent.

(*b*) When the operative hemorrhage is slight, the count and hemoglobin reading after operation are commonly higher than before, and the longer the operation the greater the changes are likely to be. Subjoined is an illustrative case:

Case 14 a.—A patient was admitted with a wound of the abdomen through which a portion of the small intestine protruded; the intestine itself was damaged. Hemorrhage had been slight. The red count before operation was 6,400,000, hemoglobin 112 per cent. The operation was completed with a minimum of bleeding; about 1 foot of small intestine was resected. The operation lasted forty-five minutes, and at the end the red count was 8,000,000, the hemoglobin 130 per cent.

Perspiration is commonly a prominent feature of these cases during the course of the operation—a condition which suggests that the concentration of the blood that we have noted is at least in part due to loss of fluid from the body. That it is not due solely to a stasis of blood in peripheral capillaries is shown by observation of venous blood before and after operation. In one instance, in which there was profuse sweating during the operative procedure, the venous hematocrit determinations showed a rise of corpuscle volume from 32 to 40 per cent. in forty-two minutes.

A puzzling feature that may be mentioned here is the change observed in the circulating blood when a considerable quantity of blood, previously shed, but retained in one of the body cavities, is removed. The removal is followed by a marked drop in the hemoglobin percentage and in the red count. An explanation of the phenomenon is lacking; it has been repeatedly observed.

Case 41 a.—The patient had sustained a penetrating wound of the chest, with much hemorrhage into the left pleural cavity. On the day of admission the red count was 8,000,000, hemoglobin 80 per cent.; the next day the count was again 8,000,000, hemoglobin 78 per cent. On the following day 2 pints of fluid blood were aspirated from the chest. Within eighteen hours thereafter the red count had fallen to 5,000,000, and the hemoglobin percentage to 52. Twenty-four hours later the count was 4,500,000, hemoglobin 56 per cent.

In some cases operation seems to induce a fragmentation of the red corpuscles.

### Blood Changes Observed After Various Injections

As means of treating hemorrhage and shock, transfusion of blood and injections of solutions of salt and of gum have been widely employed. We have made observations on the blood before and after such treatment has been tried.

#### A. BLOOD TRANSFUSION

From 500 to 700 c.c. of blood have been transfused from donor to recipient, either directly, artery to vein, or by means of the Kimpton tube. No diluting or chemical substance has been added to the blood. Naturally transfusion is done when the blood count is low, and, as is to be expected, a great improvement occurs in the recipient's condition. The following case illustrates the degree of improvement that may take place:

Case 100 a.—The patient had received severe multiple wounds; one leg had been blown off. The red count before transfusion was 1,900,000, hemoglobin 31 per cent. It was estimated that about 600 c.c. of blood were transfused directly from a donor. Twelve hours later the red count was 3,000,000, hemoglobin 56 per cent. Twenty-four hours later the count was 2,500,000, hemoglobin 60 per cent. Thenceforth there was steady improvement.

#### B. INJECTION OF GUM SOLUTION

A 7 per cent. solution of gum acacia in physiologic sodium chlorid solution has been advocated by Bayliss[11] to raise blood pressure in shock and after hemorrhage. We had occasion to note the effect of the injection of this solution on the blood count:

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[11] Bayliss: Proc. Roy. Soc., 1916, **89**, 380.

Case 64 a.—The patient had sustained a severe abdominal wound, with profound collapse. A pint of 6 per cent. solution of gum acacia was injected intravenously. Before the injection the red count was 4,500,000, hemoglobin 84 per cent. Three hours after the injection the count was 3,800,000, and the hemoglobin 78 per cent.

The persistence of the dilution of the blood in this case is noteworthy.

### C. HYPERTONIC SALINE INJECTIONS

The hypertonic solution was made according to the formula: sodium chlorid, 2.0; potassium chlorid, 0.05; calcium chlorid, 0.05, and water 100. Injection of this fluid produces effects that are illustrated in the cases given.

Case 65 a.—The patient had sustained a compound fracture of femur; the limb was almost severed; there was considerable hemorrhage. In the first blood examination the capillary count was 5,290,000, hemoglobin 84 per cent.; the venous count 4,700,000, hemoglobin 75 per cent. Immediately after operation a pint of hypertonic salt solution was injected intravenously. Five hours later the capillary count was 4,600,000, hemoglobin 70 per cent.

Case 60 a.—The patient had a compound fracture of tibia and fibula, with considerable bleeding. There was early gas infection. The patient's appearance was pallid. Shortly after admission the capillary red count was 6,330,000, hemoglobin 102 per cent.; the venous count was 4,200,000, hemoglobin 94 per cent. After operation 2 pints of hypertonic salt solution were injected intravenously. Six hours later the capillary count was 4,120,000, hemoglobin 55 per cent.

It is noteworthy in these cases that the capillary red counts, some hours after the injection, were much lower than the original capillary counts, but corresponded fairly closely with the original venous counts. This change may be interpreted as a disappearance of the capillary concentration, probably due in part, at least, to improvement in the circulation. The striking feature, however, is the greatly lowered hemoglobin reading when the larger amount of the hypertonic solution was injected. Why this change occurs is difficult to explain. It is a serious disturbance in an important element of the blood, however, and suggests that care should be exercised to avoid introducing unnecessarily large amounts of hypertonic solutions.

## The Value of Blood Examinations for Prognosis

Only repeated examinations of the blood are of prognostic value; conclusions cannot be drawn from a single observation. After this conditional statement we would call attention to the two following points:

### A. THE SIGNIFICANCE OF CONTINUED CONCENTRATION OF PERIPHERAL BLOOD

The concentration of capillary blood, which occurs in shock, if persistent, appears to indicate an unfavorable prognosis, and an increasing concentration is a significant precursor of a fatal outcome. The interrelation between the clinical condition and the persistence of capillary concentration is illustrated in the following cases:

Case 78 a.—The patient was admitted with a bullet wound of the abdomen. Operation disclosed two perforations of the ascending colon. On admission the capillary red count was 8,300,000, hemoglobin 96 per cent. The blood was examined on each of the following four days:

July 13, red count 7,800,000; hemoglobin 104 per cent.
July 14, red count 6,600,000; hemoglobin 98 per cent.
July 15, red count 7,400,000; hemoglobin 98 per cent.
July 16, red count 7,100,000; hemoglobin 99 per cent.

During this period the clinical condition of the patient was precarious; there was restlessness, persistent thirst, and low blood pressure, with rapid pulse.

On the fifth day the capillary blood count suddenly fell to 5,200,000, hemoglobin 82 per cent.; and on the next day still farther, to 3,700,000, hemoglobin 68 per cent. This change synchronized with a striking improvement in the general clinical condition, and an uninterrupted recovery followed.

Case 14 a.—The patient was admitted with a gunshot wound of the abdomen, and perforation of the small intestine. The capillary red count was 6,489,000, hemoglobin 112 per cent. At the end of twenty-four hours the concentration had increased, and the count then was 8,700,000, hemoglobin 130 per cent. This case terminated fatally within the next twenty-four hours.

Whether the *persistent* concentration of the capillary blood is due to a circulation inadequate to establish and maintain a uniform distribution of corpuscles, or is due to some chemical alteration in the corpuscles or in the capillary walls, we do not wish at this time to consider. The observations recorded in the foregoing cases, however, we have had repeated opportunities to verify.

### B. THE SIGNIFICANCE OF PROGRESSIVE DILUTION OF THE BLOOD

As previously pointed out, the intial concentration of the capillary blood normally passes away after a few days. The blood count falls as if the peripheral blood were being diluted or the stagnant corpuscles being swept away. In association with loss of blood, dilution occurs from increase of plasma, but this process also is short lived. A dilution of the blood which continues to progress beyond the fourth or fifth day after injury is ominous, and the longer the dilution continues the more unfavorable it becomes. In the absence of repeated hemorrhage, progressive dilution signifies the presence of sepsis, and generally the involvement of the blood stream (septicemia). The following case is illustrative:

Case 4 a.—The patient was admitted with a severe wound of the buttock and high compound fracture of the femur. The daily blood examinations are recorded in Table 2.

TABLE 2.—DAILY EXAMINATIONS IN PROGRESSIVE DILUTION OF BLOOD

| Day | Capillary Red Count | Hemoglobin, per Cent. | Day | Capillary Red Count | Hemoglobin, per Cent. |
|---|---|---|---|---|---|
| 1 | 5,400,000 | 85 | 5 | 2,500,000 | 54 |
| 2 | 4,500.000 | 66 | 6 | 2,300,000 | 56 |
| 3 | 4,500,000 | 62 | 7 | 2,200,000 | 54 |
| 4 | 3,900,000 | 61 | 8 | 2,000,000 | 50 |

The local wounds were irrigated with flavine, and were doing so well that it was difficult to account for the progressive deterioration of the blood. On the eighth day the patient left our care, but we learned afterward that the deterioration continued, and eventually the patient succumbed to a septicemia.

We have recorded the foregoing case as a single instance of the progressive dilution of the blood, obscure in origin, and followed by septicemia, but we have made several confirmatory observations.

## Summary

In cases of shock as seen at a casualty clearing station in conditions of warfare, the red count of blood, taken from various capillaries, is higher than that of blood taken from a vein. The discrepancy is greater the more profound the shock, and not infrequently is as much as 2,000,000 corpuscles per cubic millimeter. Since the venous count is approximately normal, the condition is due to a stagnation of corpuscles in the capillaries. The observations by means of blood counting have been confirmed by hematocrit and hemoglobin determinations.

This condition once established in shock is only gradually recovered from; the recovery sometimes requires two or three days.

After hemorrhage, and in cases of shock complicated with hemorrhage, the hemoglobin reading is relatively low compared with the red count.

After operation attended by hemorrhage, the hemoglobin reading is again relatively low compared with the count. If the operation has not been accompanied by hemorrhage, the count and the hemoglobin content of the blood may be higher than before, probably owing to loss of fluid from the body.

Transfusion of blood naturally raises both the count and the hemoglobin reading. Injection of a gum solution leads to a dilution of the blood that may persist for some hours. Intravenous administration of a large amount (2 pints) of hypertonic salt solution may markedly reduce the hemoglobin content of the blood; a smaller amount (1 pint) in our experience has not had this effect. Injection of the salt solution reduces the capillary stasis.

Continued concentration of the capillary blood for several days after injury accompanies a continued unfavorable clinical condition. Disappearance of the concentration is a signal of improvement. Continued dilution of the blood, after the fourth or fifth day, is ominous.

## ACIDOSIS IN CASES OF SHOCK, HEMORRHAGE AND GAS INFECTION

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### Introduction

In the attempt to obtain more facts concerning the conditions that prevail in cases of persistent low blood pressure, it seemed desirable to examine the blood for certain chemical alterations. Among these were changes in the alkali reserve and in the sugar content. A reduction of the alkali reserve would be indicated specifically by less than the normal amount of sodium bicarbonate in the blood. This is the condition of "acidosis" in the sense defined by L. J. Henderson[1] and by Van Slyke and Cullen.[2] The sugar content might be significant as to the nature of the acidosis, and would also throw light on other processes in the body.

The circumstances under which these studies have been conducted required the use of simple apparatus. Fortunately, the instrument invented by Van Slyke,[3] by which the capacity of the blood plasma to take up carbon dioxid can be determined rapidly and accurately permits observations on this feature of the blood to be made even where few laboratory conveniences are available. The results given by this instrument are expressed in volumes per cent. of carbon dioxid, which the plasma holds after being exposed to an atmosphere containing 5.5 per cent. of the gas (the concentration existing in the alveoli, and present in the final air of an extreme expiration.) Any figures lower than 50 per cent. in adults indicate acidosis. In drawing the blood, a syringe was used. In most cases no difficulty was found in thrusting the needle into an elbow vein made prominent by drawing a rubber tube around the upper arm. Care was exercised not to exert such pressure when the tube was fastened as to shut off the arterial flow. As the blood entered the syringe, the piston was gently withdrawn. When sufficient blood had been taken (about 10 c.c.), the tube was loosened and the needle then withdrawn. The blood was transferred to a flask containing a few crystals of neutral potassium oxalate. Agitation of the sample was avoided. The plasma was promptly separated in a centrifuge. All utensils used were carefully washed with water, alcohol and ether. In making the determinations a check was invariably obtained, and in most cases a further exposure of the plasma to the alveolar air was made before the second reading. All the results presented have the values gained by these precautions.

The methods employed in estimating blood sugar was the easy and reliable one devised by Myers and Bailey.[4]

That the impaired circulation in cases of shock would probably lead to a condition of acidosis was pointed out by Yandell Henderson[5] in 1910. Later Crile[6] and his co-workers reported results which indicated that acidosis is present in various clinical conditions, including shock. Recently Henderson has revised his well known acapnia theory of shock,[7] and now interprets the low carbon dioxid content of the blood as probably not a primary acapnia, but as a consequence of acidosis.

The present study includes an examination of forty-seven cases of low blood pressure, whether due to shock alone or complicated by hemorrhage and gas bacillus infection (Table 1). Observations have been made on the relation of acidosis to blood pressure, pulse and respiration; the sugar content of the blood; the effects of anesthesia and operation on existent acidosis and low blood pressure, and the influence of alkaline treatment in cases of extreme acidosis.

### The Relation of Acidosis to Blood Pressure, Pulse and Respiration

#### A. RELATION TO BLOOD PRESSURE

In forty-seven different coincident determinations of blood pressure and carbon dioxid capacity, a rough relation between the two was found. In general the lower the blood pressure the lower the alkaline reserve, that is, the greater the acidosis. This relation is illustrated in Table 2.

It is noteworthy that in forty of the forty-seven cases the mean blood pressure was below 60 mm. of mercury, and that in all these there was a carbon dioxid capacity less than 50 volumes per cent.—a condition of acidosis was present. Furthermore, as the average carbon dioxid capacity was low, the average mean pressure was likewise low. In the chart are presented the records of blood pressure, systolic and diastolic, in thirty-five cases of shock, hemorrhage and gas infection, arranged in the order of decreasing carbon dioxid capacity (increasing acidosis). From this group moribund patients treated with alkaline drink have been eliminated. The first six of these cases had a carbon dioxid capacity of 50 per cent. or higher, and are not to be regarded, therefore, as instances of acidosis. The remaining twenty-nine cases range roughly in correspondence with the state of the blood.

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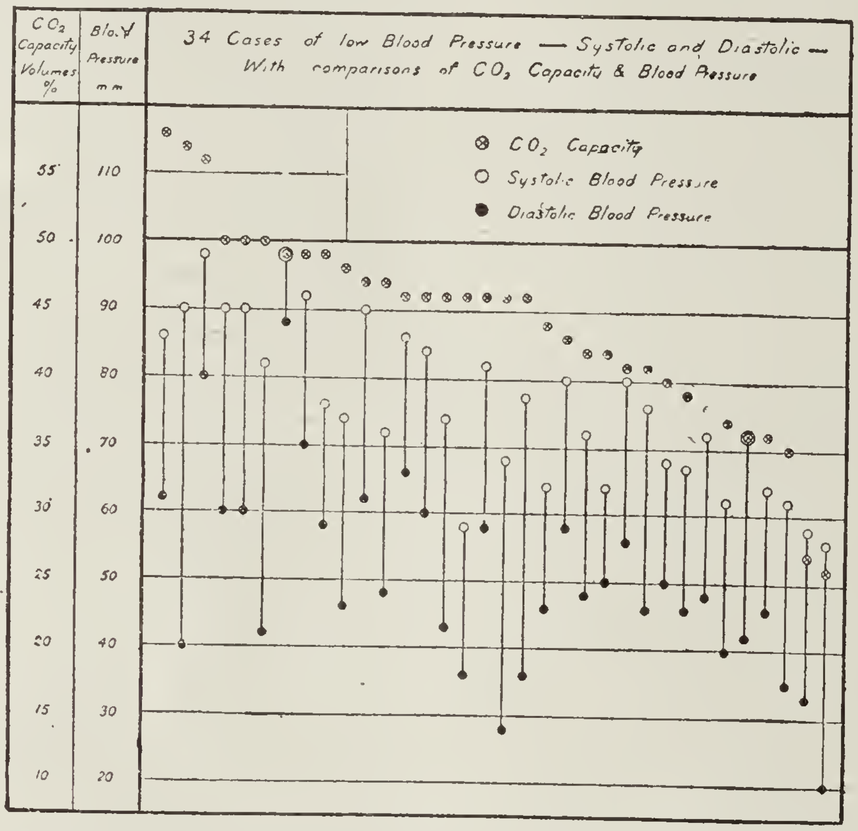
[1] Henderson, L. J.: Science, 1913, **37**, 389.
[2] Van Slyke and Cullen: Jour. Biol. Chem., 1917, **30**, 291.
[3] Van Slyke: Jour. Biol. Chem., 1917, **30**, 347.
[4] Myers and Bailey: Jour. Biol. Chem., 1916, **24**, 149.
[5] Henderson, Yandell: Am. Jour. Physiol., 1910, **27**, 167, 174.
[6] Crile: The Origin and Nature of Emotions, Philadelphia, 1915, p. 227.
[7] Henderson, Yandell; Prince, A. L., and Haggard, H. W.: Observations on Surgical Shock, The Journal A. M. A., Sept. 22, 1917, p. 965.

TABLE 2.—RELATION BETWEEN CARBON DIOXID CAPACITY AND BLOOD PRESSURE

| No. of Cases | Carbon Dioxid Capacity | Mean Arterial Pressure |
|---|---|---|
| 6 | 20 to 29 (av. 24) | 49 mm. hg |
| 8 | 30 to 39 (av. 35) | 59 mm. hg |
| 26 | 40 to 49 (av. 44) | 61 mm. hg |
| 7 | 50 to 59 (av. 53) | 69 mm. hg |

In ten cases classified as uncomplicated shock, the average systolic and diastolic pressures when the blood samples were taken were 77 and 52 mm. of mercury, and the average carbon dioxid capacity was 41 per cent. In seven cases of clear hemorrhage, the relation again was 77 and 52 in blood pressure to 47 per cent. carbon dioxid capacity. And in thirteen cases with gas infection prominent, the average pressures were 70 and 43, with 38 per cent. as the average of the carbon dioxid readings. These groups are perhaps too small to permit conclusions to be drawn. The figures suggest, however, that hemorrhage alone is not attended by as great a reduction of the alkali reserve as is shock (when the blood pressures are equally reduced), and again, when the blood pressure is low, as in the cases of gas infection, the alkali reserve is likely to be correspondingly low.



Records of blood pressure in thirty-five cases of shock, hemorrhage and gas infection, arranged in the order of decreasing carbon dioxid capacity (increasing acidosis).

These observations add another to the known similarities between hemorrhage and shock. In both, the alkaline reserve is lessened. Milroy[8] has recently pointed out that hemorrhage, experimentally induced, is attended by reduction of reserve alkali, and that thereupon exposure of the plasma to the same carbon dioxid concentration as before the hemorrhage develops an H-ion concentration considerably higher than before.

In the cases under consideration no observations were made on the H-ion concentration of the blood. Probably the concentration was not much raised when the alkali reserve was only slightly below normal. The activity of the respiratory center in some cases, however, indicated a markedly increased concentration. These conditions will be dealt with later.

From the evidence presented above, the conclusion is warranted that bodily states characterized by reduced blood pressure and consequently by defective circulation are accompanied by a diminished alkali reserve, and that as a general rule the lower the pressure the lower the reserve. This acidosis should not be compared with that which may occur acutely after a quick run or other sharp exercise. That may be quite as extreme as any change seen in shock, but it is temporary, and the alkaline stores in cells and in other body fluids than the blood may soon compensate for the sudden reduction of available alkali in the blood, and oxidative processes rapidly restore the normal conditions. In the cases under consideration, on the other hand, some process has been going on for hours (often six or eight) that has brought about the state observable at admission of the patient. The progressive character of the process was shown in a case in which the carbon dioxid capacity one hour after the wounding was 50 per cent., and five hours later, with no corrective treatment, had fallen to 40 per cent. The condition has a gradual rather than an acute onset.

### B. RELATION TO PULSE

With low arterial pressure, a rapid pulse may be expected. In the series of cases here reported the heart was seldom beating faster than 144 per minute. Possibly that is a limiting rate for continued action. The average rates were somewhat below this number. Table 3 is arranged on the basis of increasing diastolic pressures.

Since the average pulse rates are fairly uniform for different ranges of low blood pressure, and since, as shown above, there is a relation between the lowness of the pressure and acidosis, it follows that there is no definite relation to be found in our cases between the diminished alkali reserve and the rapidity of the heart beat. If the pulse is considered in these cases arranged on the basis of their carbon dioxid capacity, the average rate for a carbon dioxid capacity of 24 per cent. is 136; of 35 per cent., 135, and of 44 per cent., 130.

TABLE 3.—THE RELATION OF ARTERIAL PRESSURE TO PULSE

| No. of Cases | Average Pressures | | Pulse | |
|---|---|---|---|---|
| | Systolic | Diastolic | Av. Rate | Range |
| 5 | 51 | 23 | 133 | 114-144 |
| 9 | 60 | 35 | 134 | 108-152 |
| 13 | 72 | 44 | 133 | 112-150 |
| 8 | 80 | 55 | 133 | 116-144 |
| 7 | 89 | 62 | 128 | 106-144 |

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[8] Milroy: Jour. Physiol., 1917, **51**, 272.

### C. RELATION TO RESPIRATION

The chemical stimulus increasing respiration is an increase in the H-ion concentration in the arterial blood. As L. J. Henderson[9] has shown, a large amount of acid may be added to a bicarbonate solution similar in concentration to that of the blood before any considerable increase of acidity occurs, so long as the carbon dioxid passes off. The H-ions of the blood do not increase to an important degree, therefore, in spite of reduced alkali, if pulmonary ventilation prevents an accumulation of carbonic acid. Only when this process fails, or acids increase to such a degree as seriously to encroach on the neutralizing power of the bases of the blood, does the increased H-ion content affect in a marked degree the respiratory center. From a study of the alkali reserve, by the Van Slyke method, in a large number of surgical cases Caldwell and Cleveland[10] report no change of respiration when the carbon dioxid capacity was between 43 and 50 per cent., and also none between 36 and 43 per cent. when that condition was stationary; but if the reserve was *diminishing* and had reached that range, hyperpnea was almost always apparent.

The apparatus necessary to record the volume of respired air in the cases under consideration was not at hand, but the rate of breathing was taken. In some of these cases the respiratory rate was probably reduced to a greater or less degree by morphin, which was regularly administered to seriously wounded men in amounts varying from ¼ to ½ grain, with an occasional larger dosage. In Table 4, the chest cases and the abdominal cases have been omitted, for in them the pain due to respiratory movement may modify the breathing in a way complicating the influence of the blood.

As the figures show, the rate increased as the alkali reserve fell, but the change, as was to be expected, became more marked as the limit of the reserve was more nearly approached. The character of the respiration was not noteworthy except in the cases of extreme acidosis, that is, with a carbon dioxid capacity in the region of 30 per cent or lower. In some instances the breathing was deep and vigorous, as in true "air hunger," and at the rate of 40 or 50 times per minute. These conditions have been met especially in cases of infection with the gas bacillus.

TABLE 4.—RELATION OF CARBON DIOXID CAPACITY TO RESPIRATION

| Number of Cases | Carbon Dioxid Capacity | Average Respiratory Rate |
|---|---|---|
| 17 | 40 to 49 (av. 44) | 24 |
| 7 | 30 to 39 (av. 35) | 28 |
| 6 | 20 to 39 (av. 24) | 44 |

### The Sugar Content of the Blood

Lack of food, or subsistence on a carbohydrate-free diet, as is well known, will produce a condition of acidosis marked by lowered carbon dioxid tension of the alveolar air, increased excretion of ammonia nitrogen in the urine, and the appearance of acetone bodies. The low blood pressure of shock with attendant slight urinary secretion, and the generally depressed state of the patient, render accurate studies of the urine difficult. The possibility of a "starvation" acidosis being present, however, is suggested by the fact that not infrequently men are brought to the casualty clearing station about noon who have been wounded and shocked in a night raid, and who testify to having eaten nothing since the previous afternoon. On admission to the station, they are often too ill to take nourishment. In consequence they may be without food for a time which might be expected to produce metabolic disturbance. A prime condition for "starvation" acidosis is lack of sufficient carbohydrate in the body to play a necessary rôle in the oxidation of fat, in this instance body fat which is being used as a source of energy. Determinations of blood sugar will show, therefore, whether or not a deficiency of carbohydrate prevails. In Table 5 are presented the results of observations in cases of shock and hemorrhage.

TABLE 5.—SUGAR CONTENT OF BLOOD IN CASES OF SHOCK AND HEMORRHAGE

| Initials | Carbon Dioxid Capacity | Blood Sugar | Initials | Carbon Dioxid Capacity | Blood Sugar |
|---|---|---|---|---|---|
| F. W. | 34 | 0.11 | A. H. P. | 47 | 0.10 |
| W. B. | 36 | 0.15 | W. G. | 47 | 0.18 |
| O. C. R. | 40 | 0.15 (6 hours after hit) | O. C. R. | 50 | 0.12 (1 hour after hit) |
| J. B. | 42 | 0.19 | A. S. | 52 | 0.11 (after op'n) |
| H. H. | 42 | 0.22 | A. S. | 60 | 0.12 (before op'n) |

From these observations it is clear, in the first place, that there is no lack of sugar in the blood; indeed, that the amount is commonly above normal—0.1 per cent. Furthermore, there appears to be no relation between variations of the carbon dioxid capacity of the blood and the percentage of sugar. In a few cases urine was obtained from shock cases and tested for acetone bodies. The test for diacetic acid was negative. The acidosis of shock cases, according to this evidence, is due to some other alteration of the blood than the development of acetone bodies.

### The Effect of Anesthesia and Operation on Existent Acidosis and Low Blood Pressure

That anesthesia and operation are accompanied by a reduction in the alkali reserve of the blood has been shown by Crile and Menten,[11] Austin and Jonas,[12] Morriss,[13] and Caldwell and Cleveland.[10] The largest drop during operation recorded by Austin and Jonas was 10 volumes per cent. carbon dioxid capacity, as determined with the Van Slyke apparatus. The figures reported by Caldwell and Cleveland, based on a study of a large series of cases in which they used the Van Slyke method, show a drop in the carbon dioxid capacity between 4.7 and 7.7 volumes per cent. in operations averaging about fifty minutes in duration. In their series, however, no acidosis was present (except in one case), and the drop barely brought the capacity to the boundary line between normality and acidosis (50 per cent.) It is well known in civil surgical practice that patients with a low alkali reserve (as diabetics with acidosis, and children whose reserve is naturally much lower than that of adults) stand operation poorly, and may pass from anesthesia into coma and die. A highly interesting and practical question, therefore, is raised as to the influence of anesthesia and operation on wounded men with an acidosis already existent. In Table 6 are shown the results of blood tests and blood pressure readings before and after operation in cases with a carbon dioxid capacity below 50 per cent. at the start or found below that level at the end of anesthesia.

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[9] Henderson, L. J.: The Fitness of the Environment, New York, 1913, pp. 149-151.

[10] Caldwell and Cleveland: Surg., Gynec. and Obst., 1917, **25**, 23.

[11] Crile and Menten: Ann. Surg., 1915, **62**, 262.

[12] Austin and Jonas: Am. Jour. Med. Sc., 1917, **153**, 90.

[13] Morriss, W. H.: The Prophylaxis of Anesthesia Acidosis, The Journal A. M. A., May 12, 1917, p. 1391.

Comparison of the changes in the blood of these wounded men suffering from shock and unstable circulation with those reported by Caldwell and Cleveland reveals that the average drop in carbon dioxid capacity is approximately twice that seen by them in ordinary civil cases. Furthermore, if the three cases are eliminated which at the start had a carbon dioxid capacity well over 50 per cent., the results show that the fall is likely to be greater the lower the original capacity. The encroachment on the reserve of alkali is greater, therefore, as the margin of safety in the reserve is less. In other words, the more marked the existent acidosis the more sensitive is the patient to operative procedures, and the more likely he is to be let down by them into a region of danger. In ten of the series of cases under consideration the carbon dioxid capacity before operation was 40 *per cent. or less.* The closeness of danger in such cases may be realized by the fact that blood taken from the heart at the moment of death from shock has a capacity between 20 and 24 per cent., and in two of the cases reported in Table 6 the capacity fell to 27 and 28 per cent. from an initial 46 and 41 per cent., respectively. Such profound changes may occur in about an hour. The suddenness of this remarkable fall in available alkali is in itself important, for as Caldwell and Cleveland have pointed out, the effects are more damaging when the fall is rapid than when it is slow and gradual. With regard for the baneful effect on internal respiration and on other processes of the body due to an impoverishment of the blood in alkali, it is clear that a rational treatment of shock should include provision against the dangers of this sudden depletion.

TABLE 6.—TESTS AFTER OPERATION IN CASES WITH ACIDOSIS AND LOW BLOOD PRESSURE

| Initials | Duration of Operation | Carbon Dioxid Capacity | | Blood Pressure | |
|---|---|---|---|---|---|
| | | Before Operation | After Operation | Before Operation | After Operation |
| | Mins. | % | % | | |
| S. R. | 75 | 58 | 46 | 82–58 | 58–36 |
| B. S. | 40 | 58 | 46 | 88–62 | 74–42 |
| F. A. T. | 60 | 56 | 40 | 98–80 | 64–48 |
| G. J. H. H. | 45 | 50 | 44 | 90–62 | 64–46 |
| W. C. | 20* | 49 | 40 | 76–58 | — |
| J. H. C. | 45 | 47 | 40 | 102–80 | 50–28 |
| W. A. T. | 60* | 46 | 38 | 76–36 | 68–28 |
| G. K. | 50* | 46 | 27 | 84–60 | 58–36 |
| C. P. H. | 70 | 41 | 28 | 76–46 | — |
| Averages | 52 | 50 | 38 | 88–62<br>(7 cases) | 62–31 |

* Anesthetized with nitrous oxid and oxygen.

Table 6 brings out another important fact of practical importance—the striking fall of blood pressure as a result of operation in these cases. In experience with patients in whom the decrease of the carbon dioxid capacity, as a result of operation, did not extend below 50 per cent. (that is, did not develop an acidosis, in the Van Slyke sense), no noteworthy alteration of arterial pressure occurred. In fact, both the systolic and the diastolic pressure may be higher at the end of operation than at the start, and seldom is there a lowering of the mean pressure. On the other hand, if the carbon dioxid capacity falls below 50 per cent., or being below that level it sinks still lower as a consequence of operation, the blood pressure may suffer an astonishing decline. In the seven complete records in Table 6, the average fall was 88 and 62 to 62 and 36—the systolic pressure at the end of operation was commonly below the diastolic pressure at the start. This ominous sinking of the blood pressure has been repeatedly seen during operation in shock cases in which the alkali reserve was not determined; in all probability these cases should be classified with those in the foregoing list.

Marshall[14] has testified that anesthesia with nitrous oxid and oxygen is specially to be recommended in operating on men in shock, because it leaves the patient in much better condition than do other anesthetics. Crile and Lower[15] also have stated that nitrous oxid-oxygen anesthesia is less likely to increase shock than ether. In two patients in the present series, blood examination before and after operation with nitrous-oxid-oxygen as the anesthetic, there was no change whatever in the carbon oxid capacity; it remained at 58 per cent. in the one, and at 48 per cent. in the other during operations lasting forty and twenty-three minutes, respectively. That this anesthetic does not preclude a fall of blood pressure and an attendant alkali reduction is shown by the three cases in Table 6 distinguished by asterisks—patients anesthetized with nitrous oxid and oxygen. The rate of change in the second of these three, however, was less than in any of the others, and the blood pressure was only slightly reduced. The charted results presented by Caldwell and Cleveland show not quite so great a decrease of the carbon dioxid capacity under "gas" and oxygen as under ether, but they conclude that the differences under different anesthetics are negligible. The possibility that the patient anesthetized with nitrous oxid and oxygen may suffer no appreciable blood change, and also that such changes as have been recorded may be due in part to lack of skill (as in allowing the patient to become cyanosed), gives support to the judgment that it is the anesthetic to be employed when possible in operating in cases of shock.

## Alkaline Treatment of Extreme Acidosis in Shock

The danger zone that shocked men are liable to enter when they are operated on is approached, as already explained, through a precipitous fall of blood pressure and a sharp decrease of the alkali reserve to a degree at which the H-ion concentration of the blood tends to increase rapidly. The harmful effects on tissue respiration and on other bodily functions that occur when the H-ions are increased have already been emphasized. Wright[16] had reported a lessening of the alkalinity of the blood in human beings and in lower animals infected with the gas bacillus, a condition which he designated as "acidemia." The evidence presented above shows that this condition is not peculiar to toxic shock with gas infection,[17] but is general for states of low blood pressure, whether due to wounds or hemorrhage, without notable infection. The toxemia is merely an additive factor. The rational treatment of patients with diminished alkali in the blood, as has long been recognized in dealing with the acidosis of diabetes, is to supply alkali. Wright suggested this therapy also for treatment of gas infection, and reported good results in two instances. Its use in combating the extreme acidosis that may follow operation on men in shock is shown by the following cases:

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[14] Marshall: Proc. Roy. Soc. Med., 1917, **10**, 27.

[15] Crile and Lower: Anoci-Association, Philadelphia, 1914, p. 78.

[16] Wright: Lancet, London, 1917, **1**, 1.

[17] The importance of a good circulation for checking the spread of gas infection has been remarked by a number of writers on the subject. Attention has been directed mainly, however, to local tensions in the tissues and to thrombosis as the occasions for a poor blood supply. That a low general blood pressure may lie behind the local impairment should be more generally recognized.

Private J. F. J. was admitted, July 27, with multiple shell wounds of the leg, knee, right forearm, chest, and right hand. Considerable hemorrhage was probable. Before operation blood pressure was: systolic 80, diastolic 58, pulse 134, respiration 24, and not peculiar. The carbon dioxid capacity was 43 per cent. At operation the left knee was resected, about 6 inches of the right gastrocnemius removed, a long slit was made in the right forearm with excision of the flexor longus digitorum, and the ring and little fingers of the right hand, with their metacarpals, were taken away. Evidence of gas infection was found.

Shortly after recovery from the anesthesia, the blood pressure was 68 and 40, pulse 148, and respiration 34, deep and vigorous. An hour later, at 10:30 p. m., the pulse was still as before, but the respiration had risen to 48, and was as energetic as if there had been violent struggle. In spite of his wounds, the patient tried to sit up, crying, "I must have air. I can't breathe." A cannula was slipped into an elbow vein, and 35 ounces of warm 4 per cent. sodium bicarbonate were introduced. A most dramatic change at once occurred. The patient's restlessness and "air hunger" immediately disappeared, and in a few minutes he fell asleep with a pulse of 126, and quiet respirations 26 per minute. A second respiratory crisis during the night required another injection of the sodium bicarbonate solution. Alkaline treatment was continued by mouth—1 dram in 8 ounces of sweetened water every two hours. On the following morning the patient was found smoking a cigaret. In the afternoon the blood pressure was 114 and 56, pulse 132, respiration 28. The second day the blood pressure was 128 and 58, pulse 144, respiration 38, but gas infection was found in the calves of both legs. In the subsequent operation considerable blood was lost. The patient sank rapidly thereafter, and died in about three hours.

Private H. (not in tabulation) was admitted, July 27, with multiple shell wounds. There was a big opening in the left loin with fracture of the pelvis and infection of the muscles; extensive lacerations of the left thigh, the left calf, and the right calf, with gas infection; many superficial wounds of back and chest and left hand. He was operated on at 11 p. m., but records of his blood pressure were not taken. About 6 o'clock the next morning his pulse was 150, and he was suffering from typical "air hunger" with deep respirations approximately 60 a minute. He was given intravenously 2 pints of warm 4 per cent. sodium bicarbonate. He became quiet at once, and fell asleep. Alkaline treatment was continued by mouth. At 12:30 p. m. the blood pressure was 72 and 56, pulse 140, and respiration 32. The carbon dioxid capacity was 51 per cent. In the afternoon the blood pressure was 104 and 68, pulse 132, respiration 27. The condition was the same next morning, except that the blood pressure had risen to 114 and 72. The patient then began to have an oscillating fever temperature; a foot wound was found infected, and the pathologist reported a coccus in the blood. A blood destruction started, and at the end of a week the red count fell to 1,800,000, hemoglobin 30 per cent. Transfusion was done, with consequent improvement. The patient was evacuated, but died of pneumonia in a hospital at the base.

"Air hunger" in such cases is typically a signal of impending death. The results described in the foregoing records demonstrate that the desperate state of the patient suffering from the marked acidosis of traumatic and toxic shock may be so changed by intravenous alkaline therapy that with astonishing suddenness he passes from distress to comfort, and may later recover normal blood pressure. These cases also indicate, however, that the individual who has passed through such a crisis appears to have little resistance and is exposed to dangers of subsequent infection.

The development of acidosis in shock and its serious aggravation by surgical procedures suggested the desirability of using, if possible, preventive measures—increasing the chances of survival for wounded men by avoidance of critical risks. To throw light on these possibilities, the natural history of the shocked individual should be known. For the purpose of securing this knowledge, Captain Cowell went to the front trenches to study cases which were later traced through the aid post and the dressing station to the casualty clearing station. The results of this study are given in the following paper.

## SUMMARY

Cases of low blood pressure due to shock, hemorrhage, or infection with the gas bacillus have a diminished supply of available alkali in the blood, that is, an acidosis. As a general rule, the lower the pressure the more marked the acidosis.

The pulse is rapid in these cases, but does not vary with the degree of acidosis.

The respiratory rate becomes more rapid as the acidosis increases until, shortly before death, a true "air hunger" may prevail.

Blood sugar is usually somewhat increased above the normal in cases of shock and hemorrhage. The acidosis in these cases, therefore, is not due to lack of circulating carbohydrate.

Operation on men suffering from shock and acidosis results in serious and rapid sinking of arterial pressure when it is already low, and in marked and sudden decrease of the alkali reserve of the blood when that reserve likewise is already low. This change may not occur if nitrous oxid-oxygen anesthesia, instead of ether, is employed, but that anesthetic affords no guarantee against the ominous decline.

Shocked men suffering after operation from extreme acidosis with "air hunger" can be quickly relieved of their distress by intravenous injection of a solution of sodium bicarbonate, and their blood pressure restored to normal.

(*To be continued*)

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**The Responsibilities of War.**—Courage, fortitude, loyalty and self denial strengthen and ennoble. They are the virtues of calm weather, more eminently of days of storm and stress. War permits no flights from responsibility. Every obligation becomes more binding, both in relation to the personal life and the good of the whole—the community or state. It may seem a paradox that in time of war when life appears to be held most cheap, life and health come to be thought of as most valuable. The reason is plain. Physical vigor, physical endurance, physical power begin to have an increasing value in the minds of men. Man—the physical man—counts, and men begin to make the most of men. The attitude toward man is the same as that toward the newest kind of rifle or the latest type of cannon. What is the best kind and what characteristics are most useful. Even with our brief experience we have awakened to the nation's need for men with fewer physical defects and greater physical power. The nation is beginning to see that if there had been more interest in public health in time of peace there would be now less need for long months of training for endurance of necessary hardships incident to camp life.—Oscar Dowling, M.D., *Quart. Bull.*, Louisiana State Board of Health, December, 1917.

## Special Article

# SYNTHETIC DRUGS *

JULIUS STIEGLITZ, Ph.D., Sc.D., Chem.D.
Professor and Chairman, Department of Chemistry, and Director of the Laboratories, University of Chicago; Chairman, Subcommittee on Synthetic Drugs, National Research Council
CHICAGO

The work of the Federal Trade Commission in cooperation with the Committee on Synthetic Drugs of the National Research Council in providing for the manufacture in this country of the important synthetic drugs which before the war were imported from abroad, and especially from Germany, has now passed through its first stage of development. Although supplies in some articles will not be overplentiful for some weeks yet, and plans for the manufacture of some important drugs, such as phenylbarbital (luminal) are still in the stage of preparative study only, the situation has defined itself so far that its further successful development can best be attained by the frank and hearty cooperation of the medical profession with the Federal Trade Commission and the National Research Council. The purpose of this series of short articles is to insure such cooperation, first by giving specific information to physicians, second, by requesting in return specific methods of support by physicians, and third, by inviting constructive suggestions.

This first article is devoted to a report concerning three of the most necessary drugs involved, Arsphenamine (introduced as salvarsan), Procaine (introduced as novocaine), Barbital (introduced as veronal) and Barbital-sodium (introduced as veronal-sodium and as medinal). The report will not be limited to licensed articles, and is intended to give information of the whole situation of synthetic drugs, as it is known to the committee at present.

### GENERAL USE OF THE NEW OFFICIAL NAMES

The first and one of the most important matters to be brought to the attention of American physicians is an appeal to them to *prescribe the licensed remedies by the new official names given above.* This may seem a trifling matter; but a few words of explanation of the reasons for the adoption of these names should suffice to show the underlying seriousness of the request. In meeting the urgent demand for synthetic drugs, the Federal Trade Commission and the committee of the National Research Council faced the necessity of making it worth while for manufacturers to undertake the preparation of these articles, often at the cost of large investments, without permitting the cost to the public to become prohibitive—in fact, making it possible to restore the cost, in some cases gradually, to the normal basis that obtained before the war. This could more easily be accomplished by granting licenses *good for the life of patents and not only for the duration of the war,* making possible a permanent investment with normal profits rather than necessitating a "war investment," the capital of which had to be paid for by exorbitant "war profits." Partly in order to help insure to licensees a market for their products after the war, in larger part inspired by the idea of encouraging the establishment of a permanent American industry in these important articles, the Commission wisely decided that American houses should be put on the same footing as competing foreign houses for the after-the-war competition, by imposing on all licensees the obligation to use *new official names* for the articles, names which after the war will be open to all competitors, domestic and foreign. Obviously if these names are once in common use the exclusive rights of the foreign houses and their agents of using after the war the old established trade marked names would not seriously handicap American firms, and all competitors would be on the same footing, with the advantage only to those who could produce most cheaply the better articles. The owners of the original patents after the war will continue to receive the royalties adjudged to them by the courts; and for any loss of advantage resting in a monopoly, enemy countries must hold themselves directly responsible in view of the way in which our nation was drawn into the war. *It is obvious* that the American physician in final instance is the arbiter who can put this wise plan into operation and *establish the new names firmly* by prescribing these remedies by their new official names, *supplemented, if desired,* by the name of the manufacturing firm to indicate any brand demanded. Thus, "Arsphenamine-Dermatological Laboratories" is as expressive as "Arsenobenzol-Schamberg," and "Arsphenamine-Farbwerke-Hoechst" far better for the interests of the country, of patients and physicians, than "Salvarsan-Farbwerke-Hoechst."

An appeal will be made to medical journals to use the new official names in all advertising and all articles and editorials. Thus, with the cooperation of all loyal Americans we may wish Godspeed to the new American industry to which the throes of warfare have given birth, that we may never again face the intolerable situation of seeing our patients suffer and die from the absence of absolutely necessary medicinals, never again hear of "Bulgarian operations" at our hospitals for lack of proper anesthetics!

### THE COST OF SYNTHETICS UNDER LICENSE

Turning now to the matter of cost of the new remedies, we find that it has been possible in only a single instance, that of arsphenamine, to make an exact estimate of a legitimate price for the drug; and in this instance a price has been imposed on the licensees, and willingly accepted by them, that I understand is much lower than the price of the imported article was before the war: $1.50 per dose when sold to the private practitioner and a price of a dollar or less per normal dose when sold in large ampules to hospitals is certainly a situation on which the country is to be congratulated in the face of the war prices that obtained before our entry into the war and immediately thereafter. In the cases of procaine and barbital, direct price regulation has thus far seemed unwise because of the difficulty of gaging the actual cost to manfacturers. On the other hand, a sufficient number of licenses have been issued with the view of insuring a fair price by forced competition. In no instance has an exclusive license been granted by the Federal Trade Commission, although applications for exclusive licenses were made to it. It is safe to predict that no exclusive licenses will be granted in the future. If normal competition does not bring about a tolerable situation in regard to prices, the Commission has reserved the right to impose a limit of price when the situation would demand and warrant such a course.

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* The information conveyed in these articles is based on the latest reports to the writer: it is probably not complete as to all details, but is published now to avoid further delay in bringing the main facts before the medical profession. The writer will be glad to receive information to be used later according to his best judgment.

The number of licenses issued for the manufacture of a given article has been small but sufficient, and there is nothing in the way of a change of policy if a change should seem wise. A limited number of licenses for a given article is thought to insure its manufacture at a reasonable price to the public and at a reasonable profit to the manufacturer. Too many licenses for a single article would lead to overproduction; few good houses would have entered the field without some assurance that the Commission is anxious to protect in a reasonable degree both the public and the manufacturer. Moreover, this policy has secured the manufacture of almost all the most urgently needed drugs by various houses without allowing them to concentrate on the most profitable one or two.

### THE CONTROL OF SYNTHETICS UNDER LICENSE

Before licenses were issued by the Federal Trade Commission, the latter insisted on submission of the products of the applicants to the Public Health Service, in the case of arsphenamine, or, in the case of other medicinals, to the Committee on Synthetic Drugs for examination by the Chemical Laboratory of the Council on Pharmacy and Chemistry of the American Medical Association and for such other tests as were deemed wise. The Council will buy samples in the open market and seek to protect the public against any falling off in the standards.

### PRESENT STATUS OF SYNTHETICS UNDER LICENSE

Now as to specific information concerning four of the most important of the synthetic drugs, we have the following to report:

1. *Arsphenamine.*—This official name for the drug introduced as salvarsan is a contraction of its more scientific name, arsenophenolaminehydrochloride. *Manufacturing* licenses have been issued to: Farbwerke-Hoechst Company (H. A. Metz), 11 Hudson Street, New York, which controlled the sale of salvarsan imported from Germany; Dermatological Research Laboratories, Philadelphia Polyclinic (Dr. J. F. Schamberg), which even before our entrance into the war manufactured the well known Arsenobenzol brand of Arsphenamine; the Takamine Laboratories, New York, which have in their employ Dr. Hata, with Ehrlich, the co-discoverer of the remedy.

An importing license has been issued for the Canadian brand of Arsphenamine, Diarsenol, and a further license most likely will be issued for the importation of the French or Billon brand.

In this way provision has been made for five independent sources of supply of this important drug, the quality of which is being controlled by the Public Health Service. All but the Takamine Laboratories are now producing arsphenamine in thousands of doses per day, and the price for the supply of physicians, as stated above, has been fixed at $1.50 per ampule of 0.6 gm. It is true that the major part of the production of the two American manufacturing establishments which are in full operation is still going quite rightly for the supply of the Army and Navy; but as large a proportion as circumstances permit is already available for the public. There is no ground for exorbitant prices, and physicians are urgently invited to report with full details any cases of extortion as well as of inability to secure moderate supplies either directly to the Federal Trade Commission in Washington, or to the writer of this article.

2. The licensees for arsphenamine are preparing to manufacture the neo-arsphenamine as well. Licenses for its manufacture will shortly be issued, the Public Health Service being engaged in drawing up standards for its purity. This product will be licensed primarily for the convenience of physicians and not as an absolute necessity, arsphenamine being more easily prepared pure on a large scale. It should be added that other promising methods of convenient administration of arsphenamine itself are under investigation which, if successful, will go far toward solving the chief objection to its use.

3. *Procaine* is the official name of the product introduced as novocaine. It is the hydrochloride of diethyl-amino-ethyl-para-amino-benzoate.

The name is a contraction of pro-cocaine, the drug being a substitute for cocaine. Licenses for its manufacture have been issued to: Farbwerke-Hoechst Company, 111 Hudson Street, New York, the holder of the agency for the German product before the war; the Rector Chemical Company, 50 East Forty-first Street, New York, which has had the assistance of Professor Bailey of the University of Texas in elaborating the process of manufacture; the Abbott Laboratories, Ravenswood, Chicago, which have been assisted by Prof. Roger Adams of the University of Illinois; the Calco Chemical Company, Bound Brook, N. J., which has benefited by the advice of Prof. T. B. Johnson of Yale University.

Before a license was granted to any one of these firms, its preparation was submitted to our subcommittee on synthetic drugs, and tested by the Council on Pharmacy and Chemistry, chemically at the laboratory of the American Medical Association, and pharmacologically by Prof. R. A. Hatcher of Cornell University Medical School, a member of the Council. Procaine is a difficult preparation, requiring many operations and materials for its manufacture, which it has not been easy to secure; but rapid progress has been made in overcoming all the obstacles, and there should be no further difficulty in securing sufficient supplies of the drug for the most necessary purposes and ultimately for all needs.

In this connection it should be said that Parke, Davis & Co. have invented a new cocaine substitute, *Apothesine,* the hydrochloride of diethylamino-propyl cinnamate. It has been tested by a number of eminent surgeons and found to be quite as effective and about as safe as procaine itself, to which it is rather closely related in structure. There is a field here for further discovery of products that would be as effective and even more easily prepared.

4. *Barbital* is the official name of the product introduced as veronal. The word is a contraction of its chemical name, diethyl-barbituric acid. A license has been issued to: the Abbott Laboratories, Ravenswood, Chicago. A license will be issued shortly, or has already been issued to the Antoine-Chiris Company, 18 Platt Street, New York.

The products of these firms have been tested in the laboratory of the American Medical Association at the request of the Committee and found satisfactory.

The Bayer Chemical Company, 117 Hudson Street, New York, and Merck & Co., 45 Park Place, New York, are reported to have supplies of barbital, presumably imported.

*Barbital-Sodium* is available from Merck & Co., New York. No doubt, licenses for its manufacture will be secured by the licensees of the mother substance, Barbital.

*(To be continued)*

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SATURDAY, FEBRUARY 23, 1918

## FOOD INSPECTION AND FOOD CONTROL

If it is true that public health is purchasable, it is also true that limited expenditures will not procure unlimited talent or unlimited results. The upshot of this indisputable statement is that community health work ought to assume a pragmatic attitude to the extent of undertaking foremost those procedures which pay well from the standpoint of good returns in lives saved and disease prevented. The evolution of modern public health activities has been gradual; it is still far from a complete or ideal stage. Progress in science has pointed year after year to the desirability of new measures in preventive medicine; but it has also often directed attention to the inefficacy of earlier procedures and given justification for their modification or abandonment. Nevertheless, the prestige of an established custom, whether it is in trade, in diet, or in practical hygiene, is not infrequently so firm that something more than scientific argument is needed to uproot or replace it.

The history of household disinfection and room fumigation would furnish illustrations of what has just been contended. The practice of the disinfection of habitations has undergone great revision, not without a feeling of uncertainty on the part of many as to loss of the supposed security against recurrence of certain types of diseases for which fumigation was once extensively carried out, after the removal of the patient. But, as a hygienist has cleverly expressed the situation, the old, ill founded idea that health work is to be centered on the environment has been displaced by the modern one, well supported by the data of science, that it is concerned directly with men and women. This does not mean that household disinfection or school disinfection is to be entirely discarded, but rather that the value of specific procedures of the past are to be evaluated on the basis of epidemiologic evidence rather than traditional assumption, as heretofore.

Two recent writers competent to discuss the values of modern health work have raised the question, directly or indirectly, as to the efficacy of much of the current work or propaganda in the domain of food hygiene. Dr. Chapin,[1] the superintendent of health at Providence, R. I., in attempting to combat the popular notion that the principal functions of a city health department are sanitation and food control, has remarked:

> Another time-honored and popular means of promoting the public health is control of the food supply. This control naturally is divided into the prevention of adulteration and the promotion of cleanliness. Though there is much lurid literature on the dangers of impure food, as a general thing adulterants are as likely to be healthful as unhealthful. Adulteration, with rare exception, is an economic and not a health problem. There is almost as much nonsense written about ptomain poisoning as there is about adulteration.[2] "Ptomain poisoning" is the popular name for disorders arising from bacterial changes in food. Of such we really know little except that they are not nearly so common as is believed, and that the routine inspection and condemnation of cabbages and corned beef, as practiced by our city health officials, probably has no effect in restricting the somewhat rare occurrence of such poisonings.

It is, of course, readily admitted that infections may be food borne. The story of the part played by milk in the distribution of epidemic sore throat, typhoid fever, scarlet fever and tuberculosis need not be rehearsed here as evidence. But Jordan,[3] of the University of Chicago, in emphasizing the bacteriologic aspects of the subject points out that, after all, the current methods for preventing food infection (which certainly is not as innocuous as the most usual adulterations in the chemical sense) are not those of the simple inspection of food products. The chief infections that are known to be due to food infected at its source, says Jordan, are those—mainly meat borne—caused by the group of paratyphoid-enteritidis bacteria and those resulting from the use of infected milk. For this reason it is questioned "whether the amount of disease prevented by the ordinary methods of food inspection is at all commensurate with the outlay."

It would be reckless, indeed, to abandon the careful supervision of our milk supplies in any detail that makes for health, whether it be in the direction of examination of the persons handling this food or of effective pasteurization, or of any other hygienic device that has justified itself. Even harmless water may render milk of poor nutritive value to children, and surely skimmed milk has lost a component of no little significance for the young. It may well be debated, on the other hand, whether much or even most of the currently practiced food inspection "pays" from the standpoint of lives saved. From this standpoint clean streets may not "pay," and whitewashed barns may not prevent the loss of health. Nevertheless, modern civilization demands these and even more. Whether the campaigns for cleanliness in home, factory and outdoor premises ought to be directed from the office of the public health authorities or financed from their all too limited funds is a question for frank debate. But we cannot afford to give up the esthetic acquisitions of modern life. Nor are we to forget that, harmless though most fraudulent adulterations are, they are not always safe. The Bureau of Chemistry only recently saved us from the hidden dangers of poisonous beans imported by unscrupulous persons and ready to be unloaded on an unsuspecting public. Modern food control has insisted on honesty and purity in matters that concern our daily lives. We must retain this valuable force intact in our public welfare organization—somewhere.

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[1] Chapin, C. V.: The Relative Values of Public Health Procedures, The Journal A. M. A., July 14 1917, p. 90.

[2] Ptomain Poisoning versus Food-Borne Infection, editorial, The Journal A. M. A., Feb. 16, 1918, p. 462.

[3] Jordan, E. O.: Food-Borne Infections, Science, Jan. 25, 1918, p. 80.

## THE OWEN-DYER BILL FOR INCREASED RANK

Last week we printed the text of a bill just introduced simultaneously in the Senate by Senator Owen and in the House by Representative Dyer. The numbers are, respectively, S. 3748 and H. R. 9563. These bills consist of two paragraphs. The first reads:

> "That hereafter the commissioned officers of the Medical Corps, and of the Medical Reserve Corps, of the United States Army on active duty shall be distributed in the several grades in the same ratios heretofore established by law in the Medical Corps of the United States Navy."

The bill is essentially the same as that introduced by Senator Owen last July. The latter—the Owen bill of July—provided definite percentages which should be applied to the distribution of the various grades in the Army. These were the same as apply to the Navy. The Owen-Dyer bill provides that the officers of the Medical Corps and of the Medical Reserve Corps of the Army on active duty shall be distributed in grades in the same percentages as established for the Navy: the end-results are the same The wording of the present bill is undoubtedly more diplomatic, since it presents to senators and congressmen a simple request to grant to one branch of the Service the same ranks as prevail in another branch of the Service which performs essentially the same duties and fulfils the same requirements.

The following table shows the percentage distribution in the various grades of the regular Army and Navy medical corps as at present constituted:

| | Army Present Law Per Cent. | | Navy Present Law Per Cent. |
|---|---|---|---|
| Lieutenants | | Lieut. Junior Grade | |
| Captains | 67.2 | Lieut. | 64 |
| Majors | 23.7 | Lieut.-Commander | 23.5 |
| Lieut.-Colonels | 5.42 | Medical Inspector (Comm.) | 8 |
| Colonels | 3.16 | Medical Director (Capt.) | 4 |
| Brigadier-Generals | None[1] | Medical Director (Rear Admiral) | 0.5 |

It must be borne in mind in considering the above table in its relation to the proposed legislation that the distribution given in the table applies, so far as the Army is concerned, only to the regular Medical Corps; it does not apply to the Medical Reserve Corps. The Medical Reserve Corps, as constituted by the National Defense Act, is limited in rank to the three grades of lieutenant, captain and major, with no percentage limitations.

The Owen-Dyer bill provides, first, higher grades and an increased percentage of officers in the higher grades. Second, and this is important, the bill provides that an officer in the Medical Reserve Corps on active duty may achieve the same rank as an officer in the regular Medical Corps. If the bill becomes a law, including both the regular Corps and Medical Reserve Corps, and basing the percentage estimate on 20,000 officers in active service (required for an army of 2,750,000 men), there may be 100 brigadier-generals, 800 colonels, 1,600 lieutenant-colonels, 4,700 majors, and 12,800 captains and lieutenants.

Both the Owen bill of last July and the present Owen-Dyer bill provide for the appointment of "consultants." The paragraph in the former reads:

> "The President shall have authority to appoint officers of either corps as 'consultants,' with the duty of acting in an advisory capacity, making inspections and reports on medical, surgical, or sanitary questions, and such other duties as may be required by the chief of the Medical Department."

The following is the paragraph in the new Owen-Dyer bill:

> "The Surgeon-General shall have authority to designate as 'consultants' officers of either corps and retire them as the interests of the service may require."

It will be noted that the first bill assigned to the President the authority to appoint these consultants, and defined their duties. The Owen-Dyer bill gives the Surgeon-General the right of appointment, but it does not specify what the duties of these consultants shall be.

The Owen-Dyer bill will, we are sure, have the approval of every physician, whether he be in the Medical Corps, in the Medical Reserve Corps, or a private in the ranks of the general profession. It is not only a bill that we can heartily endorse, but also one that we should feel it a duty to support. But those who write to their congressmen or senators should inform them that the increased rank, and the authority which goes with it, is desired not for the increased pay which will come with the advanced rank, nor as a salve to the pride of these officers, but primarily in the interest of sanitary and health conditions of our army and as common justice to men who are making tremendous sacrifices. Nevertheless, whatever may be the verdict of Congress in this matter, medical men will play the game and do their duty; but Congress should be given to understand that these men at the present time are working under a heavy handicap which a wise Congress will remove without delay.

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[1] Surgeon-General Gorgas is a Major-General by special act of Congress. Ordinarily the Surgeon-General is a Brigadier-General.

## CARDIOVASCULAR EXAMINATIONS

Among the many problems presented to the physician examining prospective candidates for the Army, none is more perplexing than that of the heart. What constitutes proof of disqualifying cardiac conditions? Of course in most instances the answer is clear; even on closest scrutiny, the heart is free from any sign or symptom of disease, or, on the other hand, the history and examination reveal unmistakable evidence of organic mischief in valve or muscle. The more questionable cases are those in which the rate, rhythm or size are not according to the generally accepted standards, or those in which an endocardial murmur arrests attention. What, under these circumstances, constitutes fitness, and what unfitness? And particularly how is one to decide when, as in the case of the man trying to break into the Army, the symptoms of heart inefficiency are minimized or glossed over, or, in the case of the young man anxious to escape the draft, symptoms are magnified and perhaps the heart's action made unnatural so far as possible by the use of irritants, such as alcohol, tobacco, coffee or drugs?

Hard and fast rules to govern in these cases cannot be laid down. Each case must be studied on its own merits, and much will depend on the skill of the physician in physical examination, on his soundness of judgment, and on his ability to read disease in general and heart disease in particular. A good all-round physician whose experience has taught him to understand human nature will sometimes make a better diagnosis of the fitness of a candidate with doubtful heart than the more learned and scientific man with acute powers of auscultation and with all the refinements of diagnosis that go with modern instruments of precision. Common sense, experience and a sizing up of conditions in their entirety may here reach the correct conclusion that would be missed were one to rely on the presence or absence of murmur, the pulse pressure, the rhythm, the rate before and after exertion, or the instrumental record.

One difficulty in these examinations has been the question of endocardial murmur. In the minds of many examiners it bulks large; no matter how faint or where located, its discovery is sufficient to cause rejection. The fact is ignored that some murmurs are innocent and do not mean any incapacitating lesion of valves or muscles. Teachers and writers have written much on the topic, but the teaching is too often unknown or unheeded and needs to be frequently repeated. It is valuable to have Dr. Babcock emphasize the importance of the association of the murmur with change in the size of the heart, altered second tones, dyspnea, cyanosis, etc., before concluding that there is serious disease, which he did in a recent article in The Journal.[1] Many candidates with murmur but without these secondary signs are eminently fit for Army service.

While what we have said is true, we must emphasize a possible danger in this direction: the danger of minimizing some of the signs of slight cardiac derangement and of ordering into Army service men who, under the severe strain of military life, will have their mild heart difficulties aggravated so that ultimately their hearts may break down. Persistent emphasis by teachers on the innocuousness of an accidental murmur, warning from men like Babcock as to the injustice of rejecting a man on his murmur alone, emphasis by Christian,[2] Lewis and others on the comparative unimportance of the murmur, caustic comment by an honored authority like Mackenzie may ultimately undermine the orthodox faith of the ordinary doctor, and he may renounce entirely his belief in the meaning of endocardial murmurs. The same is true of extrasystole. And this danger is increased because it is to be remembered that the instructions given the Army examining physician as well as the physician on the selective service exemption boards especially call attention to the fact that the murmur alone is not proof of incapacitating disease of the heart. These instructions, by the way, seem to be unknown to some who are free in their criticism of the Army or draft board examination, and who seem to take it for granted that the working orders issued by the government imply rejection for murmur alone.

And now, after all has been said about the relative meaninglessness of certain murmurs and extrasystoles and tachycardias, must we not admit that, given one of these departures from the normal, the burden of proof is with the one who claims their insignificance? Grant that the outdoor life, the regular military drill may benefit a flabby myocardium; grant that the mitral leak may be slight, the secondary changes not manifest even to careful examination; grant that the heart is competent to meet all ordinary demands of civilian life; the question is, Will it be able to stand up under the storm and stress of the Army? Can it meet the sudden emergencies, the exposures, the physical and nervous shock that will come? May it not break down in a few years? Must we not feel that an injustice has been done the man in forcing on him a lifelong damage that will shorten his years, an injustice to the Army whose soldier fails perhaps at some critical moment, and an injustice to the government that is forced to pay the pension or the insurance because of the faulty original examination? If albuminuria in one who has no other sign of disease rules one out of service, or slight latent tuberculosis of the lung, or a minute hernial protrusion or even a patulous inguinal ring, all for the reason that there is likelihood that Army service may aggravate existing conditions, even though these in no way interfere with one's active participation in civilian life, should not even slight cardiac faults be noted and the man be accepted as a soldier only after scrutinizing proof that these signs are clearly not indicative of actual lesion?

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[1] Babcock, R. H.: Prognosis in Cardiac Affections, The Journal A. M. A., Feb. 9, 1918, p. 357.

[2] Christian, H. A.: Boston Med. and Surg. Jour., 1917, **177**, 750.

As we said before, no hard and fast rule applies; each case must be judged on its own merits; and here is where the patient application of trained skill and good judgment will avail much.

## Current Comment

### THE WORK OF THE MEDICAL ADVISORY BOARDS

As was suggested in The Journal a few weeks ago, the effect of the special regulations for physical examinations of registrants issued to the local boards has been to throw the large portion of examinations on the medical advisory boards. And from what we can learn, the medical advisory boards, especially in large cities, while they are straining under this heavy burden, working some of them often far into the night, making considerable financial outlay from their private purses to fill in shortages in equipment and in clerical service, are nevertheless rendering their duty, as was predicted, wholeheartedly and efficiently. It is, of course, only after the men are called to camp that the great saving to the nation through this elimination of the unfit at the source will be realized. The defect in the entire system is that these men, as well as medical members of local and district boards, who are giving such excellent service and such large measure of their time and efforts do not receive any consideration from the government, either financial, material or otherwise. Would it not be a proper measure to recognize these men by conferring some appropriate insignia or certificate?

### BENCE-JONES PROTEINURIA

Although the syndrome of heart block has been known for nearly a hundred years, the frequency of its occurrence was not appreciated until within the past two decades, when the more erudite investigation of its details by modern laboratory methods focused attention on the scientific aspects. Accuracy in diagnosis brought with it a more widespread recognition or identification of cases of Adams-Stokes disease. Perhaps a somewhat similar history is about to be written for another long known abnormality, familiarly termed Bence-Jones proteinuria. At present this may still be classified among the rarities of clinical experience. It is usually associated with diseases of the bone marrow, notably multiple myeloma.[1] Miller and Baetjer[2] of Baltimore have recently described the existence of Bence-Jones protein, or some substance similar to it in behavior, as the only protein excreted in the urine in cases of chronic nephritis with edema and high blood pressure. The identification of several cases by the same investigators within a few months suggests that the association of Bence-Jones proteinuria, hypertension and nephritis may not even be uncommon, and that, as they say, attention called to this matter will result in the finding of more instances. When the further evidence thus predicted as likely to be forthcoming will be available, it may become possible to determine whether Bence-Jones proteinuria represents "either the normal, abnormal or aberrant stage of bone synthesis, the completion of which is hindered by some unknown deficiency, in association with some unusual set of physicochemical adjustments which permit the compound to pass through an organ capable of holding back smaller protein molecules." In any event, it behooves us to learn the tests for the Bence-Jones protein and to be on the lookout for its appearance in the urine, even when disease of the bones is not suspected.

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[1] Rosenbloom, J.: A Review of the History of Bence-Jones Protein and Multiple Myeloma, with Complete Bibliography, Med. and Surg., 1917, 1, 257.

[2] Miller, S. R., and Baetjer, W. A.: Bence-Jones Proteinuria: Some Observations on Its Occurrence, with Particular Reference to Nephritis and Hypertension, The Journal A. M. A., Jan. 19, 1918, p. 137.

### THE POSSIBLE SIGNIFICANCE OF HIGH SUGAR CONTENT IN DIABETES

Those who have occasion to estimate the sugar content of the blood of diabetics and to evaluate the data for therapeutic guidance must now and then be puzzled by the wide variations that occur at different times in the same person. A large experience acquired at the Medical Clinic of the Johns Hopkins Hospital has furnished the basis for certain new points of view, which Mosenthal, Clausen and Hiller[1] have formulated in a recent publication. They point out that, according to the observations of Hamman and Hirschman,[2] superimposed doses of glucose are not necessarily followed by a steplike rise in the blood sugar. It is only the first dose that causes the percentage to rise; the subsequent doses apparently have no effect. Mosenthal and his colleagues have noted that the blood sugar values remain at the fasting level or below it throughout the day in those cases in which the initial hyperglycemia is marked (for example, from 0.17 to 0.45 per cent.); whereas it rises in those in which it is low (from 0.12 to 0.16 per cent.). It seems, to quote the Baltimore clinicians, that each diabetic has a blood sugar level at which his carbohydrate metabolism proceeds in a fairly normal manner, with no rise in the blood sugar after meals of a moderate starch content. In very mild cases, they state, this acquired blood sugar level may be very low and no increase result after the eating of a starch-free meal; whereas, in individuals with a very marked derangement in their carbohydrate metabolism, such a favorable blood sugar level will be proportionately increased. When this optimal glucose percentage in the blood is reduced by dietary restrictions, the organism tends to respond on the least provocation by a hyperglycemia. It is under such circumstances that there occurs an increase in the glucose of the blood after ingestion of protein and fat. The contention that the organism tends to utilize glucose more effectively when the blood sugar is at a high level than at a low one is supported, so the argument runs, by the existence of a mild hyperglycemia during muscular exercise. Can it be that the rise in blood sugar content in diabetics represents an attempt of the organism to adjust carbohydrate metabolism for the more advantageous utilization of sugar, as seems to happen after exercise? If so, there may be some wisdom in the suggestion of Mosenthal and his associates that we must not counteract the effective use of glucose when the blood sugar is at a higher level. Translated into clinical dietotherapy, it may be desirable not to attempt to reduce the blood sugar to a normal value in every case of diabetes. One sometimes hears a somewhat analogous argument in discussions of fever when the relation of the higher temperature to the febrile process is under debate.

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[1] Mosenthal, H. O.; Clausen, S. W., and Hiller, Alma: The Effect of Diet on Blood Sugar in Diabetes Mellitus, Arch. Int. Med., January, 1918, p. 93.

[2] Hamman, Louis, and Hirschman, I. I.: Studies on Blood Sugar, Arch. Int. Med., November, 1917, p. 761.

## HIGHER RANKS FOR RESERVE OFFICERS IN THE NATIONAL ARMY

In discussing the Owen-Dyer bill, elsewhere in this issue, we state that the National Defense Act of 1916, creating the Officers Reserve Corps, limits the members of that corps to the grades of lieutenant, captain and major. This, of course, applies to medical officers as well as to others. The Selective Service Law provides officers for the National Army created by that law, by authorizing the President to appoint members of the Officers Reserve Corps, and members of other organizations specified in the law, to positions with the National Army. The officers in rank not above colonel may be appointed by the President alone, and in ranks above colonel by the President by and with the consent of the Senate. This will explain the authority under which certain members of the regular Medical Corps have already been appointed to the rank of brigadier-general, and certain officers of the Medical Reserve Corps have been made lieutenant-colonels.. Medical Reserve officers attached to the National Army may, therefore, be given ranks higher than major. The appointments so awarded, however, are temporary—for the period of the emergency—and as we read the law terminate at the end of the war when the National Army is mustered out of service.

## THE PREVENTION OF DEATH

We hasten at the outset to warn any oversanguine reader, if such there be, against unwarranted optimism suggested by this theme. In truth,

There is no armor against fate;
Death lays his icy hand on kings;
Scepter and crown
Must tumble down,
And in the dust be equal made
With the poor crooked scythe and spade.

Nevertheless, a discussion of the cause of death[1] and the formulation that its immediate manifestation is in many instances associated with and presumably attributable to acidosis, whereby the respiratory center is irreparably paralyzed, suggests the possibility of preventive measures. The antidote to an acid is a base. Whitney,[2] to whom we owe the etiologic suggestions just made, has warned, however, against indiscriminate use of alkalis in what one might designate as terminal acidosis. The neutralization of the acid ions, as he quite properly points out, is not the only thing to be considered; the salts thus formed must be eliminated; otherwise they may accumulate to an abnormal and possibly highly dangerous concentration in blood and tissues. If elimination is so poor, Whitney adds, as to allow accumulation of acid, there is every reason to suppose that salts may also be retained. The more rational procedures would be to promote elimination by diuresis as far as possible, and by a gentle breeze of fresh air across the face to prevent even the slightest accumulation of carbon dioxid. But acidosis is not the only foe of man. There are toxins for which no antidote or preventive measures can even be suggested at the present moment.

Devouring famine, plague, and war,
Each able to undo mankind,
Death's servile emissaries are;
Nor to these alone confined.
He hath at will
More quaint and subtle ways to kill.

## CHOLESTEROL AND FAT ABSORPTION

Evidence has been accumulating of late, assigning to the lipoids, lecithin and cholesterol, a rôle in the transport and metabolism of fats.[3] Even in severe lipemia there seems to be a constant relation between the cholesterol, fatty acids and lecithin of the blood, thus attesting the apparently important function of the lipoids maintained under conditions of fat transformations more strenuous than usual. Cholesterol exists in the blood not only in a free state but also in the form of esters. Several investigators have reported a fairly definite relation or balance between the free and the combined cholesterol in the blood. By following the proportions of these lipoid substances in both plasma and corpuscles during the course of the active absorption of fats from the alimentary tract, Knudson[4] of the Albany Medical College has further corroborated much of the evidence already available. He found, as did Bloor,[5] that the total cholesterol of the blood changes very little in amount during uncomplicated fat absorption. But the amount of cholesterol existing as an ester, that is, a compound with one of the higher fatty acid compounds of fat, as exemplified in palmitic, stearic or oleic acid, unquestionably increases under the circumstances. This change seems to go on in the corpuscles. The latter are practically devoid of cholesterol esters under fasting conditions; but, after absorption of fat, increases of several hundred per cent. in these esters are regularly found. This is in harmony with the assumption that cholesterol takes an active part in the process. As a somewhat similar increase of fatty acids and of lecithin, noted in the whole blood but particularly in the corpuscles, has also been reported, it would seem that these blood cells must play an active part in the assimilation of fat. It has been suggested that they take up as much fat as possible and transform it into cholesterol esters and the complex fat lecithin, which are regarded as intermediate stages of fat metabolism.

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[1] The Cause of Death, editorial, The Journal A. M. A., Feb. 16, 1918, p. 461.

[2] Whitney, J. L.: Studies on Acidosis: The Immediate Cause of Death, and Remarks on the Acidosis of Nephritis, Arch. Int. Med., December, 1917, p. 931.

[3] The Lecithins of Milk, editorial, The Journal A. M. A., Nov. 13, 1915, p. 1734; Pure Lecithin, April 1, 1916, p. 1029; The Assimilation of Fats, July 8, 1916, p. 124; The Lipoids ("Fats") of Human Blood, Sept. 23, 1916, p. 956; Blood Lipoids and Diabetes, Nov. 25, 1916, p. 1602; Biochemical Relationships in Metabolism, Particularly in Respect to Cholesterol, Aug. 11, 1917, p. 474; Cholesterol Estimations in Blood, Dec. 8, 1917, p. 1917.

[4] Knudson, A.: Relationship Between Cholesterol and Cholesterol Esters in the Blood During Fat Absorption, Jour. Biol. Chem., 1917, **32**, 337.

[5] Bloor, W. R.: Jour. Biol. Chem., 1916, **24**, 447.

# *Medical Mobilization and the War*

### Personnel of the Medical Department

For the week ending February 15, the personnel of the Medical Department of the Army included:

Medical Corps: 776 including 1 major-general, 62 colonels, 107 lieutenant-colonels, 213 majors, 2 captains and 391 lieutenants.

Medical Reserve Corps: 16,822 including 962 majors, 3,704 captains and 12,156 lieutenants. *On active duty:* 13,507 including 831 majors, 3,128 captains and 9,548 lieutenants.

Medical Corps, National Guard: 1,201 including 7 lieutenant-colonels, 255 majors, 149 captains and 790 lieutenants.

Medical Corps, National Army: 16 including 4 brigadier-generals, 6 colonels, 4 lieutenant-colonels and 2 majors.

The dental corps, 211; dental reserve corps, 4,999, of whom 1,296 are on active duty; dental corps National Guard, 264; veterinary corps, 25; veterinary reserve corps, 1,364, of whom 696 are on active duty; veterinary corps National Guard, 57; veterinary corps National Army, 284; sanitary corps, 811, and ambulance service, 136, constitute the remainder of the commissioned personnel.

### Surgeon-General Braisted Reappointed

Secretary Daniels, announcing that the President has sent to the Senate the reappointment of Rear Admiral William C. Braisted as Surgeon-General of the Navy, states that Surgeon-General Braisted is so efficient and capable, and the Bureau of Medicine and Surgery under his direction has made such an excellent record under the conditions imposed by the war, that his reappointment will meet with general approval. Secretary Daniels also points out the large growth in the personnel of the Navy Medical Department, the attendant increase in equipment, and the fact that the health of the Navy is reported as unusually satisfactory and has shown a marked improvement in the past month. "Surgeon-General Braisted," he says, "keeps in daily touch with sanitary and health conditions ashore and afloat, and the gratifying experience of the Navy as to the health of its personnel is largely due to his foresight and leadership, combined with the complete cooperation of all in the medical corps."

### Medical Officers Wounded

Capt. Robert Drane, M. R. C., Madison, Wis., is reported to have been slightly wounded while serving with the British Army in France, February 5.

Lieut. Willie H. Howell of Belleville, W. Va., attached to a field ambulance, was slightly wounded in action in France, January 30.

Lieut. Herbert A. Brown, M. R. C., Cincinnati, attached to the British Expeditionary Forces, is reported to have been slightly wounded in action, December 31.

Lieut. Wallace A. Belsey, M. R. C., Belvidere, Ill., on duty with the British forces in France is recuperating in a hospital in London from shell wounds received at Cambria, while going over the top to direct stretcher bearers.

### Expansion of Training Camps for Medical Department

According to the *Army and Navy Register*, February 16, Surgeon-General Gorgas has called the attention of the War Department to the fact that the Army Medical Department now lacks quarters at medical training camps for 9,000 men. It has been ascertained that 10,000 men will be assigned to the Medical Department in the second draft, and it is not possible to accommodate more than 2,000 of these at the training camps. Following is the memorandum of Surgeon-General Gorgas:

> The present situation is that untrained men have had to be sent direct to hospitals and other organizations not adequately prepared to train them; the past shortages of this department have been added to its present deficiencies, and these, with its prospective needs created by General Pershing's plan, produce a problem in medical training, organization, and preparedness not solvable by present facilities. Every month of delay in satisfying its need has seen its burden grow proportionately heavier.
>
> This department needs, in round numbers, 135,000 men. It takes two months at the very minimum to train a man. All this number should be trained within the next six months to be of any material use in the 1918 drive. Allowing all possible numbers directly absorbable into hospitals and divisions, it is simple mathematics to show that nothing less than all the accommodations at Chickamauga Park, with those now available at the medical officers' training camp, Fort Riley, can even approximate the meeting of required needs.
>
> New camps can not be established at other points for the reason that no instructors, equipment, or material are available. But great expansion of the present nucleus and administrative and teaching staff at the medical officers' training camp, Fort Oglethorpe, is possible and furnishes the only solution.
>
> In a letter from this office of January 16 request is made that the War Department formulate a definite policy under which the medical department shall systematically receive personnel, with approximate dates and numbers of instalments.
>
> The present letter further requests the formulation of a policy by which this department may be enabled to shelter, organize, and train such personnel as higher authority may decide as necessary to it.

### Surgeon-General Inspects Camp Greene, N. C.

Under date of February 12 Surgeon-General Gorgas sent the following memorandum to the secretary of war relative to conditions at Camp Greene, N. C.:

The wet weather and character of the soil at Camp Greene, Charlotte, N. C., together with the temporary nature of the camp, have brought about conditions which I wish to call to your attention and which may be summarized as follows from the last two reports of sanitary inspections of the camp:

#### GARBAGE REMOVAL STOPPED BY MUD

Knee-deep mud has interfered with garbage removal by contractors, and quantities have been dumped or buried because of shortage of fuel for burning it.

Limited facilities for heating water for bathing over a period of several months has resulted in the men becoming dirty.

Water from the kitchens, baths and overflowed latrines is removed by ditches, surface drainage, or stands in pools. The character of the soil will make it slow to dry out and, with the advent of warm weather, flies and other insanitary conditions may be anticipated.

The dirt floors of the kitchens will breed flies; the field ranges in use are uneconomical and smoke indoors with any wood fuel.

Shortage of supplies has held back the work on the detention camp for contacts until its overcrowded condition has led to the establishment of quarantine areas in the regiments, but reports on this indicate that completion of the detention camp is preferable to continuation of the latter plan, especially since sufficient tent space and separate latrines and mess halls have not been available to make the regimental quarantine absolute in the areas set aside.

Work has been held up on the additional quarters for nurses by failure of material to arrive, and the same has affected progress on reconstruction of the operating and laboratory buildings of the base hospital, which were recently destroyed by fire.

Overcrowding, to the extent of eight men to a tent, and occasionally more, is reported.

Sick rates at Camp Greene are not notably high and measles and pneumonia cases appeared on the decline at the last report, but the insanitary conditions mentioned should be corrected without delay to prevent increased sickness and mortality, which may result from their continuance.

It has been recommended that additional tentage be supplied the commanding general at Camp Greene to enable him to quarter all men on the basis of five to a tent instead of eight. It is understood that this recommendation has been approved.

The immediate necessity at Camp Greene is the installation of a sewer system for the entire camp, which is again urgently recommended.

## NEWS OF THE CANTONMENTS

### Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Feb. 11, 1918.

#### INCREASE IN PATIENTS' RATIONS

An increase will be made in the rations for nurses and patients at the base hospital at Camp Zachary Taylor. The ration allowance of 40 cents a day for each nurse and patient will be increased to 60 cents a day. This will make possible the serving of any special diet prescribed by the medical officers for the patients. This increase in ration allowance has been made necessary by the increase in the cost of necessities.

#### COURTS MARTIAL

Brigadier-General Wilder has issued a memorandum that there have been too many courts martial held at the camp. He states that in many of these cases the offenses could have been settled by the company commander by company punishment. Instead, the officer has preferred charges against the soldier, with the result that he has gone before a court martial. At a court martial all witnesses must be heard, even though the soldier pleads guilty.

According to the review of a court martial verdict in the case of an officer tried for drunkenness by the commanding general, drunkenness in the Army, especially in the case of an officer, is so utterly reprehensible and disgraceful that its toleration by military courts or other military authorities can serve only to bring reproach on the service and, if unchecked, disaster to our arms.

#### TREATMENT OF SOLDIERS' FAMILIES

Special arrangements to provide medical services for the 400 families of soldiers in Louisville have been made by the U. S. Government.

An office has been opened in the custom house. First Lieut. Charles B. Matthews, M. R. C., formerly of Lexington, Ind., will be in charge, assisted by Lieut. W. K. Main, both being from the One Hundred and Fifty-Ninth Depot Brigade. A full equipment of medicines and instruments will shortly be installed, and all medicines and treatments will be free to the wives and children of soldiers. Calls will be made at the homes of patients by the surgeons in charge. Authorization for the new office was received from Washington, January 26, Col. John H. Allen, division surgeon, being responsible for the office.

#### ARMY NURSES

Five Army reserve corps nurses who have been on duty at Camp Zachary Taylor have been ordered to a port of embarkation for duty in France. Miss Mabel Peters, a graduate of the Louisville City Hospital, is the nurse in charge of the party. They will report to the commanding officer of Hospital Unit D, Major Irvin Lindenberger. Physicians and enlisted men of the unit have been stationed at Fort McPherson, Ga., near Atlanta, and will join the nurses at their point of embarkation in the East.

#### FOOD WASTE

A visit to the dining room of the base hospital, where the convalescent patients are fed, is a revelation. Before they begin to eat, Captain Dennen in an impressive short address, tells them the importance of not taking more food on their plates than they can eat. The Army wants the men to have all they want, but they are expected to eat all they take on their plates. Each man stands at attention after the meal is finished until the plates have been inspected. One hundred and seventy-five men were fed, and there was not a pint of refuse left on the plates—no scraps of bread, and only the inedible parts of the meat served. Unconsumed food remained in the dishes, and was taken back to the kitchen to be served again.

#### LETTER WRITING

Soldiers are great letter writers, the report from the Y. M. C. A. showing that from the various buildings 147,872 letters were mailed in January, making an average of seven letters to each man.

Money orders totaled $27,567.67, which were sold to soldiers.

#### PERSONAL

Lieut.-Col. John H. Allen was confined to his home in Walden Place for several days with an attack of tonsillitis. ——The superintendent of the city hospital, Dr. Tuley, after a visit to the base hospital convalescent dining room at Camp Zachary Taylor, made a request of the commanding general of the Eighty-Fourth Division for Captain Dennen, M. R. C., to address the patients, the maids, the help, the nurses and the staff on the importance of food conservation. This he did on Tuesday of this week, with a decided reduction in the amount of garbage sent out from the hospital.

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Feb. 8, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):

| | |
|---|---|
| All Troops | 1,662.2 |
| National Guard Camps | 1,488.7 |
| National Army Camps | 2,003.7 |
| Regular Army | 1,295.3 |

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

| | |
|---|---|
| All Troops | 51.4 |
| National Guard Camps | 48.5 |
| National Army Camps | 59.5 |
| Regular Army | 40.2 |

3. CAMPS HAVING ADMISSION RATE FOR DISEASE HIGHER THAN AVERAGE: National Guard: Camps Bowie, Wheeler, Doniphan, Sevier, Kearny and Beauregard. NATIONAL ARMY: Camps Travis, Pike, Funston (89th), Lee, Funston (92nd), Dodge, Jackson, Zachary Taylor and Sherman. REGULAR ARMY: Central and Southern Departments.

4. CAMPS HAVING NONEFFECTIVE RATE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Bowie, Beauregard, Wheeler, Shelby, Sevier and Kearny. NATIONAL ARMY: Camps Travis, Pike, Funston (92nd), Funston (89th), Zachary Taylor, Jackson, Dodge and Lee. REGULAR ARMY: Southeastern, Central and Southern Departments.

5. VENEREAL DISEASES: Annual admission rate per 1,000:

| | |
|---|---|
| National Guard Camps | 65.6 |
| National Army Camps | 84.4 |
| Regular Army | 60.8 |

CAMPS HAVING RATE ABOVE AVERAGE: NATIONAL GUARD: Camps Bowie, Logan, Wheeler, Cody and Beauregard. NATIONAL ARMY: Camps Pike, Dix, Jackson, Zachary Taylor, Lewis and Lee. REGULAR ARMY: Northeastern, Central and Southern Departments.

6.

| | |
|---|---|
| Number of new cases of Pneumonia reported | 792 |
| Highest number in any one camp (Bowie) | 123 |
| Number of new cases of Meningitis reported | 117 |
| Highest number in any one camp (Jackson-6; Beauregard-6) | 6 |

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING FEB. 8, 1918

| Division | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffective per 1000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 5 | ... | ... | 20 | .. | .. | ... | .. | .. | 0 | 28.9 |
| Hancock | 11 | ... | ... | 19 | .. | .. | 11 | 3 | 3 | 3 | 28.4 |
| McClellan | 10 | ... | ... | 25 | .. | .. | 22 | .. | 3 | 1 | 39.0 |
| Sevier | 17 | ... | ... | 28 | .. | .. | 34 | 2 | .. | 4 | 58.5 |
| Wheeler | 29 | ... | 1 | 50 | .. | .. | ... | 1 | .. | 8 | 70.1 |
| Logan | 17 | ... | ... | 83 | .. | .. | 57 | .. | 1 | 4 | 34.7 |
| Cody | 75 | ... | ... | 40 | .. | .. | 11 | 2 | .. | 10 | 45.0 |
| Doniphan | 22 | ... | ... | 14 | .. | .. | 4 | 2 | .. | 11 | 48.2 |
| Bowie | 123 | ... | ... | 75 | .. | .. | 2 | 3 | .. | 7 | 84.0 |
| Sheridan | 16 | ... | ... | 7 | .. | .. | 14 | .. | 1 | 7 | 27.4 |
| Shelby | 12 | ... | 1 | 31 | .. | .. | ... | 4 | 1 | 2 | 60.5 |
| Beauregard | 13 | ... | 7 | 29 | .. | .. | ... | 6 | .. | 8 | 70.7 |
| Kearny | 13 | ... | ... | 2 | .. | .. | 3 | 1 | 14 | 3 | 54.2 |
| Devens | 7 | ... | ... | 15 | .. | .. | 28 | 1 | .. | 2 | 37.2 |
| Upton | 15 | ... | ... | 27 | .. | .. | ... | 1 | 5 | 2 | 32.7 |
| Dix | 5 | ... | ... | 49 | .. | .. | 57 | 1 | 7 | 2 | 49.6 |
| Meade | 11 | ... | ... | 18 | .. | .. | 26 | 4 | 12 | 10 | 34.3 |
| Lee | 15 | ... | 1 | 48 | .. | .. | 47 | 3 | .. | 9 | 70.0 |
| Jackson | 13 | ... | ... | 41 | .. | .. | 10 | 6 | .. | 3 | 80.7 |
| Gordon | 9 | ... | ... | 31 | .. | .. | 38 | 1 | .. | 6 | 36.7 |
| Sherman | 2 | ... | ... | 41 | .. | .. | 44 | 3 | 18 | 2 | 47.2 |
| Taylor | 27 | ... | ... | 48 | .. | .. | 12 | .. | 2 | 4 | 83.4 |
| Custer | 4 | ... | ... | 20 | .. | .. | 22 | .. | 5 | 7 | 46.9 |
| Grant | 3 | ... | ... | 27 | .. | .. | 48 | 1 | 10 | 3 | 39.4 |
| Pike | 19 | ... | 3 | 219 | .. | .. | 17 | 1 | 19 | 20 | 96.1 |
| Dodge | 13 | ... | ... | 13 | .. | .. | 27 | 2 | 10 | 5 | 78.7 |
| Funston, 89th | 11 | ... | ... | 19 | .. | .. | 4 | 3 | 1 | 6 | 86.3 |
| Travis | 54 | ... | ... | 18 | .. | .. | 7 | 4 | .. | 12 | 100.5 |
| Lewis | 8 | ... | ... | 61 | .. | .. | 30 | 2 | 63 | 0 | 52.2 |
| Funston, 92d | 2 | ... | ... | ... | .. | .. | 1 | .. | .. | 0 | 90.3 |
| Regulars | 199 | 5 | 7 | 402 | .. | .. | 566 | 30 | 125 | 87 | 40.2 |
| National Guard in Departments | ... | ... | ... | 11 | .. | .. | 30 | .. | 2 | 2 | 28.7 |
| National Army in Departments | 12 | ... | ... | 40 | .. | .. | 107 | .. | 30 | 6 | 112.0 |

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

| | Regulars, U. S. Army, in U. S. only, 1916* | Regulars in U. S., Week Ending Feb. 8, 1918 | National Guard, All Camps, Week Ending Feb. 8, 1918 | National Army, All Camps, Week Ending Feb. 8, 1918 | American Expeditionary Forces, Week Ending Feb. 8, 1918 |
|---|---|---|---|---|---|
| Pneumonia | 2.59 | 30.1 | 56.3 | 26.4 | 33.5 |
| Dysentery | 3.97 | 0.7 | 0.0 | 0.0 | 0.7 |
| Malaria | 12.52 | 1.0 | 1.4 | 0.5 | 1.2 |
| Venereal | 91.23 | 60.8 | 65.6 | 84.4 | 57.9 |
| Paratyphoid | 0.31 | 0.0 | 0.0 | 0.0 | 0.0 |
| Typhoid | 0.21 | 0.0 | 0.0 | 0.0 | 0.2 |
| Measles | 20.28 | 85.6 | 24.5 | 50.7 | 25.8 |
| Meningitis | 0.29 | 4.5 | 3.7 | 4.0 | 1.6 |
| Scarlet fever | 0.59 | 18.9 | 3.5 | 18.4 | 13.4 |

* Enlisted men only, both white and colored.

## CORRECTION

Under "Orders to Officers of the Medical Reserve Corps," in the issue of February 2, appeared the following order: "*To his home* and to the inactive list, Major ALBERT J. OCHSNER, Chicago; on account of being physically disqualified for active service, Capt. FRANCIS M. EDWARDS, Centralia." This should be understood as two orders, namely: *To his home* and to the inactive list, Major ALBERT J. OCHSNER, Chicago; and *to his home* and to the inactive list on account of being physically disqualified for active service, Capt. FRANCIS M. EDWARDS, Centralia.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Hoboken, N. J.,* for duty and on completion *to his proper station,* Col. ELBERT E. PERSONS.

*To New Haven, Conn.,* for inspection and on completion *to his proper station,* Col. GEORGE H. BUSHNELL.

*To report to the Surgeon-General* for duty in his office, Col. JAMES R. CHURCH.

*To Camp Greene,* Charlotte, N. C., for inspection and on completion *to his proper station,* Lieut.-Col. CHARLES F. MORSE. For temporary duty, from Camp McClellan, Major CONDON C. McCORNACK. As orthopedic surgeon, from Camp Meade, Lieut. HAROLD D. ROGERS.

*To Lake City, Fla.,* for inspection and on completion *to his proper station,* from Camp Joseph E. Johnston, Lieut.-Col. JOSEPH Y. PORTER.

*To Washington, D. C.,* as medical member of examining boards and assistant recruiting officer, Aviation Section, Signal Corps, Lieut.-Col. SAMUEL M. DE LOFFRE.

*To Fort Monroe, Va., and Salisbury, N. C.,* for inspection and on completion *to his proper station,* Senior Surgeon JOSEPH H. WHITE.

*To Camp MacArthur,* Waco, Texas, for temporary duty, from Camp Logan, Major SAMUEL S. CREIGHTON.

*To Muncie, Ind.,* for inspection and on completion *to his proper station,* Major JOHN R. McKNIGHT.

*To San Francisco, Calif.,* for treatment, from Camp Lewis, Major EUGENE G. NORTHINGTON. For duty, from Philippine Department, Lieut. HERMAN G. MAUL.

*To West Point, N. Y.,* U. S. Military Academy, for duty, from Fort Oglethorpe, Major HOWARD H. BAILY.

*To Camp Hancock*, Augusta, Ga., for temporary duty, Capt. THEODORE C. FEGLEY.

*To Camp Sevier,* Greenville, S. C., as orthopedic surgeon, from Camp Meade, Lieut. HASKETT L. CONNER.

*To Camp Upton,* Long Island, N. Y., as orthopedic surgeon, from Camp Lee, Lieut. HARVEY E. WEBB.

*To Camp Wadsworth,* Spartanburg, S. C., for duty, Lieut. JOSEPH H. MURPHY.

*To Douglas, Ariz.,* for duty, from Fort Riley, Lieut. JAMES McALLISTER.

*To Fort Totten, N. Y.,* for duty, from Fort Totten, Lieut. SETH H. MILES.

*To Kelly Field,* San Antonio, Texas, with the neuropsychiatric board to examine the command in his specialty, Lieut. GORDON F. WILLEY.

*Resignation* from Medical Corps, National Guard, accepted, Lieuts. GEORGE F. HOLLAR, GEORGE C. WILLIAMSON.

*Honorably discharged* from the Medical Corps, National Guard, Capt. CHARLES M. SEIVERS; Lieuts. FORD A. BARNES, ROBERT L. BARROW, LOUIS P. LANE, Jr. On account of physical disability incident to service and incurred in line of duty, Lieut. ISAAC G. COOK.

## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Fort Bayard*, New Mexico, for duty, from Camp Jackson, Lieut. OTIS W. LITTLE, Mount Vernon.

*To Fort Monroe, Va.,* for duty, from Fort Oglethorpe, Lieut. LEON C. ELLIS, Florence.

*To Fort Oglethorpe* for instruction, Capt. THOMAS H. STREET, Alexander City; Lieuts. JOHN T. CALLAWAY, ROBERT G. LOVELADY, Birmingham; JAMES F. BEAN, Brundidge; WILLIAM S. McELRATH, Cedar Bluff; JAMES O. MORGAN, Piedmont. For duty, HENRY C. HARRIS, Birmingham.

*To Mercedes, Texas,* for duty, from Fort Oglethorpe, KOSSUTH R. CAMMACK, Evergreen.

*To their homes* and honorably discharged from the M. R. C., Lieut. RAYFORD A. SMITH, Franklin. On account of physical disability existing prior to entrance into the service, Lieut. JAMES L. NORTHINGTON, Hamilton.

### Arizona

*To San Antonio, Texas,* Kelly Field, Aviation Camp, as member of tuberculosis board, Lieut. SPENCER D. WHITING, Phoenix.

### Arkansas

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. MAC McLENDON, Marianna.

*To Fort McPherson, Ga.,* for duty, Lieut. EDWARD O. DAY, Little Rock.

*To Fort Oglethorpe* for instruction, Capt. ELFRED G. HEARN, Arkadelphia.

*To Lanoke, Ark.,* Eberts Field, Signal Corps, Aviation School for duty, JOSEPH S. DAVIDSON, Marvell.

*To their homes* and honorably discharged, Lieut. WILLIAM B. CENTER, Garland. On account of physical disability which existed prior to his entrance into the service, Lieut. GROVER C. BRUCE, Dalark.

### California

*To Alcatrix*, California, for duty, from San Francisco, Capt. FREDERICK E. ALLEN, San Francisco.

*To Army Medical School* for orthopedic instruction, Capt. ERNEST W. CLEARY, San Francisco.

*To Camp Kearny,* Linda Vista, for duty, Capt. JOHN A. BALSLEY, San Monica; Lieuts. LOWELL C. FROST, Beverly Hills; FRED C. SHURTLEFF, Los Angeles.

*To Fort McHenry, Md.,* for duty, from Camp Sevier, Capt. HOWARD C. NAFFZIGER, San Francisco.

*To Fort Riley* for instruction, Lieuts. FREDERIC B. WEST, Los Angeles; BYRON Y. MILLER, San Luis Obispo.

*To Mineola,* Long Island, N. Y., Hazelhurst Field, for duty in connection with the Medical Research Board, from Washington, D. C., Capt. JAMES L. WHITNEY, Sausalito.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, then *to Hoboken, N. J.,* for duty, from Fort Mason, Capt. HOWARD E. RUGGLES, San Francisco. *Neurological Institute,* for instruction, from Camp Kearny, Capt. BYRON P. STOCKEY, Lieut. CARL W. RAND, Los Angeles.

*To report to the Commanding General,* Western Department, for assignment to duty, from duty as a drafted man at Fort Riley, Lieut. HARRY S. HOLMES, San Francisco.

*To San Antonio, Texas,* Kelly Field, as orthopedic surgeon, from Camp Stanley, Capt. JOHN M. HENCH, Pacific Grove.

*To San Francisco,* Letterman General Hospital, as orthopedic surgeon, Capt. EARL N. GREENWOOD, San Francisco. For duty, Capt. LAWRENCE H. HOFFMAN, San Francisco; Lieut. WILLIAM L. ADAMS, Fresno; from Camp Kearny, Capt. HARRY E. FOSTER, Berkeley; Lieuts. ROBERT B. HILL, Los Angeles; JAMES R. SNYDER, Sacramento.

*To St. Louis, Mo.,* Washington University Medical School for instruction, from Fort Riley, Lieut. GEORGE W. PURCELL, San Francisco.

*To Western Department* for assignment to duty, Lieuts. PAUL DeW. BARNES, Berkeley; LEO D. SCOTT, Long Beach; OLIVER W. BUTLER, Los Angeles; MELVIN A. SHADE, Oakland.

*To his home* and honorably discharged from the M. R. C. on account of physical disability which existed prior to his entrance into the service, Capt. LEONARD W. ATKINSON, Napa.

*Honorably discharged,* Lieut. CLYDE B. LAUGHLIN, Bay Point. On account of physical disability existing prior to entrance into the service, Lieut. BURRELL O. RAULSTON, Los Angeles.

### Colorado

*To Camp Dodge,* Des Moines, Iowa, for duty, from Camp Dodge, Capt. AMOS L. BEAGHLER, Denver.

*To Denver* as assistant recruiting officer, in addition to his present duties at that place, Capt. CUTHBERT POWELL, Denver.

*To Fort Riley* for instruction, Lieut. ALBERT W. DEWEY, Denver.

*To New Haven, Conn.,* to inspect a tuberculosis hospital and on completion *to his proper station,* Capt. ALEXIUS M. FORSTER, Colorado Springs.

*To New York City,* Neurological Institute, for instruction, from Camp Bowie, Capt. LEWIS H. McKINNIE, Colorado Springs.

*To Williamsbridge, N. Y.,* as tuberculosis instructor, from Army Medical School, Major GERALD B. WEBB, Colorado Springs.

### Connecticut

*To Fort Oglethorpe* for instruction, Lieut. ROBERT E. CONWAY, Hartford; from duty as a private at Camp Devens, Lieut. JAMES P. McMANUS, New Haven.

*To New Haven, Conn.,* as medical member of examining board and recruiting officer, Aviation Section, Signal Corps, from Mineola, Lieut. EUGENE M. BLAKE, New Haven.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into service, Lieut. EDWARD A. WILLIAMSON, Stamford.

### District of Columbia

*To Fort McHenry, Md.,* for duty, from Allentown, Pa., Capt. CARLTON D. HAAS, Washington.

*To Mineola,* Long Island, N. Y., Hazelhurst Field, for duty in connection with the Medical Research Board, from Washington, D. C., Majors EDWARD G. SEIBERT, WILLIAM H. WILMER, Washington.

*To report in person* to the Surgeon-General of the Army for duty in his office, Capt. WILBUR A. SAWYER, Washington.

*To Rochester, Minn.,* Mayo Clinic, for instruction and on completion *to Camp Dodge,* for duty, from Fort Oglethorpe, Lieut. L. BRUCE KLINE, Washington.

*To Walter Reed General Hospital,* Takoma Park, D. C., from New York City, Lieut. STUART C. JOHNSON, Washington.

### Florida

*To Camp Joseph E. Johnston,* Jacksonville, Base Hospital, Lieut. ARTHUR W. ERKFITS, St. Petersburg. For duty, from Fort Oglethorpe, Lieut. ALBERT H. WILKINSON, Jacksonville.

*To Camp Upton,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. GROVER C. HARDIE, Fort Pierce.

*To Fort Oglethorpe* for instruction, from Camp Lee, Lieut. JULIAN E. GAMMON, Jacksonville.

*To his home* and honorably discharged, Lieut. JOHN D. ADAMS, Milligan.

### Georgia

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieuts. MOSES B. COPELOFF, Atlanta; DENNIS F. WELDON, Danielsville.

*To Camp Dodge,* Des Moines, Iowa, for duty, Lieuts. WILLIAM M. TAPPAN, Augusta; CLAUDE A. ALMOND, Lithonia.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., Base Hospital, Lieuts. EDWARD KING, GEORGE H. NOBLE, Jr., Atlanta; SAM M. NOWELL, Carterville; KINSEY E. FOSTER, College Park; PAUL H. CHRISTIAN, F. L. COSBY, Jr., JOHN D. VERNER, Jr., Columbus; DAVID H. GARRISON, Cornelia; WARREN L. HALL, Michölls; WILLIAM A. DEAN, Rome; MYLES B. SHARKEY, Waycross; LEON E. BRAWNER, Whigham.

*To Camp Shelby,* Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieuts. CLEVELAND W. FINDLEY, Broxton; HENRY P. LYON, Mystic; ISAAC J. PARKERSON, Eastman.

*To Fort Hancock, N. J.,* for duty, from Fort Oglethorpe, Lieut. MINTON C. McAFEE, Macon.

*To Fort Oglethorpe* for instruction, from Camp Gordon, Capt. WALPOLE C. BREWER, Atlanta. For instruction and on completion *to Camp Cody* for duty, Capt. ROBERT C. EVE, Augusta. For instruction, Capt. JOHN W. DANIEL, Savannah; Lieuts. CHESTER O. MIDDLEBROOKS, Bogart; HORACE F. STILTNER, Chickamauga; WILBUR N. SCOTT, Devereux; WARREN M. ROYAL, Fitzgerald; from Fort McPherson, Lieut. GROVER C. GAMBRELL, Rutledge.

*To New York City,* Neurological Institute, for instruction, from Camp Wadsworth, Capt. WELDON E. PERSON, Atlanta.

*To Rockefeller Institute* for instruction in the serum therapy of pneumonia, Lieut. CHARLES C. HINTON, Macon.

*To their homes* and honorably discharged, Lieuts. DENNIS F. WELDON, Danielsville; WILLIAM E. POWELL, Lumber City; HUGH K. PHILLIPS, Santee. On account of physical disability which existed prior to entrance into service, JAMES R. SMITH, Atlanta; ELISHA F. BOMAR, Lyons.

### Idaho

*To Fort Riley* for instruction, Lieuts. MAURICE H. TALLMAN, Boise; DUNCAN L. ALEXANDER, Twin Falls.

### Illinois

*To Chicago, Ill.,* for instruction, Lieut. DANIEL H. LEVINTHAL, Chicago.

*To Camp Beauregard,* Alexandria, La., and *Camp Sheridan,* Montgomery, Ala., for duty, and on completion *to his proper station,* Major JOHN A. HORNSBY, Chicago.

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. SAMUEL L. OREN, Lewistown.

*To Camp Lee,* Petersburg, Va., for duty, from Camp Lee, Capt. WILLIAM T. WILLIAMSON, Lexington.

*To Camp Logan,* Houston, Texas, for duty, from Camp Doniphan, Capt. CHARLES H. PARKES, Chicago.

*To Camp Pike,* Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. ROBERT H. HENDERSON, Chicago.

*To Camp Shelby,* Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. ARVID E. KOHLER, Moline.

*To Camp Travis,* Fort Sam Houston, Texas, for temporary duty, Lieut. EUGENE S. TALBOT, Jr., Chicago; from Fort Riley, Lieuts. GILBERT E. BRERETON, CLIFFORD W. WELLS, Chicago.

*To Cleveland, Ohio,* for instruction and on completion *to Camp Custer* for duty, from Camp Sherman, Major JOSEPH R. HOLLOWBUSH, Rock Island.

*To Fort Hancock, N. J.,* for duty, from Fort Oglethorpe, Lieut. FRANK E. NAGEL, Secor.

*To Fort Leavenworth, Kan.,* Department Laboratory, from Fort Riley, Lieuts. EARL W. GILROY, Chicago; HARRY A. MYERS, Joliet.

*To Fort Monroe, Va.,* for duty, from New York City, Lieut. GUY M. McLEAN, Chicago.

*To Fort Oglethorpe* for instruction, from Camp Hancock, Major JOHN W. TURNER, Chicago; from Camp Gordon, Capt. JAMES A. BRITTON, Chicago; from Camp Lee, Capt. WILLIAM T. WILLIAMSON, Lexington; from Fort McPherson, Capt. WILLIAM W. HOYT, Chicago. For instruction, Capts. OSMAN A. COSS, Saunemin; WALTER WALDEN, Watertown; Lieuts. ALEXANDER B. McNABB, JOHN GABRIEL O'MALLEY, Chicago.

*To Fort Riley* as instructor, from Camp Doniphan, Major SIDNEY STRAUSS, Chicago. For instruction, Capts. GRANT B. BUSHEE, Arlington; IRWIN S. KOLL, Chicago; Lieut. CARL H. DAVIS, Chicago.

*To Fort Slocum,* Mineola, L. I., *Fort Wood, N. Y.,* and *Hoboken, N. J.,* for temporary duty, and on completion *to his proper station,* Lieut. WILLIAM W. GAILEY, Bloomington.

*To Garden City, Long Island, N. Y.,* Aviation General Supply Depot, for duty, Lieut. DANIEL F. HAYES, Chicago.

*To Governor of Illinois* as medical advisor, Major JOHN W. DODSON, Chicago.

*To Newport News, Va.,* for duty, Major FRANK S. CHURCHILL, Chicago.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to Camp Beauregard,* Lieut. JOHN V. VAN PAING, Chicago; on completion *to Camp Devens,* from Fort Oglethorpe, Lieut. JOHN G. FROST, Chicago; on completion *to Camp Grant,* Lieut. THOMAS A. CARTER, Chicago.

*To Rockefeller Institute* for instruction and on completion *to Camp Pike,* for temporary duty, from New York, Major WILLIAM FULLER, Chicago.

*To Walter Reed General Hospital,* Takoma Park, D. C., from New York, Capt. BERNARD M. CONLEY, Wilmette.

*To his home* and honorably discharged, from Camp Grant, Capt. JAMES R. TWEEDY, Cobden. *To their homes* and honorably discharged, Lieuts. CHARLES B. GIBSON, Chicago. On account of physical disability which existed prior to entrance into the service, IMAS P. RICE, Oak Park; ROBERT H. JACOBS, Quincy.

### Indiana

*To Camp Logan,* Houston, Texas, for duty, from Fort Riley, Lieut. THEOPHILUS P. CAPLINGER, Wallace.

*To Camp Pike,* Little Rock, Ark., for duty, Lieut. CHARLES G. BEALL, Fort Wayne.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieut. HARRY L. COOPER, South Bend.

*To Fort Oglethorpe* for instruction, Capt. THOMAS J. DEHEY, South Bend.

*To Newport News, Va.,* for duty, from Camp Devens, Lieut. ASHTON M. BALDWIN, Marion.

*To Rochester, Minn.,* Mayo Clinic, for instruction and on completion *to Camp Grant,* Rockford, Ill., for duty, from Chickamauga Park, Capt. CLAUDE DuV. HOLMES, Indianapolis.

### Iowa

*To Camp Dodge,* Des Moines, Iowa, for duty, Lieut. FLOYD H. WEIDLEIN, Wellman.

*To Camp Grant,* Rockford, Ill., for duty, from Fort Riley, Capt. JAMES J. DALY, Decorah.

*To Camp Jackson,* Columbia, S. C., as divisional psychiatrist, from Camp Doniphan, Capt. THOMAS J. HELDT, Cedar Falls.

*To Camp Wheeler,* Macon, Ga., for duty, from Camp Dix, Lieut. JOHN D. HEXOM, Decorah.

*To Fort McHenry, Md.,* for duty, from Fort Riley, Major CHARLES E. RUTH, Des Moines.

*To Fort Moultrie, S. C.,* for temporary duty, from Fort Moultrie, Lieut. ARTHUR C. STRONG, Burlington.

*To Fort Oglethorpe* for instruction, Lieuts. WALTER E. FOLEY, Davenport; ROSWELL H. PAYNE, Des Moines.

*To Fort Riley* for instruction, Capts. HUGH MULLARKY, Manson; DYRE H. PELLETIER, New Hartford.

### Kansas

*To Camp Jackson,* Columbia, S. C., for temporary duty, Lieut. ROBERT C. DAVIS, Kansas City.

*To Fort Riley* for instruction, Lieuts. JAMES H. BRYANT, Garden City; FRANCIS B. SHELDON, McDonald.

*To his home* and honorably discharged, Lieut. MEADE A. BUTTON, Topeka.

### Kentucky

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. HOMER A. SUTTER, Newport.

*To Camp Meade,* Annapolis Junction, Md., cardiovascular board, to examine the troops in his specialty, from Camp Meade, Lieut. THOMAS F. MILLER, Glasgow.

*To Camp Shelby,* Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. EARL M. CULTER, Covington.

*To Fort Oglethorpe* for instruction, from Camp Gordon, Capt. HORACE LUTEN, Fulton; from Camp Taylor, Lieut. EDWIN W. MONTGOMERY, Vine Grove. For instruction, Lieuts. JOSEPH A. SLEET, Frankfort; RANDOLPH DADE, Hopkinsville.

*To Fort Thomas, Ky.,* for duty, from Cincinnati, Capt. JOHN B. ROBARDS, Harrodsburg; from Camp Custer, Lieut. THEODORE SALLEE, Covington.

*To Mineola,* Long Island, New York, Hazelhurst Field, for duty in connection with the Medical Research Board, from Washington, D. C., Capt. SAMUEL S. SMITH, Greenup.

*To Rockefeller Institute* for instruction and on completion *to Camp Bowie,* Fort Worth, Texas, for duty, Major IRVIN ABELL, Louisville.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, from Camp Shelby, Capt. JETHRA HANCOCK, Louisville.

*To Washington, D. C.,* Washington Barracks, for duty, from Fort Oglethorpe, Lieut. HUNTER W. GINGLES, Kirksey.

*To their homes* and honorably discharged, Lieuts. LITTLETON O. KEEN, Burkesville; HUNTER W. GINGLES, Kirksey; EDWARD L. IRWIN, Louisville; GIDEON W. STONE, Middlesboro.

## Louisiana

*To Army Medical School,* Washington, D. C., for instruction, Lieut. ABRAHAM MATTES, New Orleans.

*To Baton Rouge* to examine applicants for the Officers' Reserve Corps, Capt. CHARLES McVEA, Baton Rouge.

*To Camp Beauregard,* Alexandria, for duty, Capt. ABRAHAM J. LEVIN, New Orleans.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Camp Beauregard, Lieut. DAVID B. DAVIS, Bunkie.

*To Fort Oglethorpe,* for instruction, Lieuts. WILLIAM L. STONE, Homer; EMILE F. NAEF, New Orleans; WILEY H. BILLINGSLEY, Shreveport.

## Maine

*To Camp Jackson,* Columbia, S. C., for temporary duty, Lieut. STEPHEN A. COBB, Sanford.

*To Camp Lee,* Petersburg, Virginia, for temporary duty, Capt. ALFRED MITCHELL, Portland.

*To Fort Oglethorpe,* for instruction, Lieut. JOHN L. PEPPER, Madison.

## Maryland

*To Camp Dix,* Wrightstown, N. J., for temporary duty, from Fort Myer, Capt. ALEXANDER D. McCONACHIE, Baltimore.

*To Baltimore, Md.,* for temporary duty, and on completion *to his proper station,* Major JAMES BERDLEY, Baltimore.

*To Fort Oglethorpe,* for instruction, from Camp Gordon, Capt. ALGERNON D. ATKINSON; from Camp Hancock, Capt. ISIDORE ISAAC HIRSCHMAN, Baltimore. For instruction, Lieut. MARCUS D. SMITH, Cambridge.

*To New York City,* Neurological Institute, for intensive training, Lieut. PHILLIP PEARLSTEIN, Baltimore.

*To Philadelphia, Pa.,* and *New York City,* to inspect the Neuro-surgical Schools at these places, and on completion *to his proper station,* Major CHARLES BAGLEY, Jr., Baltimore.

*To Rockefeller Institute* for instruction and on completion *to Camp Shelby,* for temporary duty, from Neurological Institute, New York, Lieut. GEORGE W. BISHOP, Govans.

## Massachusetts

*To Albany, N. Y.,* for duty, from Neurological Institute, New York City, Lieut. HENRY R. VIETS, Boston.

*To Army Medical School,* Washington, D. C., for orthopedic instruction, and on completion *to his proper station,* from Boston, Capt. MARK H. ROGERS, Boston.

*To Camp Devens,* Ayer, Mass., for duty, from Camp Devens, Capt. JOHN H. WYMAN, Medway.

*To Camp Jackson,* Columbia, S. C., for duty, from New York City, Lieut. APPLETON H. PIERCE, Leominster.

*To Camp Taylor,* Louisvile, Ky., as orthopedic surgeon, Lieut. JOHN B. WEBSTER, Boston.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieut. CHARLES W. FINNERTY, West Somerville.

*To Fort Oglethorpe,* for instruction, from Camp Shelby, Capt. FRANCIS R. BURKE, Quincy. For instruction, Lieuts. WILBERT C. HARDY, DAVID W. HOUSTON, Jr., Boston; LUCIEN R. CHAPUT, ARTHUR O. McLAUGHLIN, Haverhill; CLARENCE B. LIVINGSTON, Lowell; WALTER H. LACEY, Quincy; RALPH W. HAYWOOD, JOSEPH H. SHORTELL, Salem.

*To Newport News, Va.,* for duty, from Camp Devens, Lieut. JAMES H. GETTINGS, Boston.

*To New York City,* Neurological Institute, for instruction, from Boston, Capt. HARRY P. CAHILL, Boston.

*To Rockefeller Institute* for instruction, and on completion *to Fort McHenry, Md.,* Lieut. BERNARD A. GODVIN, Boston.

*To Washington, D. C.,* for duty in the Surgeon-General's Office. Major KENDALL EMERSON, Worcester.

*To their homes* and honorably discharged, Lieuts. JOSEPH SEGAL. Boston; WILLIAM R. BYRNE, Framingham.

## Mexico

*To San Juan, Porto Rico,* for duty, from Camp McClellan, Capt SAMUEL H. HODGSON, Mexico.

## Michigan

*To Camp Custer,* Battle Creek, for duty, from Camp Custer, Lieut. HENRY O. McMAHON, Detroit.

*To Camp Jackson,* Columbia, S. C., for temporary duty, Lieut. FLOYD N. TOWN, Ann Arbor.

*To Camp Travis,* Fort Sam Houston, Texas, for temporary duty, from Fort Riley, Lieut. GEORGE D. TREADGOLD, Port Huron.

*To Edgewood, Md.,* United States Filling Station, from Camp Devens, Capt. VICTOR H. DeSOMOSKEOY, Flint.

*To Fort McPherson, Ga.,* for duty, from New York City, Lieut. JOHN T. HODGEN, Grand Rapids.

*To Fort Oglethorpe* for special inspection and on completion *to his proper station,* Major VICTOR C. VAUGHAN, Detroit. For duty, from Camp Sherman, Lieut. JEROME F. BERRY, Kalamazoo. For instruction, Lieut. THEODORE H. SMITH, Detroit.

*To Fort Riley* for instruction, Lieut. WILLIAM A. HYLAND, Grand Rapids. For duty with the board examining the command for mental and nervous diseases, from Fort Riley, Lieut. GORDON H. BAHLMAN, Flint.

*To New Orleans, La.,* Charity Hospital, for instruction and on completion *to his proper station,* from Fort Logan H. Roots, Major FRANK SUGGS, Detroit.

*To Rockefeller Institute* for instruction and on completion to Camp Lee, Petersburg, Va., for duty, from Camp Lee, Capt. HUGH McD. BEEBE, Ann Arbor.

*To West Point,* New York, for temporary duty, Capt. ALEXANDER R. McKINNEY, Saginaw.

*To his home* and to the inactive list, Capt. WALTER R. T. SHARPE, Romeo.

*To his home* and honorably discharged on account of physical disability existing prior to entrance into service, Lieut. EDWARD J. O'BRIEN, Detroit.

## Minnesota

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. REINHART G. OLSON, Nicollet.

*To Camp Pike,* Little Rock, Ark., for duty, Capt. WILLIAM G. CARHART, Mineapolis.

*To Fort McHenry, Md.,* for duty, Lieut. WALTER F. BLEIFUSS, Elgin.

*To Fort Oglethorpe* as instructor, from Fort Oglethorpe, Capt. EMIL S. GEIST, Minneapolis. For instruction, Capt. CHARLES H. KEENE, Minneapolis.

*To Fort Riley* for instruction, Lieuts. ALICK BERNSTEIN, Naytahwaush; BURTON A. BAIRD, HERMAN C. BUMPUS, Jr., CHARLES M. CLARK, STUART W. HARRINGTON, JAMES R. McVAY, Rochester.

*To New York City,* Neurological Institute, for instruction, Major WARREN A. DENNIS, St. Paul.

*To Toronto, Ontario, Winnipeg, Manitoba, Canada,* for study of returned soldiers suffering from peripheral nerve injuries, from Rockefeller Institute, Major JAMES F. CORBETT, Minneapolis.

*To Walter Reed General Hospital,* Takoma Park, D. C., from New York, Lieut. RICHARD B. GIRVIN, Villard.

*To West Point, New York,* United States Military Academy, from Fort Riley, Major DANIEL M. SHEWBROOKS, Minneapolis.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Capt. JOHN A. FREEBORN, Fergus Falls.

## Mississippi

*To Camp Hancock,* Augusta, Ga., for duty, Lieut. FRANCIS S. HILL, Grenada.

*To Fort Oglethorpe,* for instruction, Lieuts. HAL C. JOHNSON, Dundee; LEE K. MAYFIELD, Inverness; JOHN H. WOOD, Ruleville; MARTIN L. HOLLAND, Schlater.

*To Washington, D. C.,* Washington Barracks, for duty, from Fort Oglethorpe, Lieut. ARTHUR A. SPARKMAN, Cleveland.

## Missouri

*To Belleville, Ill.,* Scott Field Aviation Camp, for conducting a nutritional survey of that camp, from Army Medical School, Capt. DON ROSCO JOSEPH, St. Louis.

*To Camp Pike,* Little Rock, Ark., for duty, Lieut. LAWRENCE D. ENLOE, Jefferson City.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieut. DAVID C. BOSSERMAN, St. Louis.

*To Camp Wadsworth,* Spartanburg, S. C., for duty, from Mount Clemens, Mich., Capt. FREDERICK E. WOODRUFF, St. Louis.

*To Fort Leavenworth, Kan.,* Department Laboratory, for duty, from Fort Riley, Lieut. GEORGE F. COOPER, Kansas City.

*To Fort Monroe,* Newport News, Hampton, Va., for temporary duty, and on completion *to his proper station,* Capt. GREENE D. McCALL, Fulton.

*To Fort Oglethorpe,* for instruction, Capts. IRA H. MILLER, Louisiana; ROBERT H. GIBSON, St. Louis; from Camp Meade, Capt. FREDERICK B. SPENCER, Hannibal; from St. Louis, Capt. FRANK J. TAINTER, St. Charles; from Camp Hancock, Lieut. ROBERT E. BYRNS, St. Louis; from Camp Taylor, Lieut. ROY W. JOHNSON, St. Louis. For instruction, Lieut. RAY E. WILSON, LeBelle.

*To Fort Riley,* for instruction, from Fort Riley, Lieut. ELMER J. BILLICK, Kansas City.

*To Hoboken, N. J.,* for temporary duty, from Fort Riley, Major EDWIN H. SCHORER, Kansas City. For duty, from Fort Oglethorpe, Lieut. CLARENCE M. WESTERMAN, St. Louis.

*To New York City,* for duty, Capt. HILLEL UNTERBERG, St. Louis.

*To St. Louis,* School of Plastic and Oral Surgery, Washington University, for instruction, Capt. WALTER C. G. KIRCHNER, St. Louis.

*To West Point, N. Y.,* United States Military Academy, from Fort Riley, Lieut. ROY F. MILLS, Odessa.

## Montana

*To Camp Dodge,* Des Moines, Iowa, for temporary duty, Major THOMAS C. WITHERSPOON, Butte.

## Nebraska

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Camp Doniphan, Lieut. KARL F. E. WEGENER, Exeter.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieuts. JOSEPH D. McCARTHY, Omaha; RILEY E. ROCHE, Signey.

*To Fort Oglethorpe,* for instruction, from Camp Gordon, Lieut. NEIL P. McKEE, Atkinson; from Omaha, Lieut. ABRAHAM GREENBERG, Omaha.

*To Fort Riley,* for instruction, Lieut. JESSE F. STRONG, Barada. For instruction and on completion *to his proper station,* from Fort Riley, Lieut. CHARLES W. WAY, Wahoo.

*To Omaha,* Aviation Section, Signal Corps, as medical member of examining board and recruiting officer, from Omaha, Lieut. CLAUDE T. UREN.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to Camp Dodge,* for duty, from Camp Dodge, Capt. JOSEPH A. HENSKE, Omaha.

*To St. Louis,* Washington University, for instruction, Lieut. ROBERT C. PANTER, Dorchester.

*To his home* and honorably discharged, on account of physical disability which existed prior to his entrance into the Army, Lieut. IRVIA C. MUNGER, Lincoln.

## Nevada

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. ROLAND D. RUSSELL, Owygee.

*To Portland, Ore.,* Aviation Section, Signal Corps, for duty, from duty as a private at Camp Lewis, Lieut. RAY V. LARZALERE, Kimberly.

*To Western Department* for assignment to duty, Capt. CHARLES W. R. VON RADESKY, Carson City.

## New Jersey

*To Camp Alfred Vail,* Little Silver, N. J., for duty, Lieuts. GEORGE V. MORSE, Bloomfield; CHARLES F. VOORHIS, Palmyra.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Camp Meade, Lieut. CHARLES P. LINGLE, Arlington.

*To Fort McDowell, Calif.,* for duty in his specialty, from Aleatraz, Calif., Lieut. EMIL W. MEYER, Passiac.

*To Fort Monroe, Va.,* for duty, from Fort Oglethorpe, Lieut. EARL E. GRIGGS, Haskell.

*To Fort Oglethorpe,* for instruction, Lieuts. CHARLES DABE, South Orange; CARROLL R. ERICHBAUM, Upper Montclair; from Army Medical School, Lieut. ALBERT G. HULETT, East Orange.

*To Mineola, L. I., N. Y.,* Hazelhurst Field, in connection with the Medical Research Board, from Washington, D. C., Capt. ELBERT S. SHERMAN, Newark.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Major JAMES S. BROWN, Montclair.

*To his home* and honorably discharged, Lieut. HENRY J. HARP, Sussex.

## New Mexico

*To Walter Reed General Hospital,* Takoma Park, D. C., from New York, Lieut. SAMUEL H. ECKLES, Silver City.

## New York

*To Camp Custer,* Battle Creek, Mich., for duty, from Fort Brady, Lieut. JAMES L. HORNDORF, Rochester.

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieuts. JAY L. TOUCHSTONE, Blackwell's Island; RAPHAEL WOLFE, Brooklyn; ROY D. CHAMPLIN, Hobard; ARTHUR W. URAN, New York City.

*To Camp Dix,* Wrightstown, N. J., from Camp Lee, Capt. ROLAND C. MEISENBACH, Buffalo; to examine the command for nervous and mental diseases on completion of his leave of absence, from Camp Bowie, Lieut. WILLIAM G. DICKINSON, Oneonta.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Camp Jackson, Capt. FREDERICK C. ROBBINS, Hornell.

*To Camp Hancock,* Augusta, Ga., for duty, Lieut. FRED GLUCKSMAN, Bronx.

*To Camp Lee,* Petersburg, Va., for temporary duty, and on completion *to his proper station,* Major EDWARD K. DUNHAM, New York City.

*To Camp Meade,* Annapolis Junction, Md., for temporary duty, and on completion *to his proper station,* Major RICHARD H. HUTCHINGS, Ogdensburg.

*To Camp Shelby,* Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. JAMES F. X. LOORAM, Brooklyn.

*To Camp Sherman,* Chillicothe, Ohio, as orthopedic surgeon in the camp, Capt. KARL OSTERHUAS, Brooklyn.

*To Camp Taylor,* Louisville, Ky., as division psychiatrist, from Camp Taylor, Capt. MORRIS J. KARPAS, New York City.

*To Camp Upton, L. I., N. Y.,* for duty, from Fort Oglethorpe, Lieuts. FREDERICK BERNSTEIN, Long Island; JASON H. CONGER, Utica.

*To Fort Bayard, N. M.,* for observation and treatment, from Fort Benjamin Harrison, Lieut. JOHN R. FISHER, Utica.

*To Fort Clark, Texas,* as divisional psychiatrist, from Camp Beaurcgard, Major EDWIN G. ZABRISKIE, New York City.

*To Fort Jay, N. Y.,* for duty, Lieut. ROBERT T. IRVINE, Ossining.

*To Fort McHenry, Md.,* for duty, Lieuts. WILLIAM D. CAWTHON, Brooklyn; LEE GOTTSCHALK, New York City; MAXWELL C. MONTGOMERY, Rome.

*To Fort Oglethorpe,* for instruction, from Camp Hancock, Capt. CHARLES H. ERWAY, Elmira; from Camp Meade, Capt. STEPHEN A. MAHADY, Utica; from Camp Shelby, Capt. JAMES W. PRICE, Saranac Lake; from Camp Gordon, Lieut. FRANCIS A. GLASS, New York City. For instruction, Lieuts. HYMAN DANISH, Bedford Hills; MERLE Q. HOWARD, Blackwell's Island; JULIUS M. BLANK, ISAAC E. GREENBURG, JOSEPH LINTZ, Brooklyn; EARL W. THEMA, Buffalo; JOSEPH FELSON, ARCHIE E. GORDIN, EDWIN HENES, Jr., PAUL B. JENKINS, I. EDWARD LISS, ALFRED F. ORTH, MAURICE RASHBAUM, New York City; GEORGE BIBBY, Pottersville; CHARLES R. MILLER, Ray Brook. For duty, Lieuts. FRANK J. MANGOLD, Brooklyn; JOHN L. BYRNES, Hudson Falls.

*To Fort Ontario, N. Y.,* for duty, from Fort Oglethorpe, Lieut. ARCHIBALD K. BENEDICK, Sherburne.

*To Fort Riley,* for temporary duty, Lieut. JOHN F. CURTIN, New York City.

*To Fort Sam Houston, Texas,* Department Laboratory, and on completion *to his proper station,* from Camp McClellan, Capt. RALPH A. KINSELLA, New York City.

*To Garden City, Long Island, N. Y.,* Aviation General Supply Depot, for duty, Capt. HERBERT R. CHARLTON, Bronxville; Lieuts. ARCHIE L. DEAN, Jr., CECIL R. FRANK, Brooklyn; HERMAN J. BALLEN, Long Island; JACOB BOWER, REVERDY V. W. ESTILL, HYMAN FISHER, ISAAC M. WILZIN, New York City; JOHN D. CARROLL, Troy.

*To Hoboken, N. J.,* for duty, Lieut. JAMES I. SCHOONMAKER, West Coxsakie.

*To Lakewood, N. J.,* for inspection, and on completion *to his proper station,* Major ALFRED COHN, New York City.

*To Newport News, Va.,* for duty, Lieut. RALPH COLP, New York City; from West Point, N. Y., Lieut. JOSEPH D. KELLY, Brooklyn.

*To New York City,* for instruction in orthopedic surgery, Lieut. ERNEST S. BULLUCK, New York City. Cornell Medical College, from New York, Lieut. WILLIAM G. HERRMAN, Brooklyn. Neurological Institute, for intensive training in neuro-surgical service, Lieut. EDWARD L. ROCHFORT, New York City.

*To report* to the Surgeon-General of the Army, from Army Medical School, Lieut. EARL H. LORMOR, Buffalo.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Custer, Capt. HARRY R. STONE, New York City. For instruction, and on completion *to Camp Upton,* for duty, from Camp Lewis, Lieut. ANTHONY W. M. MARINE, Brooklyn.

*To Rochester, N. Y.,* for duty, from New York City, Capt. CLAYTON K. HASKELL, Rochester; Aviation Section, Signal Corps, for duty, Lieuts. HARRY A. MILLER, Ilion; RAYMOND J. BROWN, ERIC S. GREEN, Rochester.

*To Rockefeller Institute,* for instruction, Lieut. GEORGE P. OLCOTT, Jr. For instruction and on completion *to proceed to Army Medical School,* for duty, from New York City, RAY SEXTUS NELSON, New York City.

*To San Francisco, Calif.,* Letterman General Hospital, for duty if found physically qualified, Lieut. RAE W. WHIDDEN, New York City.

*To Saratoga Springs* to inspect and on completion *to his proper station,* Capt. C. BURNS CRAIG, New York City.

*To Trenton, Camp Dix, Wrightstown, New Jersey, and Philadelphia, Pa.,* to investigate the prophylactic stations established at these points, and on completion *to Washington, D. C.,* for duty in the Surgeon-General's Office, from New York City, Capt. ALEC N. THOMSON, Brooklyn.

*To Washington, D. C.,* for duty in the State War and Navy Department Building, from Army Medical School, Lieut. PHILIP W. DeGARMO, Rhinebeck.

*To Williamsbridge,* New York City, Long Island, for temporary duty, and on completion *to his proper station,* Lieut. LESTER L. ROOS, New York City.

*To the inactive list,* Major WILLIAM T. HELMUTH, New York City.

*To their homes* and honorably discharged, Capt. JOSEPH MUIR, New York City; Lieuts. CLARENCE L. SICARD, Amsterdam; CARSON C. FAULKNER, Arena; HAROLD M. WEINBERG, Brooklyn. On account of physical disability existing prior to entrance into the service, Capts. HENRY B. GILLEN, Cohoes; JAMES H. IRISH, Syracuse.

## North Carolina

*To Camp Greene,* Charlotte, for temporary duty on completion of his course at Neurological Institute, New York, Lieut. WILLIAM M. SCRUGGS, Rutherfordton.

*To Camp Upton,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieuts. WILLIAM H. SLOAN, Garland; ROBERT L. PAYNE, Monroe; ALLIE D. MORGAN, Scotland Neck.

*To Curtis Bay, Md.,* for duty, Lieut. JUNIUS R. VANN, Jr., Fayetteville.

*To Fort Oglethorpe* for instruction, Lieuts. CHARLES T. VERNON, Burlington; THOMAS M. STANTON, High Point; HUGH E. CLARK, Rocky Mountain. From duty as a private at Camp Sevier, Lieut. CHARLES H. LUPTON, New Bern.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Capt. EDWIN B. FEREBEE, Raleigh.

## North Dakota

*To Camp Jackson,* Columbia, South Carolina, for temporary duty, from Fort Oglethorpe, Major ERIC P. QUAIN, Bismarck.

*To Fort Oglethorpe* for instruction, from Camp Taylor, Lieut. HERBERT B. WENTZ, Cerono.

## Ohio

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. JOHN A. FILAK, Lakewood.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Camp Meade, Lieut. WILLIAM N. TAYLOR, Columbus.

*To Chicago, Ill.,* for orthopedic instruction, Lieut. JOHN K. LAWSON, Dayton.

*To Fairfield, Ohio,* Wilbur Wright Field, for duty, Lieuts. ALLEN H. DUNTON, Cincinnati; JEREMIAH E. KERSCHNER, Columbus.

*To Fort McHenry, Md.,* for temporary duty, from Columbus Barracks, Major GEORGE C. SCHAEFFER, Columbus.

*To Fort Oglethorpe* for instruction, Capt. FREDERICK C. HERRICK, Cleveland; Lieuts. SILAS P. THARP, Cincinnati; JOHN J. RAMEY, Rock Camp; WILLIAM C. PONTIUS, Warren; from Camp Taylor, Lieuts. IRVIN W. MAYBERRY, Scottown; CHARLES B. HAMMA, Springfield.

*To Fort Riley* for temporary duty, from Camp Wheeler, Capt. ALBIN M. PAINTER, Youngstown.

*To Jefferson Barracks, Mo.,* for temporary duty, from Camp Dodge, Capt. CARLTON D. POSTLE, Columbus.

*To Rockefeller Institute* for instruction in the serum therapy of pneumonia, Lieut. LOUIS A. MITCHELL, Newark.

*To Walter Reed General Hospital,* Takoma Park, D. C., from New York City, Lieut. ROY F. DRURY, Akron.

*To his home* and to the inactive list, Capt. ALBERT F. LONGEWAY, Cleveland.

*Honorably discharged,* Lieut. HERMAN W. HONOCK, Ridgeville Corners.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. OTHO J. POWELL, Ashland; JOHN J. SOUTH, Massillon.

### Oklahoma

*To Camp Bowie,* Fort Worth, Texas, for duty, from Camp Bowie, Lieut. JAMES G. HARRIS, Muskogee.

*To Camp McClellan,* Anniston, Ala., for duty, from Camp Doniphan, Lieut. EDGAR A. JONES, Sayre.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieut. THOMAS J. NUNNERY, Granite.

*To Fort Riley* for instruction, Lieuts. CHARLES C. CONLEY, Frederick; ROBERT S. RILEY, Hartshorne; WALTER C. THRELKELD, Oklahoma City.

*To his home* and honorably discharged, Lieut. JOHN B. HAGGARD, Foraker.

### Oregon

*To Mayo Clinic,* Rochester, Minn., for instruction and on completion *to his proper station,* from Camp Beauregard, Capt. JUSTIN M. WAUGH, Hood River.

*To Portland,* Aviation Section Signal Corps, for duty, Lieuts. CHARLES E. HAWKS, Forest Grove; JOHN W. SIFTON, Hood River; CHARLES F. CROPP, Independence; FRANK L. RALSTON, La Grande; MEARLE C. FOX, Lakeview; ROBERT ST. C. GRAFFIS, WILLIAM A. SHEA, Portland; WALTER W. LOONEY, Salem; JOHN L. ELWOOD, The Delles.

*To San Francisco, Calif.,* Letterman General Hospital, from Camp Lewis, Lieut. ERNEST H. STREIT, Portland.

*To Vancouver Barracks, Fort Canby, Fort Columbia, Fort Stevens, Washington,* to give instruction on personal hygiene, and on completion *to his proper station,* from Camp Lewis, Major CALVIN S. WHITE, Portland.

*To Western Department* for assignment to duty, Lieut. MERVIN H. SMITH, Clatskanie.

### Pennsylvania

*To Camp Devens,* Ayer, Mass., for duty, Capt. JAMES H. WHITECRAFT, Wilkinsburg; from Fort Oglethorpe, Lieuts. WILLIAM G. FRANCIS, Philadelphia; ROBERT B. BROWN, Pittsburgh.

*To Camp Gordon,* Atlanta, Ga., for duty, from Camp Doniphan, Lieut. JOHN P. MAUS, Philadelphia; from Neurological Institute, Lieut. STEPHEN S. LANDIS, Pittsburgh.

*To Camp Shelby,* Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. CLARENCE E. KING, Elmora.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieut. WILLIAM J. DAVIDSON, New Castle.

*To Chickamauga Park, Ga.,* for duty, from Camp Dix, Capt. WILLIAM J. REDDY, Shenandoah.

*To Edgewood, Md.,* United States Filling Station, for duty, Lieuts. CLARENCE W. FREY, Dallastown; CHARLES C. WALLACE, Josephine; JOSEPH ASPEL, Philadelphia.

*To Fort Oglethorpe* for duty, from Camp Lee, Capt. HENRY A. ROTHROCK, West Chester. For instruction, Capt. THOMAS M. STAHLMAN, Pittsburgh; Lieuts. JOHN McG. DICKSON, Gettysburg; LEWIS L. ROGERS, Kingston; CHARLES E. NICHOLSON, HARRY RUBINSTEIN, Pittston; CARL B. ROSENKRANS, Stroudsburg; from Camp Gordon, Lieuts. WILLIAM W. WOODS, Mont Alto; HENRY G. GODFREY, Philadelphia; from Camp Hancock, Lieut. WILLIAM C. SPALDING, Cresson; from Camp Shelby, Lieuts. ANDREW ANDERS, Philadelphia; WILLIAM J. DAVIS, Wilkes-Barre.

*To Fort Riley* for instruction, Lieut. IRWIN J. OBER, Greensburg.

*To Garden City, Long Island, N. Y.,* Aviation General Supply Depot, for duty, Lieut. DONALD B. McHENRY, Bloomsburg.

*To New York City,* Cornell Medical College, for instruction in military roentgenology, from Camp Greene, Lieut. FRED W. DAVIS, Scranton. Neurosurgical School, Neurological Institute, for instruction, from Fort Oglethorpe, Lieut. JOHN E. QUAY, Philadelphia.

*To Philadelphia,* Evans Dental Institute, as instructor, from Camp Dix, Major GEORGE M. DORRANCE, Philadelphia.

*To Pittsburgh,* School of Military Roentgenology, as assistant instructor, from Pittsburgh, Capt. LEROY S. TOWNSEND, Beaver Falls.

*To report* to the Surgeon-General of the Army, from Army Medical School, Lieut. FRANK H. LONG, Coopersburg.

*To Rockefeller Institute* for instruction and on completion *to Camp Greene,* for temporary duty, from Neurological Institute, New York, Lieut. MARSHALL C. RUMBAUGH, Dorranceton.

*To Saratoga Springs, N. Y.,* for inspection, and on completion *to his proper station,* Capt. JOHN H. MUSSER, Jr., Philadelphia.

*To Schooley's Mountain, N. J.,* and *Ossining, N. Y.,* to inspect property and on completion *to his proper station,* Lieut. CHARLES C. GANS, Chambersburg.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. WILLIAM T. VAN PELT, Philadelphia; Lieuts. GEORGE A. POUST, Hughesville; MALCOLM D. HOLBAN, Slatington.

*To their homes* and honorably discharged, Lieuts. FRANK L. BAUM, Athol; ARTHUR E. BROWN, Greenville; ABRAHAM FINKELPEARL, Pittsburgh.

*Honorably discharged,* Lieuts. BENJAMIN BOWMAN, Philadelphia; THOMAS B. JOHNSON, Towanda. On account of physical disability existing prior to entrance into the service, Lieuts. THOMAS E. McCONNELL, Parkersburg; ALPHONZO PADILLO, Philadelphia.

### Philippine Islands

*To Philippine Department* for assignment to duty, Capts. SAMUEL K. CARSON, Iloilo; BENJAMIN L. BURDETTE, PAUL CLEMENTS, CHARLES R. JOHNSON, JOHN A. JOHNSTON, Manila.

### Rhode Island

*To Camp Fremont,* Palo Alto, Calif., for duty, from Camp Fremont, Lieut. JAMES HAMILTON, Jr., Providence.

*To Camp Lee,* Petersburg, Va., for duty, from Fort Ethan Allen, Lieut. RICHARD METCALF, Providence.

*To Fort McHenry, Md.,* for duty, from Camp Upton, Lieut. NORMAN B. COLE, Newport.

*To Fort Oglethorpe* for instruction Lieut. CHARLES F. GORMLY, Providence.

*To Lakewood, N. J.,* for temporary duty, Lieut. HARRY D. CLOUGH, Providence.

### South Carolina

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. LANDRUM W. WOOD, Greer.

*To Camp Wheeler,* Macon, Ga., for temporary duty, from Neurological Institute, New York, Capt. SAMUEL C. BAKER, Sumter.

*To Fort Monroe, Va.,* for duty, Lieut. WARREN H. BURGESS, Sumter.

*To Fort Oglethorpe* for instruction, from duty as a private at Camp Jackson, Lieut. BELDRIDGE E. KNEECE, Monetta.

*To West Point, N. Y.,* United States Military Academy, from Fort Oglethorpe, Major THOMAS R. MARSHALL, Columbia.

### South Dakota

*To Fort Oglethorpe* for instruction, from New York City, Major TILLISON J. WOOD, Huron.

*To Fort Riley* for instruction, Lieut. OSCAR R. WRIGHT, Huron.

### Tennessee

*To Camp Upton,* Long Island, New York, for duty, from Fort Oglethorpe, Lieuts. WALTER A. BELL, Cloverdale; LLOYD S. NEESE, Del Rio.

*To Fort Monroe, Va.,* for duty, from Fort Oglethorpe, Lieut. AAREIEL E. G. GOODLEE, Murfreesboro.

*To Fort Oglethorpe* for instruction, Capt. JOSEPH B. HIBBITTS, Union City, Lieuts. HOWARD A. IJAMS, Knoxville; SAMUEL T. PARKER, Lexington; JAMES E. CARSON, Maryville; GRADY M. ALLISON, Mayland; WARREN G. ALFORD, Memphis; HARRY H. GOLDBERG, DAVID B. JAMES, Nashville; from Camp Gordon, Lieut. ENOCH SEALE, Nashville. For duty, Lieut. JAMES M. SMYTH, Camden.

*To Memphis,* Aviation Section, Signal Corps, for duty, from Portland, Ore., Capt. LOUIS LEVY, Memphis.

*To West Point, New York,* United States Military Academy, from Fort Oglethorpe, Capt. JOHN M. LEE, Nashville.

*To their homes* and honorably discharged, Lieuts. ALBERT B. DISMORE, Chattanooga; WALTER A. BELL, Cloversdale; ROBERT L. DOSSETT, Tullahoma.

### Texas

*To Camp Pike,* Little Rock, Ark., for duty, Lieut. CHARLES C. ADAMS, Longview.

*To Camp Sheridan,* Montgomery, Ala., from El Paso, Major WOODS W. LYNCH, Midland.

*To Fort Oglethorpe* for instruction, Capt. NATHANIEL T. MOORE, El Paso.

*To New York City,* Neurological Institute, for intensive training in his specialty, Lieut. ROBERT B. McBRIDE, Dallas.

*To San Antonio, Texas,* Brooks Field, Aviation Section, Signal Corps, for duty, Lieuts. WALTER A. BLACK, Mount Pleasant; BRADFORD R. A. SCOTT, San Antonio.

*To Southern Department,* Fort Sam Houston, for assignment to duty, Lieut. PHAU R. OUTLAW, El Paso.

*To his home* and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EDWARD W. TISDALE, Clyde.

### Utah

*To Fort Oglethorpe* for instruction, from Camp Gordon, Lieut. GEORGE E. McBRIDE, Magna.

### Vermont

*To their homes* and honorably discharged on account of physical disability which existed prior to entrance into the service, Lieuts. FRANCIS J. ENNIS, Burlington; WALDO R. HARKNESS, Montpelier.

### Virginia

*To Camp Lee,* Petersburg, Va., for duty, Lieut. WILLIAM W. McCHESNEY, Abingdon.

*To Fort Monroe, Va.,* for duty, from Camp Lee, Capt. JOSEPH W. HOPE, Hampton; Lieut. EDWARD LeB. GOODWIN, Ashland.

*To Fort Oglethorpe* for instruction, Lieuts. HAMIL S. SCOTT, Emory; FRANK G. SCOTT, Orange; EVERETT R. FERGUSON, Richmond; FORREST T. SUMMERS, Snowville; from Richmond, Lieuts. LEVIN F. MAGRUDER, JOSEPH T. McKINNEY, ROBERT G. WIATT, Richmond.

*To Lake Charles, La.,* Gerstner Field Signal Corps Aviation Section, for duty, from Fort McHenry, Md., Major WILILAM E. DRIVER, Norfolk.

*To Newport News*, for duty, Lieuts. JAMES F. HUBBARD, Avon; VEOLE O. CARUTHERS, Ferell; WILLIAM DeH. HITZHUGH, Morrisville; ROBERT WHITEHEAD, Richmond.

### Washington

*To Camp Lewis*, American Lake, for duty, Capt. FLOYD A. BIRD, Kelso.

*To Fort Riley* for instruction Capt. KENELM WINSLOW, Seattle.

*To New York City*, Neurological Institute, for instruction, Capt. HARRY E. ALLEN; from Camp Lewis, Capt. HARRY G. WILLARD, Tacoma.

*To Portland, Ore.*, Aviation Section, Signal Corps, for duty, Lieuts. SHIRLEY D. BARRY, Puyallup; SAMUEL GOODGLICK, ERNEST S. REEDY, Seattle: OLAF E. CHRISTEFFERSON, Tacoma.

*To Western Department* for assignment to duty, Capt. HARRY B. CLOUGH, Tonasket; Lieuts. LEWIS B. COLLIER, Seattle; JOHN W. ROSE, Walla Walla.

### West Virginia

*To Camp Devens*, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. MILTON D. FLANARY, Lakewood.

*To New York City*, Bellevue Hospital, for instruction, and upon completion to his proper station, from Camp Meade, Lieut. ERNEST F. GOTT, Bluefield.

### Wisconsin

*To Camp Grant*, Rockford, Ill., for duty, from Camp Grant, Capt. ELIAS BIBBY, Milwaukee.

*To Camp Hancock*, Augusta, Ga., for duty, Lieuts. JOHN F. SENNETT, Milwaukee; from Camp Hancock, ADELARD E. GENDRON, River Falls.

*To Camp Pike*, Little Rock, Ark., for temporary duty, Capt. EMIL F. BAUR, Milwaukee.

*To Fort Oglethorpe* for instruction, from Camp Gordon, Capts. HARRY C. MIX, Green Bay; MICHAEL R. WILKINSON, Oconomowoc; Lieut. HENRY J. PYLE, Zeeland.

*To Fort Riley* for instruction, Capt. GEORGE H. CONKLIN, Superior; Lieut. J. GREGORY HOFFMAN, Hartford.

*To Rochester, Minn.*, Mayo Clinic for instruction, and on completion *to Camp Sherman*, for duty, Capt. SAM W. DOOLITTLE, Lancaster.

*To West Point, New York*, United States Military Academy, from Fort Riley, Lieut. ARTHUR D. SMITH, Gilmanton.

*To his home* and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. CHARLES A. DAWSON, River Falls.

## Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

### ILLINOIS

**Spiritualists to Be Arrested.**—The Illinois department of registration and education has had warrants issued for the arrest of several spiritualists, in order to determine the limits to which "healers" may go in treating ailments without first obtaining a license to practice medicine.

**Madison County Wants Sanatorium.**—At the meeting of the physicians of Madison County in Granite City, February 2, it was decided to take advantage of the law recently passed by the Illinois State Medical Board, to petition for the establishment of a tuberculosis sanatorium for the county.

**Winnetka Doctor in France.**—Dr. Alice Barlow Brown, Winnetka, has been in France for several months looking after the women and children back of the fighting line on the western front. The funds for Dr. Brown's work have been raised by Winnetka people through the chart system and the gift shop that has been established. A Winnetka dispensary has been established back of the lines near Toul, and at Toul and Nancy, Dr. Brown looks after more than 300 women and children a week.

### Chicago

**Smallpox in Theological School.**—Since January 21, twenty-eight cases of smallpox have occurred in a theological school on the west side. Those in charge of the school are said to oppose vaccination.

**Medical Schools Merge.**—It is reported that the Jenner Medical College and the Chicago Hospital College of Medicine have been merged and that the two institutions are now located at the site heretofore occupied by the latter.

**Arrested by Federal Authorities.**—Dr. Pierre Koglowski, whose office is at 975 Milwaukee Avenue, was recently arrested by the federal authorities. It is reported that a search in his office revealed literature opposed to the government's conduct of the war.

**Institute of Medicine to Hold Open Meeting.**—Prof. H. C. Sherman of Columbia University will speak on "Fundamental Requirements in Human Nutrition" before the Institute of Medicine of Chicago on February 27, at 8 o'clock, in Recital Hall, Fine Arts Building. The meeting will be opened to friends of the members, medical and nonmedical.

**Robert Koch Society.**—At the thirty-first meeting of the Robert Koch Society for the Study and Prevention of Tuberculosis, held February 21, at the City Club, a paper was read by Dr. Max Biesenthal on "Nontuberculous Lesions of the Lungs, Diagnosticated Tuberculous." Discussions were also held on "Clinical Findings," "Roentgen Ray" and "Complement Fixation."

**Service Flag Dedicated.**—The North Shore Branch of the Chicago Medical Society gave a dinner at the Edgewater Beach Hotel, February 16, at which more than 700 were present. Dr. Charles J. Whalen presided as toastmaster, and addresses were made by Drs. Charles E. Humiston, William A. Pusey, Wilbur F. Pool, John V. Fowler and Judge McEwen. A service flag with ninety stars was then presented by Dr. Joseph F. Biehn, president of the society, and was accepted on behalf of the medical department of the Army, and the members in service, by Col. Henry I. Raymond, department surgeon, Central Department. The Right Rev. C. P. Anderson, Bishop of Chicago, then delivered an address on "America's Place and Part in the World's War." The program was preceded by an entertainment and succeeded by dancing.

### KANSAS

**New Officers.**—At the annual meeting of the Salina County Medical Association, held in Salina, Dr. John K. Harvey was elected president, Dr. Charles M. Jenney, vice president; Dr. William N. Mowery, secretary, and Dr. Andrew G. Anderson, treasurer, all of Salina.

**Maternity and Infant Care in Rural Kansas.**—In Rural Child Welfare Series No. 1, Publication 26, the National Children's Bureau, Elizabeth Moore gives the results of a survey of a typical Kansas county (not named) covering prenatal and postnatal care of mothers and children together with general economic and sanitary condition, etc. In this particular county, in which the natural health conditions as to climate, etc., are good, the findings were favorable, on the whole, the infant mortality in the group studied in the district being 40 per thousand. Only one baby in five is weaned before it is 9 months old. The mothers are interested in learning all they can about the care of their children, showing this interest in the "babies' days" held throughout the county, at which infants are weighed, measured and examined. Only one infant in ten fails to have its birth recorded, the fault in this county lying with a very small number of physicians. It was found that, except in times of harvest and threshing, the work of the farm women is perhaps not over hard, but it is said that only of late and to a limited degree is prenatal supervision of mothers appreciated as a means of preventing needless deaths of mothers. According to the findings of the children's bureau, earlier and more frequent consultation of physicians and the employment of trained nurses as visitors before confinement are essential for adequate medical and nursing care. In the county studied, some progress has been made along these lines.

### KENTUCKY

**Chiropractor Indicted.**—It is reported that a chiropractor named W. H. Dunn was indicted at Louisville recently for practicing without a license from the state board of health.

**Nurses' Fees.**—The Jefferson County Nurses' Association has passed a resolution providing that, beginning with March 1, nurses will ask $35 a week for cases instead of $25, as at present.

**Home Nursing Course.**—Dr. Henry Enos Tuley, superintendent of the city hospital, has announced a three months' course in home nursing at the hospital, beginning February 11. It is hoped by this plan to make many young women available as nurses' aids in the hospitals of the Army, and to supply the demand for practical nursing in the home.

### MARYLAND

**Coeducation at the University.**—It is reported that the faculty of the University of Maryland has voted to admit women students beginning in October, 1918.

**Pneumonia on the Increase.**—The Bolhuisie Health Department reports that, despite the advent of warm weather and the inauguration of a campaign by Health Commissioner Blake, pneumonia appears to be on the increase, since there were reported in one day fourteen new cases and thirteen deaths. From the present prospects, the records of the health department for the week ending today, will show a high mortality.

**Conference with District Boards.**—Major Frank Billings, Chicago, medical aid to Provost Marshal General Crowder, addressed the physicians of the medical advisory boards, local boards and district boards of the state at Osler Hall, Baltimore, February 16. The address was followed by a conference between the physicians who are to pass on the physical qualifications of the men to be selected for service in the National Army. The purpose of the meeting was to give the physicians a better idea of the physical defects which disqualify a man for military service in order that a greater degree of cooperation between the members of the boards and the military authorities may be brought about.

**Bill on Practice of Medicine.**—In the general assembly, a bill was recently introduced to revise the laws of the state regulating the practice of medicine, surgery and osteopathy, to provide for the establishment of a board of examiners, and to define its duties. The bill has been agreed on by the Medical and Chirurgical Faculty of Maryland and by the osteopaths' association. The homeopathic profession is also included. The bill provides for the registering of all practitioners of medicine. Those failing to register are subject to arrest for misdemeanor. The board created by the bill is authorized to organize on the first Tuesday of June, 1918, and shall be constituted as follows: Six members of the present board of medical examiners, representing the Medical and Chirurgical Faculty, two members representing the Maryland State Homeopathic Medical Society, and two members representing the Maryland Osteopathic Association. There is no provision in the bill which specifically prohibits Christian Scientist healers from pursuing their calling. On the other hand, there is no clause which opens the way for the pursuit of their profession.

## MISSOURI

**Jackson County Appreciative.**—The Jackson County Medical Society has adopted a plan for caring for the practices of their members who have joined the Medical Reserve Corps. The members of the society will refund to the absent member or to his family one third of the fees collected from patients of members of the Medical Reserve Corps.

**New Liberty Loan Campaign.**—The St. Louis Medical Society has been requested by a representative of Secretary of the Treasury McAdoo, to take charge of the solicitation of physicians in St. Louis in the next Liberty Loan campaign. The society has accepted this responsibility and appointed Dr. Horace W. Soper chairman of the committee to conduct the campaign among doctors.

**Doctors Win Suits.**—A suit for alleged malpractice against three practitioners in the southeastern part of the state, sued jointly, was decided in favor of the physicians. Another case in the same section of the state was dismissed on motion of the physician's attorney, when the plaintiff failed to file a bond for costs as requested by the attorney for the physician and ordered by the court.

**Personal.**—Dr. Robert C. Strode, Mexico, was thrown from a buggy in a runaway accident, February 8, and painfully injured.——Dr. Charles R. Woodson, St. Joseph, who has been seriously ill, is now reported convalescent.——Dr. Eugene Carbaugh, Kansas City, was appointed city director of health, January 25, and has selected a new staff for the Emergency and General hospitals under the health boards reorganization.

**Sailors and Soldiers' Club.**—A sailors and soldiers' club has been organized by a number of women of St. Louis to furnish entertainment for sailors or soldiers living in St. Louis or passing through the city. The management of the club has asked that a committee of medical men be appointed to cooperate to give medical attention, if needed, to any of the men, and a number of hospitals of St. Louis have volunteered to give medical care to sick sailors and soldiers.

**To Prevent Abuse of Charity.**—Dr. Edward L. C. Richter, a member of the St. Louis Medical Society and alderman from his ward, has introduced a bill in the board of aldermen to prevent the abuse of charity in the city. The bill requires all persons who apply for charitable assistance or treatment at any of the city institutions or to any private individual or agency, to make a statement of his social and financial condition on blanks provided by the city. The bill follows closely the provisions of the New York City law. The St. Louis Medical Society has indorsed the measure and will work for its passage.

## NEW YORK

**Otisville Tuberculosis Hospital for Army.**—A large tract of land adjoining the municipal tuberculosis hospital at Otisville has been turned over to the government for the erection of a hospital to house 800 soldiers suffering from tuberculosis. The pavilions of the New York City Health Department on North Brother's Island have also been offered to the government. It is expected that the new hospital at Otisville will be completed within four months.

**Bill to Amend Public Health Law.**—There is before the legislature of this state a bill to amend the public health law in relation to reports of officials and employees to the state department of health. In the law to be amended, the duties of the health commissioner are defined as follows:

> The commissioner of health shall take cognizance of the interests of the health and life of the people of the state and all matters pertaining thereto.

An amendment introduced by Senator Whitney at the request of the health commissioner reads as follows:

> The written reports of officials and employees of the state department of health on questions of fact under the public health law, or under the sanitary code or any local health regulation, shall be presumptive evidence of the facts so stated and shall be received as such in all courts and places. The persons making such reports shall be exempt from personal liability for the statements therein made if they have acted in good faith.

### New York City

**Dinner to Overseas Hospital Staff.**—A farewell dinner was given to the Women's Overseas Hospital staff at the Cosmopolitan Club, February 11. The women expected to sail some time during the week. The Overseas Hospital is supported by the National Women's Suffrage Association.

**Hospital For Palestine.**—A gift of $25,000 has been donated by Mrs. Peter J. Schweitzer of Brooklyn for the purpose of building and maintaining an eye hospital in Palestine, where trachoma and other eye diseases are prevalent. A medical unit will leave for Palestine as soon as transports and transportation can be obtained.

**Personal.**—Dr. Vera Danschakoff of Moscow has been appointed assistant professor in anatomy at the College of Physicians and Surgeons.——Major Grayson M. P. Murphy, who recently resigned as Red Cross commissioner to Europe, has reported for duty with the American expeditionary forces. ——Dr. John A. Harris, who retired from the practice of medicine to manage several business enterprises, has been appointed special police commissioner, without pay, to regulate traffic conditions in the city.——Dr. Royal C. Van Etten has been appointed temporary second assistant to the second surgical division of Roosevelt Hospital.

**War Hospital Opens New Section.**—The War Hospital of Columbia University, which occupies part of the site of the Columbia athletic oval at Gunhill Road and Bainbridge Avenue, opened a new section, February 15. Eighteen new wards have been opened, doubling the original hospital capacity, so that 1,000 patients may be cared for at the same time. The hospital is intended exclusively for the care of soldiers brought back from France. Col. Edward R. Schreiner, chief surgeon and commander of the hospital staff, has been ordered to the government hospital at Fort Riley, Kan., and will be succeeded by Major William H. Bishop.

## NORTH DAKOTA

**Northwestern Society Elects Officers.**—The annual meeting of the Northwestern Medical Association was held at Minot, January 15, and the following officers were elected: president, Dr. Edward M. Ransom, Minot; vice president, Dr. Frederick K. Kolb, Granville, and secretary-treasurer, Dr. Peter A. Nestos, Minot.

**Appeal for Reorganized Health Department.**—The *Bulletin* of the state board of health for January contains the statement that the present state health organization is incapable of securing satisfactory results. In demanding a reorganization, the *Bulletin* sets forth, among other things, the following facts: Every eight hours a citizen of North Dakota dies from tuberculosis, and 26 per cent. of deaths in the state occur among children under 5 years of age. Only about 2 cents per capita are spent for health protection and, as a consequence, the state ranks thirty-third in the list of states in respect to efficient health service. There is no adequate system of health bookkeeping, that is, registration of births and deaths and reporting of infectious diseases.

## PENNSYLVANIA

**Revocation of Licenses.**—The attorney-general of Pennsylvania has ruled that the presence of all of the members of the Pennsylvania Bureau of Medical Education and Licensure is necessary to revoke a license or to vote recognition to a medical college, whereby its graduates may become eligible for a license in that state.

**Remission of Dues.**—In November the Bucks County Medical Society adopted resolutions remitting the dues of members in active military service.——The Philadelphia County Medical Society has unanimously adopted the following recommendation of the board of directors, "The board of directors recommend that all the dues of the members who have gone into active military service be remitted for the present year."

### Philadelphia

**Memorial for Captain Bradley.**—Memorial services for Capt. Clarence D. Bradley, M. R. C., U. S. Army, were held in the forum of the Temple University, February 5. Dr. Bradley died from cerebrospinal meningitis, January 29, at Camp Greene, Charlotte, N. C.

**Graduate Schools Merge.**—It is reported that the Philadelphia Polyclinic and College for Graduates in Medicine has merged with the Graduate Medical School of the University of Pennsylvania. The latter was formed a year or two ago by the merging of the Medico-Chirurgical College and Hospital.

**Smallpox Quarantine.**—Quarantine was established for the second time in a week in the block bounded by Oxford Street, Columbia Avenue, Twenty-Fourth and Twenty-Fifth Streets, when four women, residing in a lodging house in that district, suspected of having symptoms of smallpox were removed to the Philadelphia Hospital for observation.

**New Dean.**—The board of corporators of the Woman's Medical College of Pennsylvania announces the election of Dr. Martha Tracy as dean of the college. Dr. Tracy is a graduate of Bryn Mawr College, 1898, and of the Woman's Medical College in 1904. She has occupied the chair of physiologic chemistry and hygiene at the college for a number of years and has been acting dean since June 1917.

**Personal.**—Dr. Max H. Bochroch has been appointed visiting psychiatrist to the Philadelphia General Hospital.——Dr. Henry H. Lott has been appointed operating chief to the laryngologic dispensary of the Jefferson Medical College Hospital.——The civil service commission named the following men as eligible for appointment to positions as assistant diagnosticians: Drs. Howard C. Fretz, Maurice Ostheimer, George E. H. Johnson and Clarence W. Schaeffer; and for appointment as supervising medical inspectors in the department of health and charities, Drs. Joseph D. Lehman and Martin J. Nevinger.

**Venereal Ward for Women and Children Established.**—Building alterations are nearing completion at the college hospital of the Woman's Medical College of Pennsylvania, where a venereal ward and dispensary is soon to be opened for the care of women and children. In the equipment and maintenance of this new department the Woman's Hospital, the West Philadelphia Hospital for Women and the college hospital will cooperate. The resident medical and nursing staffs of the three hospitals will participate in the regular rotation of service. Dr. Rose Hirschler has been elected chief of the department.

## VIRGINIA

**Personal.**—Dr. Joseph C. Dunford, Norfolk, on duty at Camp Lee, is reported to be ill in the base hospital, Camp Lee.——Dr. George M. Converse, U. S. P. H. S., has begun the work of consolidating the Norfolk County and Portsmouth City Health Board, and forming a health district.——Dr. T. Edwin Baird has been appointed physician to the Norfolk City Home.——Dr. Arthur L. Wilson has been elected president of the board of health of Lynchburg.

## CANADA

**Queen's Bars Negro Students.**—No more negro students are to be admitted to Queen's University, Kingston, Ont. This is due to the objection of patients to the presence of negroes at hospital clinics. There are now fourteen negro medical students at Queen's and these will be allowed to finish their fourth, but not their fifth year, because of the fact that most clinical work has to be done in that year.

**Promotions.**—Under the date of January 30, the London *Gazette* gives the following promotions in the Canadian Medicals: Capts. Henry E. Paul, Fort Williams, Ont.; R. F. Flegg, Ottawa; George O. Taylor, Moncton, N. B.; Robert M. Luton, McW. Taylor, Alexander H. Taylor, Goderich; M. C. W. Brown, D. McClellan, P. W. Pilcher, Nelson G. Cooper, Prince Albert, Sask.; Thomas L. Butters, Lafleche, Sask.; George C. Hale, Henry P. Wright, to be temporary majors.

**McGill's Service.**—More than 2,000 students, graduates and teachers from McGill University, Montreal, have joined the military forces in the three and one half years of war. Three hundred of these have gained military honors, and 236 are among those who have been killed. The McGill corps was originally organized by Sir Auckland Geddes, now director-general of recruiting in England, who was a professor of anatomy at McGill, when the war broke out.

**Birkett Returns.**—Col. Herbert S. Birkett, C. M. G., dean of the medical faculty of McGill University, Montreal, and who has been overseas in command of their base hospital, has returned home on account of ill health. Col. John M. Elder has taken over the command of the hospital. While in England, Colonel Birkett visited many of the British and Canadian hospitals; and he speaks especially of the remarkable work which is being done in the Sidcup Military Hospital where all facial deformities are given special attention. He also speaks in terms of the highest praise of the work at St. Dunstan's Hospital, where blind soldiers are given a new view of life, learning basket making, stenography, telephone operating, etc. Colonel Birkett says the only way to win the war is to kill the Bosches.

**University News.**—Prof. Watson Bain, occupying the chair of applied chemistry, University of Toronto, has been granted leave of absence for the duration of the war. He is going to Washington, D. C., where he will be on the staff of the Canadian mission.——At the antitoxin laboratory of the University of Toronto, the doctors are working toward securing a serum which will counteract the gas used on the soldiers by the enemy at the front. Capt. Alfred H. W. Caulfield, who went overseas with the University Base Hospital three years ago but who has been doing special research work in London, England, has been brought back from overseas to engage in the work.——Capt. Don A. Warren, M.B., Hamilton, who recently resigned from the R. A. M. C., has been given a commission in the C. A. M. C., and has been appointed to the King's Canadian Red Cross Hospital at Bushy Park, England.

**Public Health Exhibits.**—The Ontario Board of Health has established public health, child welfare, and tuberculosis exhibits which include moving pictures. Each exhibit is in charge of a competent man and a nurse, who, during the fall and winter months, make a tour of the various towns of the province in the interest of public health education. The nurse who accompanies the exhibit endeavors to secure the cooperation of the local physicians in holding public clinics for children's diseases, care of babies, etc.——Since the war began, the Ontario Board of Health has distributed 1,622,962 doses of vaccine, which amount has provided three doses for each soldier, the total value being $170,000. It has also distributed 10,150 doses in Newfoundland, worth about $1,000. All the typhoid and paratyphoid vaccine is distributed free. There has been practically no typhoid among the Canadian forces.

**Hospital News.**—The National Cash Register Company's property in Toronto has been purchased by the Military Hospitals Commission, and is to be converted into a hospital for returned soldiers. It is to be developed as the chief Canadian center for orthopedic work. The existing building has accommodation for about 400 patients, but additions will increase its capacity to 900 patients. It is intended to make it a 1,500 bed hospital. The Orthopedic Hospital in North Toronto will continue to be employed as an auxillary to the new center.——The board of control, Toronto, in keeping down the tax rate for 1918, has decided that no grants should be made this year to hospitals other than the per diem rate set forth in the statutes. Late in 1917, the hospitals of Toronto secured a special grant of $189,582 from the city. The treasurer of the city brought in an estimate of $200,000 for the present year, but the controllers struck the item out. This policy will probably hasten a financial arrangement whereby all the hospitals will come under municipal control.

**Personal.**—Col. William B. Hendry, Toronto, recently in command of the University of Toronto Base Hospital at Basingstoke, England, has received the distinguished service order.——Capt. M. Joseph Casserly, R. A. M. C., Toronto, has returned to England.——Dr. Ian Thompson, a brother of Dr. Finlay Thompson, Toronto, a native of Nefoundland, was surgeon on the British destroyer *Strongbow*, when that vessel was sunk in a recent naval engagement in the North Sea.——Dr. Roberts, a member of the provincial government of New Brunswick, is taking an active part in providing medical inspection for the schoolchildren of that province.——Major George T. McKeough, C. A. M. C., Chatham, Ont., has been appointed honorary president of the Great War Veterans' Association.——Col. Leonard C. Harris, C. A. M. C., Moncton, N. B., who is in command of a 2,000 bed hospital at Whitby, England, was recently mentioned in despatches by General Haig.——Dr. Edna Mary Guest, Elginfield, Ont., has been appointed medical officer of the Scottish Women's Hospital on the island of Corsica.——Major Julian S. Boyd, C. A. M. C., has been appointed senior medical officer at the Toronto Exhibition Camp.——Capt. Archibald F. Laird, R. A. M. C., Blenheim, Ont., has been awarded the military cross. Captain Laird advanced with his men in the face of heavy machine gun fire, and remained for three days until the ground was consolidated. Although wounded in the shoulder, he continued to attend the wounded. He has been mentioned in despatches by Sir Douglas Haig.——The military cross has been awarded to Capt. Dimock S. Cassidy, R. A. M. C., formerly of Tatamagouche, N. B. He went down into a particularly dangerous mine to give aid to the wounded. He was severely gassed and is now undergoing treatment in a London hospital, England.——Capt. William Bernard MacDermott, M.D., Lang, Sask., who has been in Russia with the Anglo-American hospital, recently disbanded, is back in England.——Capt. Donald A. Warren, Hamilton, Ont., has resigned his commission in the R. A. M. C. He went to France in November, 1915, and while attached to the Royal Warwickshire Regiment, won the military cross.——Dr. William C. White, late of Pittsburgh, who has been connected with health service of the volunteer relief work in France, has been made chief of the bureau of tuberculosis of the American Red Cross in France.——Capt. James A. Dickson, Toronto, with the R. A. M. C. in India and Mesopotamia, returned to Toronto in January.——Capt. Charles J. M. Willoughby, Toronto, is returning from Mesopotamia.——Capt. Eric K. Clarke, Toronto, son of Dean Clarke of the faculty of medicine, has left for England to be attached to No. 4 University of Toronto Base Hospital, Basingstoke, England.——After a lengthy service in Greece and England, Col. Alexander Primrose, Toronto, is on his way home. He has lately been consultant in surgery to the Canadian forces in England.——Drs. James T. Wall and C. M. McGill, both of McGill University, Montreal, have been elected members of the Royal College of Surgeons.——Lieut.-Col. Norman S. Shenstone, Toronto, has returned after several months in the Ontario Military Hospital, Orpington, England.——Lieut.-Cols. Irving H. Cameron and Donald McGillivray, Toronto, have returned to Toronto from a tour of inspection of the military hospitals as far as Victoria, B. C., and have proceeded to Ottawa.

## GENERAL

**Dr. Means Honored.**—At the recent meeting of the Association of American Medical Colleges in Chicago, Dr. William J. Means, Columbus, Ohio, who for many years has been chairman of its executive council, was elected as president. Dr. Means has been a prominent figure in the progress in recent years in medical education in the United States.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

New York Foundling Hospital, $10,000, the proceeds of a benefit opera recently given.

People's Hospital of Philadelphia, a bequest of $10,000 by the will of Emilie C. Christman.

St. Joseph's Home for Orphans, Sisters of the Poor, and Sisters of Mercy Hospital, Philadelphia, each equal shares of the estate of John J. O'Malely, amounting to about $67,500.

Presbyterian Hospital of Chicago, $10,000 and bequests to the Chicago Home for Incurables, Visiting Nurses' Association and other charities, by the will of Ettie Soper Smith.

Citizens Aid Society, Minneapolis, about $1,000,000, as an endowment fund, by the will of George H. Christian.

**Sanatorium Association Meeting.**—The first mid-winter session of the Mississippi Valley Sanatorium Association will be held at the Municipal Tuberculosis Sanatorium, Chicago, March 12 and 13. On the first day there will be a symposium on sanatorium administration, taking the place of the laboratory in the sanatorium, practical graduated exercises, and education of the tuberculous. In the afternoon the effect of war on the tuberculosis sanatorium and the question of whether temporary construction of buildings for the care of the tuberculosis is practical will be taken up. In the evening, Health Commissioner Robertson will deliver an address on "Suppression versus Repression of Tuberculosis in the Community." The morning of the second day will be devoted entirely to the symposium on the "Tuberculous Child," including the housing of the tuberculous child, the handling of contacts by the sanatorium, and the differentiation of the potentially tuberculous child from the active tuberculous child. In the afternoon papers will be read on "Looking Forward Into Tuberculosis Sanatorium Work," and "Primary and Secondary Pulmonary Tuberculosis."

## LONDON LETTER

London, Jan. 29, 1918.

### Trench Fever

Among the new maladies brought to light by the war is a condition of obscure causation termed "trench fever," a name given because it arose in the front area and not on the lines of communication until the establishment of schools of instruction, to which men came from the front area, created foci of infection. Several organisms, including spirochetes and a hemogregorin, have been described as the cause, but none has stood the test of criticism. The director-general of the medical services in France appointed a committee consisting of Lieut.-Col. W. O. O. Beveridge and Cols. Sir John Rose Bradford, Sir Wilmot Herringham and Sir William Leishman to investigate various forms of fever of unknown origin which, though they never caused death, were very prevalent in the army. The aims of the committee were: (1) to determine whether these cases of unknown pyrexia include more than one class of fever, and if so to classify them; (2) to observe the symptoms distinctive of each class that might be established, and thereby to distinguish one class from another and from all known fevers; (3) to investigate the etiology and pathology of these fevers, and (4) to discover the best means of prevention and cure. They have now presented a report on the first two of these objects. They find that the cases of pyrexia of unknown origin may be divided into three classes: (*a*) the relapsing class (trench fever); (*b*) a class with a single short, initial bout of fever and no relapse, and (*c*) a class with prolonged initial fever. The cases of trench fever form two groups: (1) regular relapsing with definite normal intervals, and (2) irregular relapsing in which the intervals are not so definite or, if definite, in which the temperature remains above normal. The cases of trench fever occurred in all situations—trenches, dugouts, huts, tents and billets. The onset was usually sudden. Headache was invariable; it was nearly always frontal, and often referred to the back of the eyes. There was often conjunctivitis (pink eye). Other symptoms were shivering, dizziness or giddiness; several complained of weakness or faintness. There were pains in the back or lower limbs in most cases. In a few there was no pain other than headache at the onset, and this was sometimes the only pain throughout. On admission to the hospital, the patients complain of headache and pains in the lower limbs, usually in the thighs and knees. They often look very toxic, and are flushed and sometimes drowsy. The tongue has a central streak of yellow or brown fur with red edges, the appetite is bad, the bowels constipated. There is no distention of the abdomen. In a few cases there was a trace of albuminuria, which disappeared in two or three days. The temperature chart is marked by a series of bouts of fever, lasting three or four days, in which the temperature as a rule rises rapidly and falls rather more slowly. The bouts vary greatly in number; most patients have three or four. The spleen was sufficiently large to be palpable below the ribs in about a third of the cases. Apart from headache, which is universal and often very persistent, pains are felt in various parts of the body, especially in the lower limbs. In Class B there was only one short initial bout of fever, lasting under six days. The symptoms resembled those of the preceding class. In Class C there were symptoms like those of Class A, but the fever was prolonged, and lasted from six to fourteen days or longer.

### The Food Situation

With the continuance of the war, the food problem is becoming more difficult, and rationing of the most important foods is coming into force. So far only sugar has been rationed—at the rate of 8 ounces per head per week. February 25, the rationing of meat and fat will come into force. A drastic order limiting the consumption of meat and fats has been introduced for hotels. Two meatless days are to be observed. In the London area the days will be Tuesday and Friday, and elsewhere in the United Kingdom Wednesday and Friday. No meat may be served with breakfast. No milk may be served or consumed as a beverage, except with tea, coffee, cocoa or chocolate, or by children under 10 years of age. Guests must provide their own sugar for sweetening beverages. No more than 1½ ounces of bread, cake, bun, scone or biscuit may be served with afternoon teas. The quantity at present allowed is 2 ounces. The permitted quantities of meat, flour, bread, sugar (except in the case of continuous residents) butter, margarin and other fats must not exceed the gross quantities allowed for the meals served during a week, ascertained in accordance with the following scale of average quantities per meal:

| | Meat, Oz. | Sugar, Oz. | Bread, Oz. | Flour, Oz. | Butter, Margarin and Other Fats, Oz. |
|---|---|---|---|---|---|
| Breakfast | 0 | 0 | 3 | 0 | ⅓ |
| Luncheon (including midday dinner) | 3 | 1/7 | 2 | 1 | ⅓ |
| Dinner (including supper and meat tea) | 3 | 1/7 | 3 | 1 | ⅓ |
| Tea | 0 | 0 | 1½ | 0 | ¼ |

The basis of rationing under the old order is as follows:

| | Meat, Oz. | Sugar, Oz. | Bread, Oz. | Flour, Oz. |
|---|---|---|---|---|
| Breakfast | 2 | 2/7 | 2 | 0 |
| Luncheon (including midday dinner) | 5 | 2/7 | 2 | 1 |
| Dinner (including supper and meat tea) | 5 | 2/7 | 2 | 1 |
| Tea | 0 | 2/7 | 2 | 0 |

It will be observed that, while the bread ration has been increased by 1½ ounces, the quantity of meat permitted is reduced from 12 to 6 ounces a day. Breakfast is going to be a difficult meal in the business type of hotel. Apparently no milk may be served with porridge, and the bacon course is forbidden. On a meatless day no meat, poultry or game may be served or consumed in any public eating place. Between the hours of 5 a. m. and 10: 30 a. m., no meat, poultry or game may be served or consumed on any day. No milk may be served or consumed as a beverage or as part of a beverage, except with tea, coffee, cocoa or chocolate as usually served; but it may be given to children under 10 years of age. Exemption from these provisions relating to meat and milk may, however, be obtained by a resident in a public eating place on the certificate of a duly qualified physician showing that it is in the interest of his health. Regarding teas in public places, no person may be served with or consume between the hours of 3 p. m. and 5: 30 p. m. more than 1½ ounces in the whole of bread, cake, bun, scone and biscuit.

The Army Council has decided to reduce in certain respects the food ration of those men in the home armies whose duties approximate to those performed by the civilian population. This has been prompted by the temporary deficiency in the supply of certain essential foods for the civilian population, particularly meat. This means a heavy reduction in the number of calories represented by the dietary, and also considerably complicates the arrangements for rationing large numbers of men. For similar reasons and particularly for the relief of tonnage, it has also been decided to reduce the grain allowance to horses and other animals employed by the armies at home. For the purposes of the new scale of reduced rations, the home forces have been divided into two categories: (*a*) troops under training for service over sea and mobile troops engaged in home defense; (*b*) all other troops at home. In the case of the former troops, the present home scale of rations, which is considerably less than that which prevails at the front, will remain unaltered. In the case of the troops in the second category, the following changes are to be made: meat from 12 ounces a day to 8 ounces; sugar from 2 ounces a day to 1 ounce; bacon from 2 ounces a day to 1 ounce; tea from ¼ ounce a day to ⅜ ounce. Thus the meat ration is reduced by one third and sugar and bacon by one half, while the tea ration is increased by one half. The revised sugar allowance (1 ounce) is slightly less than the present allowance for civilians, which is 1 1/7 ounce a day. In the case of horses, mules and other beasts of burden, the daily oat ration is to be reduced by 2 pounds per head. This, it is hoped, will not only effect a great saving in tonnage, but also release valuable food for human consumption.

## PARIS LETTER

Paris, Jan. 24, 1918.

### Antitoxin Treatment of Gas Gangrene

Dr. Sacquépée recently discussed the antitoxin treatment of gas gangrene before the Réunion médico-chirurgicale de la IV-e Armée. This being, first of all, a toxic disease, and the intoxication being manifestly of microbic origin, it is evident that these germs are toxin producing. In gas gangrene, until now, only two species of germs have been isolated, the *vibrion septique* and the *Bacillus bellonensis.* Both organisms produce toxins in vitro, and both are used easily for the production of an antitoxic serum. So far as the prophylactic treatment is concerned, in cases in which much tissue is destroyed (large arterial lesions, large hematomas, and much destruction of inaccessible muscle tissue), the treatment *à distance* is difficult because there is no circulation through the region, and hence no means of defense. However, even under these circumstances the treatment is always of some value, because the interruption of the circulation is not always complete. In some cases in which one cannot prevent entirely the appearance of gas gangrene, grafted on an ischemic gangrene, one can at least check its evolution.

#### METHOD OF PROCEDURE

The serum treatment is carried out as follows: 1. Under the skin, *à distance,* from 30 to 40 c.c. of each serum are injected. 2. Into the depths of the limb, to the limits of the necrotic tissue (or susceptible of necrosis), the same dose of serum, diluted with physiologic sodium chlorid solution, is injected. 3. Serum is injected into the wound. These three injections are repeated after twelve hours. In other cases only 20 c.c. of each serum are injected. As for the curative treatment, the chances of success are always greater the earlier the serum is used. When possible, one should determine the pathologic conditions present. In the edematous form it is the *B. bellonensis* which is usually present, and then more of the corresponding serum is injected. On the other hand, in the gaseous form, both germs are usually present; if, as is the rule, the presence of one or the other germ is not disclosed sufficiently early, then the two serums in equal quantities are injected. As a general rule, in all forms and whatever the condition, at least three injections of high serum strength must be made. For the edematous form the antibellonensis serum is used, 80 c.c., half being injected intravenously and half subcutaneously, and 20 c.c. of the antivibrion septique serum are injected subcutaneously. The subcutaneous injection, in the same dose, is repeated after four or six hours, and then again after from sixteen to twenty hours. The general state of the patient must be the guide in the treatment. For the gaseous form, from 30 to 50 c.c. of each serum are injected, half being injected intravenously and half subcutaneously. The injections as outlined above are repeated in the treatment of the edematous form. The results obtained from this method of treatment have been very satisfactory.

### Early Secondary Suture of War Wounds

At one of the recent meetings of the Société de chirurgie de Paris, Drs. Barthélémy, Morlot and Jeanneney demonstrated the good results obtained by secondary suture in forty cases of war wounds. The following technic was used: The disappearance of all inflammatory symptoms and the elimination of all dead tissue are waited for. The ulcerated surface is circumscribed by an incision passing through the healthy skin at least 5 cm. from the edge of the wound. The incision extends down to the aponeurotic fascia so that the whole ulcerated area can be removed as if it were a tumor. The field of operation is disinfected with ether; gloves and instruments are changed. If too much traction would be made on the wound edges by bringing them into contact, the skin is undermined with a bistoury or scissors as far as is necessary to loosen it up to secure perfect apposition of the wound edges without traction. If the wound is rather large, the deeper layers should be sutured with catgut. This suture assures hemostasis, which must always be complete; this also facilitates the skin suturing. The skin wound is closed with horse hair, perfect approximation of the wound edges, particularly at the angles of the wound, being obtained. One should always close the wound on the limbs in the long axis, having recourse, if necessary, to a releasing incision (*de débridement*). For the succeeding days, the temperature should be watched. The dressing is renewed in about forty-eight hours. If there is any stitch hole suppuration, the wound edges at this point, are separated, and a little ether is injected daily.

### RESULTS

The results obtained have been as follows: In twenty-six cases, primary union or speedy union occurred in less than fifteen days; in eleven cases, rapid union occurred, in spite of some suppuration at one stitch hole and a little exudation at one portion of the wound, healing requiring only exceptionally more than a month; in two cases the results were mediocre, owing to faulty technic, the suture having been made perpendicularly to the axis of the limb; finally, in one case, union, not having been preceded by excision of the infected tissue, did not take place. A second operation performed some days later, in accordance with the usual technic, resulted in a complete success. In a general way, after such suture, a complete cure was obtained in from fifteen days to a month, only exceptionally requiring more time. The operation should be performed, ordinarily, about fifteen days after the patient enters the hospital; the average stay in the hospital, counting from the date of the wound, was about forty days. All the cicatrices are soft, pliable and nonadherent, and the wounded, that is, those having wounds which were amenable to this treatment, quickly returned to their corps. The operation has always reduced the period of invalidism considerably, and often the evacuation of the wounded into the interior has been made unnecessary. The technic is simple and free from danger. In the majority of cases the operation was performed under local or regional anesthesia, chloroform being resorted to only when the injury was very extensive so that local anesthesia was contraindicated.

### American Red Cross in France

During the five months since the first delegates arrived in Paris, the American Red Cross has been very active. Among its first activities was the establishment of eleven canteens at the front, which have served, to date, more than 500,000 hot drinks to the tired French soldiers who are on their way to the trenches or are returning. Three canteens have been established along the line of communication. An infirmary was opened at Toul where, since July 27, 400 children less than 8 years of age have been sheltered from the danger of asphyxiating bombs; finally, an American hospital for repatriated children was opened at Evian with a dispensary in which 250 children are examined daily; and three large consignments of merchandise were sent to the dépôts of the departments of the Somme, the Oise and the Aisne. In addition to these emergency measures, the American Red Cross has also inaugurated a social service department which will do especially tuberculosis work (in cooperation with the Rockefeller commission) and in the prevention of infant mortality.

## CUBA LETTER

HAVANA, Feb. 12, 1918.

### Appointment of New Professors

Dr. J. E. Ferran has been appointed professor of clinical surgery at the University of Havana in place of Dr. Raimundo Menocal, deceased. Dr. Rafael Menocal has succeeded Dr. Ferran as assistant professor of clinical surgery.

### New Medical Journals

*El Eco Cientifico*, a monthly journal devoted to general practice, is being published in Ciego de Avila, Camagüey. This is the first Cuban medical journal to be published outside of Havana.

The editors of the *Revista de Pediatria* have resumed the publication of their journal in Havana, under the leadership of Drs. C. and A. Inclán and Professor A. Aballi. The paper will appear the first of every month and will deal with pediatrics exclusively.

### Red Cross Work

The Cuban Red Cross Committee is raising a fund to build and support a hospital in France. An especial opera performance was given a few days ago, and the proceeds of it were devoted to the Red Cross fund. The most prominent people, banking houses, and merchants of Cuba also contributed to this fund, and all the employees of the government, provinces and cities gave one day's salary. Mrs. Menocal, the wife of the president of the republic and the leader of the Cuban Red Cross, reports that she expects to have a million dollars soon.

### Reorganizing the Army Medical Corps

Colonel Hada of the U. S. Army is said to be in Cuba on a special mission to reorganize the medical corps of the Cuban army. The medical strength of troops is 15,000, and the Medical Corps is composed of two lieutenant-colonels, three commanders, fourteen captains and twenty-one lieutenants. Six new military hospitals will be built in each of the six provinces of Cuba and the number of medical officers increased.

### Isle of Pines Spring Water Declared Unfit for Public Use

The Board of Health Laboratory found in specimens of "La Cotorra" mineral water of Isle of Pines, 8,000,000 colonies of colon bacilli per cubic centimeter. Orders were issued at once to confiscate all bottles, and a special announcement was made warning the public not to drink the so-called table water "La Cotorra."

### Shortage of Foodstuffs

The Cuban people are suffering from the absolute lack of flour and therefore of bread. Lard is very scarce, and costs a dollar a pound, butter is from 70 cents to a dollar a pound. The commission for food regulation is working actively in order to import flour and other articles of food and get control of them.

### Fourth National Medical Congress

The fourth meeting of the National Congress of Physicians, Dentists, Pharmacists and Veterinarians of Cuba was held last December at the Academy of Science. More than 1,200 professional men gathered, and very interesting articles were discussed. Dr. M. Dominguez of the Board of Health Laboratory for Medical Research read a paper on a new vaccine treatment of tuberculosis. Several reports were read on tropical subjects, especially on leprosy, uncinariasis and malaria, by Drs. Montoro, Lebredo and Alfonso.

Dr. J. A. Presno, professor of anatomy of the University of Havana and a prominent surgeon, was elected chairman of the fifth meeting of the medical congress, to be held in 1920.

### Award of Prize

The biannual prize of the Society of Clinical Studies was awarded to Dr. E. de Aragon, Jr., for his studies on cancer of the uterus. The prize consists of $200 and a diploma.

### Vaccination Against Smallpox

One case of smallpox was diagnosed on board a ship from New Orleans at Havana harbor; the patient was removed to Las Animas Hospital for contagious diseases. Shortly afterward another case of smallpox was discovered in the city, and the patient removed to the same hospital. Compulsory vaccination has been ordered, and so far no more cases of the disease have been registered.

## Marriages

SURG. LAWRENCE FLOYD DRUMM, U. S. Navy, on duty in the Public Health Service in Hayti, to Miss Harriet May Randall of Oneida, N. Y., at Port-au-Prince, Hayti, January 17.

LIEUT. THOMAS JOSEPH COURTNEY, Assistant Surgeon, U. S. Navy, Brookline, Mass., to Miss Teresa Bernardine Killelea of Worcester, Mass., February 12.

LIEUT. JAMES PATRICK FITZGERALD, M.D., M. R. C., U. S. Army, New York City, to Miss Katherine Dean of Highland Park, Ill., February 9.

LIEUT. ROLAND ALBERT DAVISON, M.D., M. R. C., U. S. Army, to Miss Florence James of Brooklyn, at Malone, N. Y., December 30.

ASST. SURG. WALTER JAMES SPENCER, U. S. Navy, Brooklyn, to Miss Sophia Burgauer of Chicago, in New York City, December 24.

LIEUT. HARRY ANTHONY DURKIN, M.D., M. R. C., U. S. Army, to Miss Rose M. Fleming, both of Peoria, Ill., February 1.

LIEUT. CHARLES MALLON O'CONNOR, JR., M. C., U. S. Army, to Miss Marie Ballentyne of Honolulu, H. I., December 21.

HOWARD CLAY SEVIER, M.D., Tallulah, La., to Miss Clyde Kell Scott of Vicksburg, Miss., January 12.

GEORGE PITKIN COOLEY, JR., M.D., Detroit, to Miss Bessie B. Leipz of Evanston, Ill., January 12.

HUNTER ROBB, M.D., Winchester, Mass., to Mrs. Edwin Ginn of Boston, February 2.

FLOYD ALBERT SMITH, M.D., to Miss Edna H. McCann, both of Canton, Ill., January 1.

# Deaths

**Samuel Augustine Brown, M.D.,** Sioux Falls, S. D.; Jefferson Medical College, 1871; aged 69; a Fellow of the American Medical Association; first president of the Sioux Valley Medical Association; first president of the South Dakota State Medical Association, and of the Minnehaha County Medical Society, and Seventh District Medical Society; assistant surgeon in the United States Navy from 1871 to 1884; died at his home, February 5, from heart disease. The Seventh District Medical Society at its regular monthly session adopted resolutions of affection, appreciation and regret.

**Capt. Milton Jay Lichty, M.D.,** M. R. C., U. S. Army, Cleveland; University of Pennsylvania, Philadelphia, 1895; aged 48; a Fellow of the American Medical Association; a member of the Cleveland Academy of Medicine; assistant clinical professor of medicine in Western Reserve University, Cleveland; chairman of the board of tuberculosis examiners at Camp Zachary Taylor, Louisville, Ky.; died in the base hospital at Camp Taylor, February 14, from septic meningitis following an otitis media and mastoid operation.

**Robert Folger Stratton, M.D.,** St. Joseph, Mich.; Harvard Medical School, 1857; aged 86; for more than fifty years a resident of St. Joseph, for many years school moderator, and a member of the board of education; at one time library trustee, a member of the city council, and of the board of health; surgeon of the Eleventh Illinois Volunteer Cavalry during the Civil War; died at his home, February 7, from myocarditis.

**William Chilton Day, M.D.,** Danville, Va.; Medical College of Virginia, Richmond, 1864; aged 76; a member of the Medical Society of Virginia; surgeon in the Confederate service throughout the Civil War; for thirty-five years local surgeon of the Southern Railway, and president of the Society of Southern Railway Surgeons in 1915; died in the Danville General Hospital, January 25, from pneumonia.

**Capt. Clarence Davis Bradley, M.D., M. R. C., U. S. Army,** Philadelphia; University of Pennsylvania, Philadelphia, 1907; aged 38; a Fellow of the American Medical Association; instructor in laryngology in Temple University, and a member of the staff of the Samaritan Hospital; regimental surgeon of the Sixty-Ninth Infantry, U. S. Army; died at Camp Greene, Charlotte, N. C., February 1.

**Milton H. Auter, M.D.,** Galesburg, Ill.; Howard University, Washington, D. C., 1905; aged 38; a colored practitioner; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at the home of his father at Harrisburg, Pa., January 17, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent.

**Ernest Frederick Luhrsen, M.D.,** Brooklyn; Long Island College Hospital, Brooklyn, 1889; aged 42; a Fellow of the American Medical Association; pathologist and assistant surgeon to the Lutheran Hospital, Brooklyn; formerly lecturer in toxicology in the Brooklyn College of Pharmacy; a member of the staff of the Brooklyn Hospital; died at his home, February 3, from pneumonia.

**Wilfrid Warpool Brown, M.D.,** Woonsocket, R. I.; Baltimore Medical College, 1891; aged 52; a Fellow of the American Medical Association, and president of the Woonsocket District Medical Society; superintendent of the Blackstone, Mass., public schools, and a member of the school board for three years; a member of the Woonsocket school committee; died at his home, January 28.

Died in the Service

Lieut. Francis Findley Hanbidge, M.D., M. R. C., U. S. Army

(*See The Journal, Feb. 16, p. 477*)

**William T. Pate, M.D.,** Gibson, N. C.; College of Physicians and Surgeons, Baltimore, 1885; aged 57; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of North Carolina; formerly state bacteriologist and president of the Fifth District Medical Society; died at his home, Dec. 3, 1917, from cerebral hemorrhage.

**Henry A. Smith, M.D.,** Waterville, Wash.; Lincoln Memorial University, Knoxville, Tenn., 1892; aged 49; formerly a member of the Washington State Medical Association; died in a hospital in Waterville, February 2, from the effects of poison self-administered and an incised wound of the throat, self-inflicted, it is believed, with suicidal intent.

**Henry B. Stehman, M.D.,** Pasadena, Calif.; Jefferson Medical College, 1877; aged 65; a Fellow of the American Medical Association, and Chicago Gynecological Society; for many years superintendent of the Presbyterian Hospital, Chicago; who was obliged to go to California on account of his health in 1900, died at his home, February 17.

**Murray Hume Paterson, M.D.,** R. A. M. C., Chatham, Ont.; University of Toronto, 1914; aged 26; for two years on duty as medical officer of the First Rifle Brigade, and awarded the Military Cross for rescuing wounded under fire; was struck by an express train and instantly killed near Orpington, Kent, England, September 14.

**Robert Emmett Griffin, M.D.,** Lincoln, Neb.; Bellevue Hospital Medical College, 1880; aged 58; major and chief surgeon of United States Volunteers during the war with Spain, and surgeon-general of Nebraska National Guard; surgeon-in-chief to St. Elizabeth's Hospital, Lincoln; died in a hospital in that city, February 15.

**Major Henri Masson Duhamel, M.D.,** Montreal; Laval University, Montreal and Quebec, 1890; aged 51; one of the first to take service with Laval General Hospital No. 6, C. E. F., serving with the hospital in England and France since 1916; who was invalided home in December last, died at his home, February 3.

**Harry Bower Tice, M.D.,** Twodot, Mont.; University and Bellevue Hospital Medical College, New York City, 1899; aged 42; secretary of the Meagher County, Mont., Board of Health from 1904 to 1910; surgeon to the Montana Railroad; died at the Daughters of Jesus Hospital, Lewistown, January 31, from pneumonia.

**Lieut. Ellsworth Josiah Carroll, M.D., M. R. C., U. S. Army,** Eureka, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1889; aged 53; who was on active service on duty at Camp McArthur, Waco, Texas, and attached to the aero squadron; died at Camp McArthur, February 13, from spinal meningitis.

**George Burnham, M.D.,** Peterboro, Ont.; Bellevue Hospital Medical College, 1866; University of Victoria College, Coburg, Ont., 1867; aged 73; for twenty-five years a member of the board of education of Peterboro, and for two years its chairman; died at his home, Nov. 27, 1917, from cerebral hemorrhage.

**William Stewart Keever, M.D.,** Parkersburg, W. Va.; Medical College of Ohio, Cincinnati, 1884; aged 56; formerly a member of the West Virginia State Medical Association; a charter member of the Ohio Valley Medical Society; died in St. Joseph's Hospital, Parkersburg, February 3.

**William Ilderton, M.D.,** Florence, S. C.; Medical College of the State of South Carolina, 1889; aged 54; formerly a Fellow of the American Medical Association; was shot and killed in a pistol duel in the county court house, February 8.

**Alexander Cameron Brown, M.D.,** Lexington, Ky.; Hospital, College of Medicine, Louisville, Ky., 1904; aged 38;

formerly a Fellow of the American Medical Association; a member of the Kentucky State Medical Association; died at his home, February 6, from pneumonia.

**Charles Dexter Sawin, M.D.,** Somerville, Mass.; Harvard Medical School, 1883; aged 60; a Fellow of the American Medical Association; from 1884 to 1890 physician to the state prison, Charlestown, Mass.; died suddenly from heart disease in Boston, February 8.

**Thomas L. Irwin, M.D.,** Jacksonville, Fla.; Cincinnati College of Medicine and Surgery, 1865; aged 81; a pioneer pharmacist of Jacksonville, and a member of the city council; died at the home of his son in Jacksonville, January 25, from pneumonia.

**P. Joseph Faughnan, M.D.,** Locust Gap, Pa.; College of Physicians and Surgeons, Baltimore, 1892; aged 53; a member of the Medical Society of the State of Pennsylvania; died at his home, January 28, from heart disease.

**John Martin Craig, M.D.,** Philadelphia; University of Michigan, Ann Arbor, 1898; aged 55; a Fellow of the American Medical Association; died at his home in Germantown, Philadelphia, December 26, from pneumonia.

**Olenthus D. Stroud,** Ore Hill, N. C. (license, North Carolina, 1885); aged 67; a member of the Medical Society of the State of North Carolina; also a druggist; died in a hospital in Greensboro, N. C., January 19.

**Edmund A. Malsch, M.D.,** Victoria, Texas; Memphis (Tenn.) Hospital Medical College, 1893; aged 49; a Fellow of the American Medical Association; died at his home, January 28, from pneumonia.

**Albert Summerfield Payne, M.D.,** Manistee, Mich.; University of Michigan, Ann Arbor, 1892; aged 49; a Fellow of the American Medical Association; died at his home, January 31, from heart disease.

**Thomas A. Lilly, M.D.,** Chicago; Kentucky School of Medicine, Louisville, 1864; aged 80; physician to Sacred Heart Convent and St. Joseph's Home, Chicago; died at his home, February 6.

**William Stanley Gorsuch, M.D.,** Baltimore; University of Maryland, Baltimore, 1888; aged 55; for many years a practitioner of Churchville, Md.; died at his home, January 23.

**Patrick J. Cassidy, M.D.,** Norwich, Conn.; Johns Hopkins University, Baltimore, 1898; aged 43; a Fellow of the American Medical Association; died at his home, January 28.

**Lieut. Arnold Herbert Van Duyn, M.D., M. R. C., U. S. Army,** Hill City, Kan.; College of Physicians and Surgeons, Chicago, 1893; aged 46; died at his home, January 28, from heart disease.

**Charles T. Moorman, M.D.,** Packwood, Iowa; Eclectic Medical Institute, Cincinnati, 1876; aged 81; a practitioner for more than forty-four years; died at his home, February 4.

**Walter R. Bartlett, M.D.,** Greenwich, N. Y., Yale University, New Haven, Conn., 1871; aged 79; a veteran of the Civil War; died at his home, January 13, from pneumonia.

**Peter Anderson, M.D.,** New York City; University of Toronto, Ont., 1903; aged 39; died in the Kingston Avenue Hospital, Brooklyn, January 30, from tuberculosis.

**Samuel Brubaker Hartman, M.D.,** Columbus, Ohio; Jefferson Medical College, 1857; aged 87; died in the Hotel Hartman, Columbus, January 30, from senile debility.

**Judson Teeter, M.D.,** New Salem, Ohio; Medical College of Ohio, Cincinnati, 1902; aged 40; formerly of Pleasant Hill, Ohio; died at his home, January 15, from asthma.

**Edward Pollock Anshutz, M.D.,** Philadelphia; Hering Medical College (Hon.), 1909; aged 71; editor of the *Homeopathic Recorder;* died at his home, January 31.

**James Fielding, M.D.,** Norwich, England; Victoria College, Coburg, Ont., 1868; aged 73; formerly of Bowmanville, Ont.; died at his home, recently.

**William S. Wilson, M.D.,** Maysville, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1891; aged 55; died at his home, January 27, from acute gastritis.

**B. H. Yount, M.D.,** Wilbur, Wash.; Baltimore University, 1889; aged 60; a pioneer practitioner of the Big Bend Region; died, about January 21.

**William Clark Leet, M.D.,** Washington, Pa.; College of Physicians and Surgeons, Baltimore, 1881; aged 80; died at his home, January 30.

**Mary Eva Peck, M.D.,** Goshen, Ind.; Hahnemann Medical College, Chicago, 1889; aged 65; died at her home, January 27, from neuritis.

# *The Propaganda for Reform*

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## BELL-ANS (PAPAYANS, BELL)

### As the New York Tribune's "Ad-Visor" Sees It

> "Why avoid draughts? Sit by an open window, if you want to! Just take a few drops of Sneeze-o before you go into the draught and after you come out of it, and you'll never catch cold.

> "Don't be afraid of contagion. Kiss your Uncle Ebenezer, even if he's dying of tuberculosis! Just fortify yourself with a sip of Lungicide before you go to his bedside, and another when you come away, and you'll be taking no risk.

> "Are you going to sit there and let the other folks eat up all the good things just because you are afraid to pitch in, when 2 or 3 Bell-Ans taken before and after the meal would enable you to enjoy your share of all that's coming without a bit of discomfort or distress? Bell-Ans has restored the pleasures of the table to thousands who say: 'I can now eat anything and plenty of it, too.' "

"The first two blurbs are The Ad-Visor's. The third is a bona fide advertisement of Bell-Ans, aimed to catch the holiday trade. They are all patterned after the same style and the first two are no more lacking in logic than the last. Overeat—deliberately court indigestion—invite gout—don't be a gourmet, be a gourmand—be an anti-Hoover and eat a lot of food, whether you need it or not; then take Bell-Ans. If it doesn't 'absolutely remove indigestion,' your druggist will give you back your money! Could anything be fairer than that?

"Such copy as this is not limited in its evil effects to the misguided individual who eats lobster and ice cream at midnight and trusts to Bell-Ans to atone for his indiscretion. The most serious effect of such reckless advice is the example which the advertising sets to other advertisers."

The comments just quoted are from the Ad-Visor department of the New York *Tribune* of Feb. 7, 1918. They are respectfully referred to the *New York Medical Journal,* the *International Journal of Surgery* and the *Woman's Medical Journal*—three presumably scientific publications that through their advertising pages urge physicians to prescribe Bell-Ans.

## ANTIPHLOGISTINE

*To the Editor:*—Last September, my chief, Dr. J. S. Millard, received a letter from the Denver Chemical Mfg. Co., manufacturers of "Antiphlogistine." This letter purported to quote many large commercial concerns as testifying to the value of Antiphlogistine. Recently, I doubted the veracity of these claims and wrote to some of those quoted. I quote from the original letter of the Antiphlogistine company:

> "The surgeon to the electric light and electric railroad company in New Orleans, says that Antiphlogistine is the finest thing he has ever used in burns, especially flash and brush burns.
>
> "The physician to the New York Edison Co. makes a similar statement. He says that the application gives speedy relief and the burns heal quickly without scars."

I wrote to Dr. John Woodman, the physician to the New York Edison Co., who replied in part as follows:

> "The Denver Chemical Manufacturing Company have no authority to quote me. . . . I gave Antiphlogistine a thorough trial, and found it had a very limited use, and I cannot recommend it for burns. . . ."

Again, the Antiphlogistine letter said:

> "It may be of interest to you to know that at the emergency hospital of the Ford Automobile Co. in Detroit, Antiphlogistine is carried in stock and is used extensively by the three physicians in burns, bruises, infected wounds, sprains and other traumatic conditions which are constantly arising in such a plant. . . ."

I wrote to Dr. Mead who replied as follows:

> "In answer to your letter of January 25th, will state that no Antiphlogistine has been purchased or used in this hospital for years past,

and I cannot imagine why the representative of the Denver Chemical Company should make such a statement as attributed to him. . . ."

He adds that "Antiphlogistine has never been used" in his department "on an open wound, abrasion or burn." Is there not some way that such exploitation of our large companies can be prevented?

A. G. Gould, M.D., Akron, Ohio.
Plant Physician, the Goodyear Tire & Rubber Co.

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# Correspondence

## CARDIOVASCULAR EXAMINATIONS

*To the Editor:* The interesting and suggestive article by Dr. Babcock in The Journal, February 9, raises questions that demanded critical consideration at the present time.

All competent clinicians, military surgeons and life insurance medical directors will, I am sure, heartily concur in Dr. Babcock's postulate that even a persistent heart murmur unaccompanied by any secondary symptoms or signs is not sufficient ground for condemning a man to an early death. Those who have had an opportunity to observe and statistically follow large masses of lives presenting such impairment will go even further and agree that a fair number of individuals exhibiting unquestionably grave organic impairment of heart and kidney will live for many years and that some will arrive at a ripe old age. Such individual instances, however, only expose the folly of regarding organic physical impairment as necessarily a progressive disease entity or "malady" that inevitably moves on in its mysterious course rapidly to shorten life.

A damaged or imperfect heart is not a condition of *disease* but of *impairment;* and with proper care and attention to the source of impairment (infectious, toxic, etc.) or with unusual luck and latent resisting power the damaged organ may be made to "carry on" more or less indefinitely. This does not, however, convict the life insurance officers or military surgeons of inconsistency in declining, or rating up, men with heart murmurs that have been adjudged to be either organic or of doubtful significance.

The life insurance officers and others who have to consider the ultimate quality of an accumulated group of lives must distinctly avoid being governed by individual instances of the types cited by Dr. Babcock.

No weight of clinical judgment based on the consideration of comparatively small numbers of lives which have not been rigorously followed over long years of exposure to life strain and compared with normal lives can be accepted as against the cold-blooded testimony of the mortality records. It is a curious and significant fact that the life insurance mortality on cases reported to have functional heart signs only, but limited to rated up policies because of the doubtful diagnosis, was for a time as heavy as that on well defined valvular murmurs. With the improvement in diagnosis, the so-called functional heart murmurs or murmurs that cannot be classified under the characteristic valvular murmurs show in certain well tested experiences about 50 per cent. extra mortality.

Characteristic types of so-called valvular murmur give death rates ranging from 50 per cent. extra mortality to over 100 per cent.; and it is to be remembered that these figures relate to cases that are free from subjective symptoms—supposedly favorable types! The mortality in cases showing decompensation and obvious signs of even slight circulatory failure would be much higher. Such cases are not usually accepted even for substandard policies. One large company that has accepted a considerable number of substandard lives on rated up premiums has had approximately a double mortality in these heart cases, in spite of the fact that none is accepted over the age of 40, no cases of aortic murmur are accepted, and all cases must be apparently in good functional condition.

In the medico-actuarial investigation of the experience of forty-three life insurance companies, a persistently irregular pulse showed an extra mortality of 50 per cent. in lives accepted on standard policies. A pulse rate of from 90 to 100 showed an extra mortality of 72 per cent. in lives accepted on standard policies.

These are stubborn facts, and they amply justify the conservatism of the life insurance companies. They may well be considered by the military authorities at the present time, when clinical judgment is determining a very liberal attitude, both here and in England, toward circulatory impairment. That murmurs may be caused by conditions other than valvular impairment only emphasizes the need for caution in interpreting their significance too optimistically. If the wealth of evidence locked up in British life offices were available, perhaps Sir James Mackenzie would not be so ready to send heart patients back to active service (except as an extreme military necessity).

The writings of this brilliant worker in heart pathology, to whom we owe so much, are strongly tinctured with this optimistic note in prognosis. He says:

> The possibility that a healthy heart may present a murmur is so opposed to the views of a great many of the profession, teachers and practitioners, that much harm is done to people who have to be examined for life insurance or for entrance into the services. I base my views on the fact that I have watched numbers of healthy young people, who exhibited this murmur, grow up into manhood and womanhood, and lead healthy and vigorous lives, and never show the slightest sign of heart failure.

When fixing the quality and vitality of a class or group, "numbers" too loosely considered will not do; we must accept the evidence of the complete records, the ascertained mortality on the group as against the survival of a fortunate few.

The unquestionably high mortality in this class justifies the penalizing of these lives, while the survival of large numbers also justifies a hopeful outlook if they are properly safeguarded, which is not the case if they are slapped on the back and told to go about their business and pay no heed to their limitations.

This is a time when action should be based on evidence whenever it is obtainable. It would be, indeed, a calamity if the present trend toward minimizing the importance of these clinical heart findings should lead to a faulty attitude on the part of the profession toward circulatory impairment.

It is well to know that organic impairment need not be rapidly progressive. It is equally important to know that, on the average, it definitely shortens life even in apparently favorable types, and emphasizes the need for hygienic living among those showing persistent heart irregularities or murmurs.

We may well take heed lest there be turned back into civil life, after the war is over, an unduly large number of damaged men. Men who now show an extra mortality of from 50 to 100 per cent. under ordinary life strain are not likely to be improved under war strain, even though at the outset the camp training is temporarily beneficial.

It is well known that the effect of emotional strain may be more harmful than physical strain to the circulation.

Some with heart signs will undoubtedly be permanently benefited by the war, but it is the mass we have to consider and not the exceptional individual. It is lack of this mass or group consideration that is liable to lead to serious error at the present time.

Eugene L. Fisk, M.D., New York.

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## FEDERAL TRADE COMMISSION REQUESTS USE OF OFFICIAL NAMES

*To the Editor:*—Nothing is further from the intention of this commission than to attempt to influence the editorial or advertising policy of any publication, but it is believed that an effort should be made to secure the general use of the new official names in connection with the drugs, licenses to manufacture which have been granted by this commission. To this end we suggest that The Journal of the American Medical Association (if such course meets its approval) use the official names "Arsphenamine," "Procaine," "Barbital," etc., in connection with all advertisements of the products and all articles in which they are referred to.

L. L. Bracken, Washington, D. C.
Secretary, Federal Trade Commission.

## *Queries and Minor Notes*

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### SYPHILODOL

*To the Council on Pharmacy and Chemistry:*—If you have not already done so, will you kindly examine and report on "Syphilodol" advertised in the enclosed pamphlet? B. C. PEDERSEN, M.D., New York.

*To the Editor:*—Have you any information concerning the enclosed half page advertisement [of Syphilodol] from the *Urologic and Cutaneous Review?* EDWARD S. NEWELL, M.D., Pelham, N. Y.

*To the Editor:*—I am enclosing an advertisement for a substance called "Syphilodol" manufactured in New York. I am not familiar with this article nor have I seen it advertised in the higher class journals. Can you tell me whether THE JOURNAL'S department of New and Nonofficial Remedies has passed on this article or whether you have any data concerning it? It looks a trifle fishy to me.
LOUIS LEROY, M.D., Memphis, Tenn.

*To the Editor:*—I am sending the enclosed correspondence [Syphilodol letters] to you as it looks as if it might have some interesting features from the point of view of your nostrum department.
ISADORE DYER, New Orleans, La.

ANSWER.—These are but some of the inquiries that have been received on this subject and it is encouraging to note the scientifically critical attitude of physicians toward new therapeutic agents. According to the French Medicinal Company, Inc., which markets this product, "Syphilodol is a synthetic chemical product of silver, arsenic and antimony. . . ." Nowhere in the advertising matter is there any more definite statement as to the composition of this new "synthetic" than that just quoted. The product is now under examination in the Association's laboratory and when this is completed a more detailed report will doubtless be forthcoming. At present the work has progressed sufficiently to show that Syphilodol tablets contain considerable quantities of mercury! Although the advertising leaflets claim that the preparation is "the formula of the late Dr. Alfred Fournier of Paris" and had been exhaustively tested by Metchnikoff who is alleged to have found it superior to Salvarsan and Neosalvarsan, yet, strange to say, a careful search of French medical journals fails to show any reports on Syphilodol. *Verb. sap.*

### TROUSSEAU'S WINE—PYXOL

*To the Editor:* 1. Will you please give me the old formula of Trousseau's Wine? How is it prepared; are leaves and berries or powder, i. e., drugs, used? 2. What is pyxol, which is used in the preparation of McDonald's solution?
A. P. UTTERBACK, M.D., Ozona, Texas.

ANSWER—1. The obsolete and irrational combination of drugs acting on the heart and kidneys known as Trousseau's wine (Vin de digitale composé) is made by macerating digitalis, 10 gm., squill, 15 gm., and juniper berries, 150 gm., with white wine, 1,800 gm., and alcohol (90 per cent.), 200 gm. After maceration the liquid is expressed, 100 gm. of potassium acetate dissolved in it, and the liquid filtered.

2. Pyxol is a preparation somewhat similar to the compound solution of cresol of the U. S. Pharmacopeia. It is a proprietary preparation of secret composition. In 1915 Pyxol was declared misbranded under the Insecticide Act (U. S. Dept. of Agric., Service and Regulatory Announcements, No. 10).

### LUMINAL

*To the Editor:*—I wish to know something of Luminal. I have a patient who had it prescribed for him by a Chicago physician. I can find numerous references to it, but can find nothing in regard to its composition or actions. N. L. GOODRICH, M.D., South Haven, Mich.

ANSWER.—Luminal is described in New and Nonofficial Remedies, 1917, p. 87-88. Chemically it is phenyl-ethyl-barbituric acid, and differs from veronal (diethylbarbituric acid) in that one ethyl group has been replaced by a phenyl group. Luminal is claimed to be a useful hypnotic in nervous insomnia and conditions of excitement of the nervous system.

## *Medical Education and State Boards of Registration*

### COMING EXAMINATIONS

ALASKA: Juneau, March 5. Sec., Dr. L. P. Dawes.

COLORADO: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

CONNECTICUT (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

IDAHO: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigly.

MAINE: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MINNESOTA: Minneapolis, April 2-4. Sec., Dr. Thos. MeDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

MONTANA: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NEW MEXICO: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

OKLAHOMA: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

### FINAL REPORT ON EDUCATION PRELIMINARY TO THE STUDY OF MEDICINE

The highest desirable legal standard of preliminary education advocated by the American Medical Association as the minimum for admission to the study of medicine is two years of college work based on a four-year high school education. In June, 1916, this standard had been adopted by the majority of medical schools in the United States, and in that month was made a requisite for the Class A rating of the Council on Medical Education. Prior to that time, and since Jan. 1, 1914, the requirement was one year of college work, including required courses, of eight semester hours each, in physics, chemistry and biology. In February, 1917, a special committee was appointed by the Council on Medical Education to study the problem of premedical education, to suggest a subject content of the two-year premedical college course, and to develop a schedule of the subjects which would best prepare the student for his subsequent medical studies.

The committee is made up as follows:

Dr. Kendrick C. Babcock, Urbana, Ill., chairman, formerly specialist in higher education of the United States Bureau of Education; now dean of the College of Liberal Arts and Sciences of the University of Illinois and intimately identified with the work of the North Central Association of Colleges and Secondary Schools and the Association of American Universities in standardizing colleges of arts and sciences.

Prof. George Gailey Chambers, director of admissions, University of Pennsylvania, Philadelphia, representing the Association of American Universities.

Dr. W. F. R. Phillips, professor of anatomy of the Medical College of the State of South Carolina, Charleston, representing the Association of American Medical Colleges.

Dr. Theodore Hough, dean of the University of Virginia Department of Medicine, Charlottesville.

Dr. N. P. Colwell, secretary of the Council on Medical Education of the American Medical Association, Chicago.

Although of great importance to medical education, this is a matter which chiefly concerns academic colleges and universities; and for that reason, associations of such colleges are represented on the committee. Presidents and deans of such colleges have been generally and freely consulted in the study of the problem. The preliminary report of this special committee was published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Aug. 18, 1917, page 546.

Following the discussions at the annual conferences of the Council on Medical Education and the Association of American Colleges in Chicago, Feb. 4 and 5, 1918, the committee met and prepared its final report, which, as finally adopted, is as follows:

#### I. High School Requirements

(*a*) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fourteen units (fifteen after Jan. 1. 1920) in a standard accredited high school or other institution of standard secondary school grade, or have the equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education. Unless all the entrance units are obtained by examination, a detailed statement of attendance at the secondary school, and a transcript of the student's work, should be kept on file by the college authorities. This evidence of actual attendance at the secondary schools should be obtained, no matter whether the student is admitted to the freshman or to higher classes.

(*b*) Credits for admission to the premedical college course may be granted for the subjects shown in the following list and for any other subject counted by a standard accredited high school as a part of the requirements for its diploma, provided that at least eleven units must be offered in Groups I-V:

SCHEDULE OF SUBJECTS REQUIRED OR ACCEPTED FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSE

| Subjects | Units* | Required |
|---|---|---|
| Group I, English— | | |
| Literature and composition | 3-4 | 3 |
| Group II, Foreign Languages— | | |
| Latin | 1-4 | 2† |
| Greek | 1-3 | |
| French or German | 1-4 | |
| Other foreign languages | 1-4 | |
| Group III, Mathematics— | | |
| Elementary algebra | 1 | 1 |
| Advanced algebra | ½-1 | .. |
| Plane geometry | 1 | 1 |
| Solid geometry | ½ | .. |
| Trigonometry | ½ | .. |
| Group IV, History— | | |
| Ancient history | ½-1 | 1 |
| Medieval and modern history | ½-1 | |
| English history | ½-1 | |
| American history | ½-1 | |
| Civil government | ½-1 | |
| Group V, Science— | | |
| Botany | ½-1 | .. |
| Zoology | ½-1 | .. |
| Chemistry | 1 | .. |
| Physics | 1 | .. |
| Physiography | ½-1 | .. |
| Physiology | ½-1 | .. |
| Astronomy | ½ | .. |
| Geology | ½-1 | .. |
| Group VI, Miscellaneous— | | |
| Agriculture | 1-2 | .. |
| Bookkeeping | ½-1 | .. |
| Business law | ½ | .. |
| Commercial geography | ½-1 | .. |
| Domestic science | 1-2 | .. |
| Drawing, freehand and mechanical | ½-2 | .. |
| Economics and economic history | ½-1 | .. |
| Manual training | 1-2 | .. |
| Music: Appreciation or harmony | 1-2 | .. |

* A unit is the credit value of at least thirty-six weeks' work of four or five recitation periods per week, each recitation period to be not less than forty minutes. In other words, a unit represents a year's study in any subject in a secondary school constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

† Both of the required units of foreign language must be of the same language, but the two units may be presented in any one of the languages specified.

Of the fourteen units of high school work, (fifteen after Jan. 1, 1920) eight units are required, as indicated in the foregoing schedule; the balance may be made up from any of the other subjects in the schedule.

## II. Premedical College Course

(*c*) Beginning Jan. 1, 1918, the minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above, will be sixty semester hours of collegiate work, extending through two years, of thirty-two weeks each, exclusive of holidays, in a college approved by the Council on Medical Education. The subjects included in the two years of college work should be in accordance with the following schedule:

SCHEDULE OF SUBJECTS OF THE TWO-YEAR PREMEDICAL COLLEGE COURSE

Sixty Semester Hours* Required

| | Semester Hours |
|---|---|
| Required Subjects: | |
| Chemistry (a) | 12 |
| Physics (b) | 8 |
| Biology (c) | 8 |
| English composition and literature (d) | 6 |
| Other nonscience subjects (e) | 12 |
| Subjects Strongly Urged: | |
| French or German (f) | 6-12 |
| Advanced botany or advanced zoology | 3 -6 |
| Psychology | 3 -6 |
| Advanced mathematics including algebra and trigonometry | 3 -6 |
| Additional courses in chemistry | 3 -6 |
| Other Suggested Electives: | |
| English (additional), economics, history, sociology, political science, logic, mathematics, Latin, Greek, drawing. | |

* A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

### SUGGESTIONS REGARDING INDIVIDUAL SUBJECTS

(*a*) *Chemistry.*—Eight semester hours required (twelve after Jan. 1, 1919) of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work. In the interpretation of this rule work in qualitative analysis may be counted as general inorganic chemistry. The remaining four semester hours (required after Jan. 1, 1919) may consist of additional work in general chemistry or of work in analytic or organic chemistry.

(*b*) *Physics.*—Eight semester hours required, of which at least two must be laboratory work. It is urged that this course be preceded by a course in trigonometry. This requirement may be satisfied by six semester hours of college physics, of which two must be laboratory work, if preceded by a year (one unit) of high school physics.

(*c*) *Biology.*—Eight semester hours required, of which four must consist of laboratory work. This requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone.

(*d*) *English Composition and Literature.*—The usual introductory college course of six semester hours, or its equivalent, is required.

(*e*) *Nonscience Subjects.*—Of the sixty semester hours required as the measurement of two years of college work, at least eighteen, including the six semester hours of English, should be in subjects other than the physical, chemical or biologic sciences.

(*f*) *French or German.*—A reading knowledge of one of these languages is strongly urged. If the reading knowledge in one of these languages is obtained on the basis of high school work, the student is urged to take the other language in his college course. It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign languages. In case a reading knowledge of one language is obtained by six semester hours of college work, another six semester hours may be well spent in taking the beginner's course in the other language; if this is followed up by a systematic reading of scientific prose, a reading knowledge of the second language may be readily acquired. When a student spends more than two years in college he may well spend twelve semester hours of his college work in the second language.

## Advances Proposed at Columbia University School of Medicine

Columbia University School of Medicine is proposing the addition of a fifth year to the curriculum, to be spent by the student as an intern in a hospital. The reasons given for this are, first, the overcrowded condition of the curriculum and, second, the fact that a number of states now require the completion of an internship before candidates will be permitted to take the examination for license. The plans suggest that the degree of bachelor of medicine may be granted on completion of the present four-year course, and that the M.D. degree be withheld until after the internship has been completed. It is also proposed to have this intern year under the supervision of the medical faculty, so that the work of each intern will be carefully directed, in order that he may obtain as profitable an experience as possible. Other students who obtain the degree of bachelor of medicine, but who do not wish to enter on the practice of medicine, instead of taking the intern year may substitute advanced courses in research and laboratory subjects, and prepare themselves for the degree of master of science, or of doctor of philosophy.

# Book Notices

NEUROSYPHILIS: MODERN SYSTEMATIC DIAGNOSIS AND TREATMENT PRESENTED IN ONE HUNDRED AND THIRTY-SEVEN CASE HISTORIES. By E. E. Southard, M.D., Sc.D., Bullard Professor of Neuropathology, Harvard Medical School, and H. C. Solomon, M.D., Instructor in Neuropathology and in Psychiatry, Harvard Medical School. With an Introduction by James Jackson Putnam, M.D., Professor Emeritus of Diseases of the Nervous System, Harvard Medical School. By Vote of the Trustees of the Boston State Hospital, Monograph Number Two of the Psychopathic Hospital, Boston, Mass. Cloth. Price, $5. Pp. 496, with 25 illustrations. Boston: W. M. Leonard, 1917.

"It is a privilege to be allowed to write a word of introduction to a textbook which so richly fulfils its function as does this volume on the manifold disorders classified under neurosyphilis, a subject of which the importance for the welfare of society is found to loom the larger the more deeply its mysteries are probed. The case histories with which its pages are so amply stocked are carefully analyzed in accordance with a broadly chosen plan, and the generalizations that precede and follow them are obviously based on a wide and varied personal experience such as alone could render a familiarity with the literature of the subjects treated adequate to its best usefulness." This quotation, from Dr. Putnam's admirable introduction, will be fully endorsed by those who read this book, the excellence of which has been equaled only by Nonne's "Syphilis of the Nervous System," to which the authors gracefully acknowledge an obligation which, as they say, is shared by all workers in this field. The general practitioner will find the present work more useful on account of its crisp style, concise summaries and comments, and eminently practical choice of subjects and selection of cases. Every phase is brought absolutely up to date, including an interesting discussion of the problems of neurosyphilis in relation to the war. There are seven sections, namely: (1) the nature and forms of syphilis of the nervous system; (2) the systematic diagnosis of the forms of neurosyphilis; (3) puzzles and errors in the diagnosis of neurosyphilis; (4) neurosyphilis, medicolegal and social; (5) the treatment of neurosyphilis; (6) neurosyphilis and the war; (7) summary and key.

RECOLLECTIONS OF A NEW YORK SURGEON. By Arpad G. Gerster, M.D. Cloth. Price, $3.50. Pp. 347, with illustrations. New York: Paul B. Hoeber, 1917.

Few men could write so interesting and informing a book as this, based on their own observations and experiences, because few men have had as many interesting observations and experiences. The author's early and formative years were spent in his native land, and the later in active professional life in the metropolis of the land of his adoption. In both countries, Dr. Gerster came in contact with men of note—in education, in art, in music and in medicine. And this book proves him to be not only an acute observer of men and things, but also endowed with a retentive memory. In the first part, he tells of life in Hungary—as a boy, as a student and as a young medical man. In describing his experiences he gives interesting glimpses of Hungarian life in a small town; of school life from the primary on to and including medical school days in Vienna. As the author was—and continues to be—a lover of outdoor life, and as he was often going on rambles for days or weeks at a time (sometimes, we gather, without the formal permission of his parents), we get an insight also of Hungarian rural life and of internal conditions, domestic, social and political, including charming descriptions of the country. One cannot but wish that the author had extended this part of the book. After graduating in medicine in Vienna, Dr. Gerster spent the required year as a medical officer in the Austro-Hungarian army, and his account of this year is interesting and enlightening. After this, he spent a short time in the city hospital of his home town, Casa, after which, in March, 1874, he came to this country.

The first part is autobiographical; the more recent part is in the form of comments on men and affairs in New York rather than the details of the life of the writer. Bringing with him letters of introduction from such men as Mundé, Mittleshoeffer, editor of the *Wiener medizinische Wochenschrift*, and Billroth, Dr. Gerster was not long in getting into professional life and work. The first three years he lived in Brooklyn, and then moved into New York City, where he has since resided. Naturally, affairs connected with the German and Mount Sinai hospitals and the Polyclinic, institutions with which the author was connected, receive the most attention. Naturally, also, the men connected with these institutions are the ones who are personally mentioned, since they were the ones with whom he came in close personal and professional contact.

The author entered on his professional work in this country soon after the introduction of antiseptic surgery and, as he states, was one of the first in New York to put into practice the new principle of wound treatment. It was the beginning of a new era in surgery. In his comments on his surgical work, and in his discussion of hospital management and medical schools, we are forcibly reminded of the wonderful changes that have taken place during the short span of a man's professional life. To a certain extent this part may be regarded as a history of surgery and of the developments of hospital conditions in New York City during the last half century. To New York medical men and to those who have been in close touch with medical matters in that city during the last forty years, this part will be particularly interesting.

Dr. Gerster's "Recollections" is both delightfully readable and instructive; in his comments on men and affairs, especially in those in Part 3, which is devoted to diversions—hobbies, sports and reading—the author is revealed as a man who has a broad view of things and whose life has by no means been a narrow one. The original etchings, of which there are many, also prove that the author is an artist of no mean talent.

SERVICE RHYMES. By Burt Franklin Jenness. Cloth. Price, $1. Pp. 103. El Paso: The Author, 1917.

The life of the naval surgeon is such as to bring him into contact with many phases of life, humorous, pathetic and virile. In "Service Rhymes," Dr. Jenness presents in excellent verse tales of camp and sea. Dr. Jenness shows an intimate understanding of the heart of the rookie either in the barracks or in the "fo'c's'le." Here is a sample:

When a fellow's up against it,
  And he hasn't got a cent,
And his shabby clothes belie him
  For a high toned gent;
Then his friends will, ordinary,
  Hand him out the stony stare;
For the hard-luck down-and-outer
  Isn't wanted, anywhere.

But I've been thinkin' of the difference
  In the way they treat a guy
When he's all got up in khaki,
  And he's ready for to die.
When the bugles start to blowin'
  Then life don't seem quite so raw;
For a hobo is a hero,
  When he's leavin' for the war.

MEDICAL DIAGNOSIS FOR THE STUDENT AND PRACTITIONER. By Charles Lyman Greene, M.D.; Attending Physician, St. Luke's Hospital, St. Paul. Cloth. Price, $10 net. Pp. 1302, with 562 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

This fourth is a thoroughly revised edition, and is an expansive volume. The illustrations, many of which are in colors, cover the whole field of medical diagnosis. The work includes both physical diagnostic methods and laboratory procedures. Considerable space is given to practical advice on case taking, relative values of various observations, and other points culled by the author from his experience of many years as practicing physician, consultant and teacher. By the use of different styles of type, the author is enabled to lay varying degrees of emphasis on certain points, which is a distinct advantage to the student who must select from the vast mass of material those facts that he desires to memorize. An elaborate and efficient index completes what may be characterized a most practical book.

# *Medicolegal*

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## Liability Not Diminished by Anything Physicians Did or Failed to Do

(*Farnon vs. Silver King Coalition Mines Co.* (*Utah*), *167 Pac. R. 675*)

The Supreme Court of Utah holds that there was no error, in this personal injury case, in an instruction to the jury that the damages to be awarded the plaintiff should not be diminished because of anything the physicians did or failed to do. The court says that whether this instruction was valid or invalid depended, of course, on the facts and circumstances of the case and the law applicable to such facts, rather than on propositions of law applicable to a different state of facts. The plaintiff's left leg was fractured between the knee and hip at about the middle of the long bone. His foot was crushed and lacerated on the bottom, and his whole side, clear up into the shoulder, was bruised, contused, and had begun to become discolored, owing to extravasation of blood in the tissues, at the time the physician made his first examination. The plaintiff was taken to a hospital and treated for his injuries. After he had been there for several days, by some means unexplained, the cast, which had been used by the physicians in setting his limb and holding the broken bones in apposition so that the ends would knit together, became displaced and pushed down. The upper part of the leg became out of place. The bones, instead of being in apposition, lapped over. A new cast was put on the leg in that condition. No weight was attached or used on account of the patient's nervous condition and the expressed fear of the attending physician that he would be more likely to lose his leg. On the point that the limb could not be restored to apposition and weights put on under the circumstances, the testimony of the attending physician was corroborated by the assisting physician. The verdict of the jury was conclusive against the defendant's contention that any increased injury to the plaintiff was due to his own wilfulness or negligence. What did the physicians do to increase the injury? As far as the record disclosed, they did nothing that could have had that effect. They found the plaintiff in a certain condition, for which they were not in any sense responsible. They found him with the cast slipped down and the broken bones lapping one over the other. They did their best, under the circumstances, according to their testimony. They put on a new cast in the condition the limb was in without effecting an apposition of the broken bones, and without attaching weights to the limb. This, they concluded, would be impracticable and exceedingly dangerous. So far from doing anything to increase the injury, what they did was a distinct benefit, and left the limb in a better condition than they found it. The next question was, What did the physicians fail to do that increased the injury? This question has already been answered. The testimony tended to show that all was done that could be done without making matters worse. Unless, therefore, the law is such that a party who is responsible for an original injury may, nevertheless, be relieved from responsibility for an aggravation of that injury by accidental means, the court cannot conceive how the defendant in this case could escape liability for whatever injuries the plaintiff sustained. Finding, as the court does from the record before it, that the increased injury to the plaintiff was not due to his own negligence or wilfulness, or to any intervening efficient cause, it follows as a matter of law that it must be attributed to the original injury resulting from the negligence of the defendant.

## Physicians Testifying as to Services of Nurse

(*Higgs vs. Bigelow* (*S. D.*), *164 N. W. R. 89*)

The Supreme Court of South Dakota does not consider that a physician is prohibited from testifying as to the services of a nurse, and their value, by such a statute as the one of that state, which provides that a physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient that was necessary to enable him to prescribe or act for the patient. Here the plaintiff, who was seeking to recover from the administrator of an estate for services rendered as a nurse, called as a witness, to prove her services as a nurse, and the value of them, a physician who attended the decedent during his illness, and for the same purpose called the physician who attended the wife of the decedent during her last illness. The defendant objected to this testimony on the ground that a physician is not competent to testify to any communication made to him, or to anything he saw or heard while attending his patient, such being privileged communications. But the court does not think the objection well taken. It deems it sufficient to observe that these physicians testified only to the general character and value of the services rendered by the plaintiff as a nurse, and were not examined and did not testify to any information acquired in attending their patients, necessary to enable them to prescribe or act for such patients.

## Notes Given to Persons Practicing Medicine Without a Certificate

(*Whitehead et al. vs. Coker* (*Ala.*), *76, So. R. 484*)

The Court of Appeals of Alabama, apparently after a reversal, on a rehearing affirms a judgment in favor of the defendant, who was sued on a promissory note given by him to parties called Dean & Dean, in consideration that they should treat his wife by "chiropractics." The defense interposed was that the services for which the note was given were rendered by the payees of the note in violation of the criminal statutes prohibiting the practice of medicine by any one who has not obtained a certificate of qualification from the board of medical examiners. To somewhat that effect was what was called the defendant's second plea. His third was similar, except the reporter states it alleged additionally that W. K. Dean, one of the payees of the note, resided in Etowah County, Ala., and was treating and offering to treat diseases of human beings contrary to law, and in violation of the criminal statutes of Alabama, in that at that time, and prior thereto, Dean had not filed in the office of the judge of probate of Etowah County a certificate of qualification issued by the state board of medical examiners of Alabama. The plaintiffs filed a replication to Plea 2 that the title to the note, which note was complete and regular on its face, was, before maturity, in due course, in good faith, and for value, acquired by them, and that at the time it was negotiated to them they had no knowledge or notice of any infirmity in the instrument, or defect in the title of the person negotiating it, and no knowledge or notice of the alleged acts set up as a defense to this action.

The statutory provisions found in Chapter 39 of the Code, embracing Sections 1626-1646, the court says, are regulations for the benefit of the public as well as for persons dealing with those who hold themselves out to the public as professionally qualified to treat diseases of human beings; and it is the public policy of the state to punish the violation of these statutes, and contracts made in violation of these statutes are void in the hands of all persons involved in the guilt of the transaction. In addition to interdiction of the act or transaction out of which the alleged cause of action arises, the statute (Section 1644) provides: "A physician whose certificate of qualification is not on record in the county in which he resides shall not be entitled to recover at law any compensation for services rendered in treating diseases of human beings." Sections 1644 and 7564 are *in pari materia* (on the same subject or of equal dignity), the latter section prescribing a penalty for practicing medicine without a license; and when the sections are construed together, in effect, any contract made in violation of these statutes is void *ab initio*, or from the beginning; and a note "resting on a void contract" cannot be protected against the defense set up in Plea 3, and the demurrer to the replication as to that plea was properly sustained. If the court erred in sustaining the demurrer to the replication as to Plea 2, it was error without injury, as the undisputed proof sustained the third plea, which was a complete answer to the complaint.

# Society Proceedings

## CHICAGO MEDICAL SOCIETY

*Regular Meeting held Feb. 13, 1918*

The President, Dr. Charles E. Humiston, in the Chair

## MEDICAL SERVICE IN THE ARMY AND NAVY

### Medical Service at Camp Grant

**Major William L. Baum**, Camp Grant, Ill.: Immunity from contagious and infectious diseases at the camp is due largely to the early recognition and character of the work done by the various medical officers. There are 279 medical officers in the camp, and eighty-two at the base hospital. Courses of instruction and lectures are given at the camp.

Up to the present time there have been 643 cases of measles, with two deaths from bronchopneumonia; German measles, 7 cases; diphtheria, 57; diphtheria carriers, 106; meningitis, 14; carriers of meningitis, 15; scarlet fever, 59; mumps, 295. Among all these cases there have been only four deaths. One hundred and four lobar pneumonia patients have been cared for by the medical department, with nine deaths. Since the inception of the camp there have been 27 deaths from all causes, and among them 2 from delirium tremens; 1 from mediastinal sarcoma; cerebral hemorrhage and cerebral syphilis, 1 each; dementia praecox, 1, and tuberculous peritonitis, 1.

In the surgical department, 550 major operations have been performed, with three deaths.

In the tuberculosis work following the examinations of 21,700 men, 204 tuberculous men were found, and of this number, 138 were dismissed from the Army.

Regarding my own department of genito-urinary and skin diseases, there are only twenty-six patients with venereal disease in the base hospital at present. Out of 27,000 men, only 20 per cent. have what is commonly known as "the social diseases" at the present time, a far smaller percentage than would be the case if the men were under home environment. It is easy to see how this can be so. The men at the camp are constantly under surveillance 85 per cent. of the time, while at home they are under the observation of their friends and relatives only 15 or 20 per cent. of the time.

### Problems of the Medical Officer of the Navy

**Medical Inspector H. E. Odell**, U. S. Navy, Great Lakes, Ill.: Entering, as we all do from civil life, our first problem is to adjust ourselves to the changed environment, its peculiarities and necessities, so that the cog which we form in the machine shall move with the least friction and greatest efficiency.

Our duties are divided into periods at sea and ashore, the former being more nearly fixed, as three years is usually considered the time of such duty, while the shore period is more variable, but is usually of about two years' duration.

The medical officer must make himself familiar with the structural characteristics of his ship, the efficiency of its ventilating system, and all of its sanitary features. Once each week, and oftener if deemed necessary, he must make a thorough inspection of the entire ship and report in writing any sanitary defects found, submitting recommendations for their correction. Should contagious disease appear on board, his labors are greatly increased, as examinations of the personnel and ship must be of daily occurrence. He must be prepared to take care of any surgical work that may present itself, and accident surgery is extremely liable to be encountered during rough weather, for reasons that are obvious. He must instruct the various officers in first aid, who in turn impart this instruction to the men under their command, so that hurried dressings can be applied when practicable during naval engagements.

In the Navy, the primary object of the existence of the ship as a fighting vessel must always be borne in mind. During an engagement, the welfare of the wounded individual is primarily in the hands of his mates, and is decidedly secondary to fighting, success in the engagement being the only thing that counts.

When cruising in tropical waters, the medical officer must keep constantly informed of the diseases prevalent in ports visited, and the sanitary conditions of the towns and their vicinity, where members of the crew are likely to wander in their periods of shore leave. Expeditionary forces have more frequently been landed in tropical and oriental countries than elsewhere, and some tropical disease or diseases, such as yellow fever, malaria, dysentery, cholera or plague, are almost certain to exist in the vicinity. The medical officer lands with this force, and on him falls the responsibility of making such recommendations as to prevent the introduction of these diseases into the command.

The professional work in naval hospitals does not differ from that of civil institutions, but in addition the naval medical officer has many other duties. He is responsible for the care, cleanliness and discipline in the hospital, its maintenance and upkeep in every way, food for the personnel, diets for the sick, fuel, ambulance service, beds and bedding, drugs, all medical and surgical equipment and appliances, the keeping of the necessary records, the making of reports and returns, the training of attendants, keeping the families or friends of the sick informed of their condition, and the disposition of the dead.

### Points in the Epidemiology of Meningitis

**Surgeon O. J. Mink**, U. S. Navy, Great Lakes, Ill.: The recruit is a distinct study in the prevention of infectious diseases, especially meningitis. From the time he enters the naval camp until he becomes a seasoned sailor, he probably undergoes one of the greatest changes that has ever taken place in his life. From a boy who lived in his own room and suited his ventilation, diet and clothing to his own tastes, he becomes a man who lives in constant association with other persons, and in all the matters of life his affairs are regulated to suit the majority of his fellows.

Without an appreciation of the status of the recruit, it is impossible to understand why we have meningitis in the Army and in the Navy.

If we look over the literature of meningitis for the past 100 years, we find the oft repeated statement that meningitis is a disease of young recruits; that meningitis occurs in men shortly after they are mobilized for service, and that it disappears among these men after they become accustomed to military and naval life. These facts are clearly illustrated in the recent epidemic at the Great Lakes. In considering this epidemic, it is necessary to distinguish between two types of diseases, the sporadic case, and the sharp, concentrated outburst of meningitis.

It is necessary to consider the plan of the camp at Great Lakes and to follow the course of the sailor from his entrance into detention until he leaves for one of the stations in the East. On his arrival at the camp, the recruit is placed in what is termed "incoming detention." We find that here he is tenderly cared for, with a distinctive appreciation that he is a civilian who is undergoing a great change in his habit of life. He receives an outfit of clothing, and is then turned over to the physician for vaccination, typhoid prophylaxis, and the various examinations. Those in charge of detention clearly realize that at this time the recruit is of little value to the government. He has made great changes in his life, and it is only reasonable to expect that great changes in his health will result. We find that during the detention period the recruit does not develop meningitis. Although watched for a long period, no cases of meningitis have ever developed in detention. That this is not due solely to the type of barracks is illustrated by the fact that men living in the same type of barracks and doing duty in which they are subject to exposure do suffer from the disease. The seaman guard, which is always quartered in this camp, has suffered severely from meningitis. We do not believe that this is due either to the presence or the absence of carriers, because we find that recruits on their arrival at the station show a large percentage of positive cultures for the meningococcus, in many cases 25 per cent. We do not believe that this freedom from meningitis during the twenty-one day detention period is due to a long incubation period from the disease, because we have held men in this camp for thirty days without developing meningitis, and to suppose that acute infection has an incubation period of over thirty days is practically to suppose that it has no incubation period at all. We found, therefore, that with tender care the recruit passes through the first three weeks of his service without meningitis. At the end of three weeks in detention, the supposed veteran sailor passes to what is termed Camp Dewey. Many of his previous restrictions are removed and many new duties are thrown on him. He is granted liberty; he is allowed to go to public gatherings, such as the Y. M. C. A.; he is made to drill, and he is made to take part in all the work connected with his regiment.

During the first part of January, this work was very severe, as it was a continual fight during the severe snowstorm to keep the roads and walks about the camps in a passable condition. If the burden thrown on the recruit at this time is out of proportion to the amount of seasoning which he received in "incoming detention," we find that he begins to suffer from minor ailments.

In the case of the Second Regiment, we found within a few days that there occurred a regimental outbreak of coughs and colds. Practically the entire regiment was crippled by bronchitis, coryza and influenza. Within four days from this time the first case of meningitis in this regiment appeared. A case a day appeared for about four days, then two cases a day, then three, and so on until at the height of the trouble, seven cases appeared in this regiment in twenty-four hours. In all, the regiment had from twenty-five to thirty cases during a period of about three weeks. With the subsidence of the epidemic of bronchitis and influenza, the meningitis began to subside. Many steps were taken to remedy the conditions in this regiment, but it is impossible to state honestly that any measures had the slightest effect on the disease, except the general care of a regiment that was below par physically, and the gradual hardening of this regiment to the conditions that they encountered.

In this regiment a careful study of carriers leads to the conclusion that measures to control the disease through the carrier method are absolutely worthless. A study of carriers in this connection yields many interesting observations concerning carriers, but throws little light on any method in this connection that can be utilized in controlling an epidemic of this nature.

It was possible during the epidemic to make cultures of practically every one of the twenty-four barracks connected with regiments. We found barracks in which meningitis developed that contained 8 or 9 per cent. of carriers. On the other hand, we found barracks in which no meningitis developed that contained 25 or 30 per cent. of carriers. In the instances in which a large percentage of carriers was found, carriers were removed; and in other instances the carriers were left in the barracks. New cases failed to develop in both instances. It was early found impracticable to remove all the carriers without producing overcrowding among the carriers, which resulted in additional cases. There seems little doubt that the oft repeated statement that carriers rarely develop the disease is erroneous, as the incident rate among carriers is higher than the rate for the general station. It is not the intention to maintain that carriers do not transmit the disease, but it is maintained that to combat this disease by the removal and segregation of all carriers is absolutely impracticable.

Other factors in controlling the disease are of so much greater importance and have been so neglected, owing to the enthusiasm of studying carriers, that it seems necessary to point out a few fallacies in the theory. Were it not for the fact that meningitis has always been held to be a serious disease, it would probably not inspire so great consideration as it does at present. Even in the most severe epidemics among recruits, a relatively small number of men develop the disease. In an army of 25,000, to fight a disease that affects only a small proportion and kills or disables a still smaller proportion, by segregating all carriers, is uneconomic and entirely against military efficiency. So large a proportion of persons in perfect health carry the meningococcus in their throats that the segregation of all carriers would practically mean the disbanding of the present training stations. If we segregate three out of every ten men as meningococcus carriers, we could with equal reason segregate three more of every ten as pneumococcus carriers, as we find that the distribution, spread and etiologic factors are practically the same in the two diseases.

As we progress in the war and in the experience of training the recruit, meningitis will disappear, and we shall probably attribute this to the intensive study of the carrier; and years from now, in the advent of another war, the recruit will again furnish the ever present problem of meningitis.

### Pneumonia

Major Joseph L. Miller, Camp Dodge, Iowa: Up to last evening (February 12) 210 pneumonia patients were received in the base hospital at Camp Dodge. Of this number, in about 80.5 per cent. of the cases the disease appeared in the colored troops. Although they represented only one sixth of the strength of the camp, they represented 50 per cent. of the cases of pneumonia. When it comes to the mortality rate, the colored troops represent three fourths of the total mortality from pneumonia.

Orderlies, nurses and medical attendants are required to wear masks, caps and gowns in looking after pneumonia patients. Visitors are not allowed except in cases of extreme illness.

The sputum of pneumonia patients is collected on paper napkins, placed in a paper bag and burned.

At the camp, pneumonia patients are seen early, as compared with an institution like the Cook County Hospital, where they are seen late. Patients are seen within a few hours after the initial chill and pain. Pneumonia is suspected, on account of pain in the side, twenty-four or forty-eight hours before a physical examination will reveal the location of the pneumonia. These patients are roentgenographed at once, and it is found that the roentgen ray will show beginning pneumonia many hours before one is able to detect it by the physical signs. Many of the patients present a typical history of the onset of the disease, with chill and pain in the side, and within two or three days the temperature is normal, although the temperature runs high at first. If one depends on the physical findings in quite a large percentage of cases, he will find that acute bronchitis cases are in reality cases of pneumonia, as shown by the roentgen ray, which do not reach complete consolidation of the lung, and which run a very brief course, although a very intense course, as far as the temperature and evidences of intoxication go.

Another point of interest is the great frequency of empyema. This is not present alone in cases at Camp Dodge, but it has been present throughout all camps. At Camp Taylor, according to Major Hamburger, of 175 cases of pneumonia. there were forty-eight cases of empyema. The Surgeon-General has called attention to the frequency of empyema and has recommended exploratory puncture in order to detect its presence. Not only are empyemas very frequent, but they are difficult to detect.

We have made it a rule to get a leukocyte count every third day throughout the pneumonia and to have the patient, if he is not too ill, roentgenographed every third day with the hope of detecting the presence of empyema. There is usually a thin layer of pus, perhaps one-quarter or one-half inch thick, covering the involved lung, so that as far as the physical findings go they are not those of a collection of pus. There is distinct bronchial breathing, and there are distinct râles close to the ear, and one scarcely suspects that the patient could have a collection of fluid. In these cases if one introduces the needle through the chest wall and the small, narrow, intervening layer of pleural space directly into the solid lung and aspirates, he will fail to get anything. It is only with the greatest care, introducing the needle through the chest wall and drawing on the plunger of the syringe to see if there is pus present, that one is able to detect it. In two cases in which they felt sure they had pus, still they were unable to detect it with the roentgen ray or with the needle before death; yet at the necropsy these patients showed small empyema in the interlobular space containing not more than

2 or 3 ounces of pus, but sufficient to be an important factor in determining a fatal termination of the condition.

In a number of cases of empyema, necropsy has shown a purulent pericarditis. In the cases of empyema in which operation has been performed, there have been six deaths. Those patients that have died following operation and have come to necropsy have shown that there was only one pocket drained, or the patients had double empyema.

The roentgen ray as an aid in detecting the presence of localized collections of pus has not helped much.

Another point is the large number of cases of pneumonia simulating appendicitis. They have had six or eight of these, and at first the surgeons operated on these patient without consulting the medical staff; the first two or three patients continued to have a high temperature after operation, and were found to have pneumonia. Since then in practically all suspected cases of appendicitis a man from the medical service has been called in, and it has been difficult in many of them to determine whether one was dealing with an acute appendicitis or with pneumonia.

At present, there has not been a single death from pneumonia of Type I. Most of the cases have been of Type II or Type IV. The mortality in 200 cases of pneumonia up to date has been 10 per cent. In the first seventy-five cases the mortality was only 3 per cent. In the first 100 cases the mortality was 7 per cent., and in the last 100 the mortality has been a little higher. In the lobar pneumonias the mortality has been 10 per cent.

The method of treatment has been exceedingly simple. It consists in keeping the patient in bed, paying particular attention to the diet, and giving him what was thought to be needed. He is given morphin enough to control pain and to insure sleep. He is made as comfortable as possible by the administration of a hypodermic of morphin. The only other medication is digitalis, 3 minims, three times a day, and this being increased as the pulse increases in rapidity to 15 minims every three hours. The ward is well ventilated, but in case a patient becomes dyspneic, he is moved into the solarium or to a window that is slightly open to give him all the fresh air possible and to take away the expired air.

The colored troops are much more susceptible than the white troops and show less resistance to pneumonia.

### Work Accomplished by the Advisory Commission of the Council of National Defense

Major Franklin H. Martin, Washington, D. C.: The Medical Section of the advisory commission of the Council of National Defense was organized to aid in the enormous task of expansion of the bureaus of the two Surgeon-Generals. A plan was adopted for a general medical board on which were placed representatives of the civilian medical profession, the Surgeon-Generals of the Army, the Navy and the Public Health Service, and representatives of the Red Cross; officers of the principal societies—surgical and medical—of the country. This consisted of the presidents, board of directors, or boards of regents, of the American Medical Association, the American College of Surgeons, the Clinical Congress, the American Surgical Association, and other like bodies. This board holds a session once a month, and through a well developed system of committees, almost everything of importance in the conduct of war, from the standpoint of medicine and sanitation, is discussed, and recommendations are presented. These recommendations are in turn presented to an executive committee on the following day, this committee consisting of the Surgeon-Generals of the Army, the Navy and the Public Health Service, the chairman and vice chairman of the General Medical Board, Dr. Victor C. Vaughan, Dr. William J. Mayo, Dr. William H. Welch, and Rear Admiral Cary T. Grayson. The chairmen of the various committees make recommendations. If these recommendations are approved by the executive committee, they are taken to the council, and if approved by that body, are distributed in the way of information to those in authority in the bureaus concerned.

In each state and county there have been organized state and county committees which place us in touch with all county medical societies. Through this rather complicated, but very effective, organization, we have been able to place much to the credit of the Advisory Commission. Our accomplishments may be summarized as follows:

1. We have succeeded in enrolling 21,000 civilian physicians for the Medical Reserve Corps.

2. We have aided, through the Munitions Board and other agencies connected with the Advisory Commission, in obtaining supplies for the medical departments of the Army, the Navy, the Public Health Service, and the American Red Cross.

3. Through conferences with experts, called at different times, which conferences appointed committees and cooperated with the Surgeon-Generals, we have prepared and published standard tables of instruments, drugs, hospital supplies, and hospital equipment. These tables carefully record by number all materials made in this country that are available for our work.

4. One of the conferences of deans of medical schools succeeded in adjusting the difficulties in enrolling a large number of civilian physicians as reserve officers from among the teaching forces of the medical schools.

5. Another conference discussed in detail the proper handling of venereal diseases and the relation of the alcohol problem to venereal diseases. This conference resulted indirectly in the appointment of the Fosdick Committee and of our strong committee in the Council of National Defense, dealing with the venereal disease problem, and emphasized in the Surgeon-General's Office the importance of this problem.

Two matters of unusual importance have been taken up recently by the General Medical Board of the Council of National Defense. One is the organization of a volunteer medical service corps. Briefly, this consists of men who have offered their services to the Surgeon-General and who, for physical or other reasons, have been exempted, and for medical men over the enrolment age who are willing to do some kind of service for their government, preferably along military lines. The original recommendation of the committee formulating the plans for this service stated that this organization could be of service to the government in the following ways:

1. By aiding in the work of selective enlistment. This is now being done by the Medical Advisory Boards, many of whose members should be eligible to the Volunteer Medical Service Corps.

2. By acting in general as consultants wherever consultation may be necessary for enlisted men.

3. By maintaining in the best possible condition the medical services of hospitals, medical colleges and laboratories, depleted by absence of those in active duty.

4. By reclamation of registrants rejected for physical unfitness under the Selective Service Law.

5. By caring, so far as possible, for the families and dependents of enlisted men.

6. By aiding in the general sanitation of the country.

The formal recommendations for the organization of the Volunteer Medical Service Corps, accepted and approved by the Council, are retained in the following resolutions:

> *Resolved,* That the Council of National Defense authorize the Medical Section of the Council of National Defense to organize a Volunteer Medical Service Corps to include in its membership those physicians ineligible for membership in the Medical Officers Reserve Corps on account of physical disability, over age, essential public or institutional needs and women physicians, for the purpose of making available the services of such physicians in any way deemed advisable by the Surgeon-General of the Army, Surgeon-General of the Navy, Surgeon-General of the Public Health Service, or the Council of National Defense: and be it further
>
> *Resolved,* That an appropriate insignia be authorized to be worn by the members of the Volunteer Medical Service Corps, the form of such insignia to be designed by the Medical Section of the Council of National Defense.

The important organization, in all its details, will be under the direction and authority of the General Medical Board of the Council of National Defense.

The second innovation to which I refer is the establishment or authorization of the council of a committee on industrial hygiene and surgery.

The resolution asking for the creation of such a committee states definitely the activities to be represented. It reads as follows:

> *Resolved*, That there be created an Advisory Committee on Industrial Hygiene which shall be made up of a representative from the Public Health Service, acting as chairman, a representative from the following federal agencies: Department of Agriculture, Department of Interior, Department of Commerce, Department of Labor, and a representative from each of the following: organized industry, organized labor, organized medicine, and organized industrial medicine.

This brings me to the consideration of my last problem. It is not generally realized or appreciated that thirty-nine out of every forty medical officers among the fighting forces of our Army will be civilian physicians. This places enormous responsibilities on the civilian physicians. In order to carry out adequately these responsibilities, it will be necessary for the reserve officer to have rank that will place him somewhere near the same footing as the regular medical officer. Two bills to secure the rank and authority exactly alike were presented in Congress, February 5—Senate bill 3748, introduced into the Senate by Senator Owen, and House Resolution 9563, introduced into the House by Mr. Dyer. These bills are similar to the one introduced by Senator Owen last year as an amendment to another military measure.

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# ANNUAL CONGRESS ON MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

## FOURTEENTH ANNUAL CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

*Held in Chicago, Feb. 4, 1918*

(*Continued from page 485*)

### The Student's Clinical Course in Medicine

Dr. George Dock, St. Louis: The medical student on admission has had a standard four year high school course and at least two years of college work. Besides three hours a week for one year in English, and reading German or French, the greater part of the time is given to the study of physics, chemistry and biology. No medical work is attempted. Knowledge of principles, technical skill in experimental and routine manipulations, and a scientific point of view are the aims.

The work in medicine begins in the second third of the sophomore medical year. Before this time anatomy, biologic chemistry, physiology, pharmacology, pathology and bacteriology are studied, without any effort at considering their relations to internal medicine excepting in pathology and bacteriology. Of course, medicinal preparations are used in part in pharmacology. The student is still engaged in the study of general pathology and physiology. He begins also to study surgical pathology and technic. He begins medicine with several elementary courses. One is a reading and recitation course, including a discussion of the causes and nature of disease, terminology and classification, methods of making diagnoses, prognosis, and the development and present state of therapeutics. Advice is given regarding methods of study, use of the library, and notes. Physical diagnosis is begun at the same time, use being made of normal subjects—fellow students—anatomic preparations, especially those showing relations, models, roentgenograms, and lantern slides from textbooks. Special articles are explained, with a constant drill and technic in which the students mark out areas with waxed pencils and make notes on diagramed cards (forty-four hours). There is also a short course (eleven hours) in case taking, illustrated by actual histories to show the plans, and to exhibit avoidable common faults.

Once a week the sophomores attend the propadeutic clinic (in which patients with visible signs are examined by third year men) for practice in observation, description and interpretation on lines chiefly physiologic. Sometimes a brief historical excursion is made, as the reading of Parry and Graves on exophthalmic goiter; Stokes and Adams, and Erlanger on heart block; Hodgkin, Wilks, Sternberg, Dorothy Reed and Bunting and Yates on Hodgkin's disease; Corrigan on aortic disease, etc. (eleven hours).

At the end of this eleven weeks and after examinations on work are completed, more practical clinical work is taken up. The recitation continues. Physical diagnosis is followed up on patients in the wards. The class examines patients with abnormal signs, again making diagrams and notes. The roentgen-ray department is utilized for fluoroscopic examinations and roentgenograms. In this third trimester the student begins clinical work in the outpatient department.

Each clinical department in the dispensary has a laboratory, equipped for its needs. There is a separate room in which gastro-intestinal patients have stomach or duodenal tubes passed, and here microscopic and chemical examinations are made, including blood for Wassermann tests. Neurology, tuberculosis and dermatology have quarters on the floor below medicine. The surgical and pediatric quarters are on the same floor as medicine, and all have the same hours, so that consultations can be made without delay.

A course in neuropathology is given in the first trimester of the junior year, in which, following a summary of neural anatomy, the gross and microscopic lesions of the nervous system are studied, with practical exercises in the examination and description of morbid tissue (twenty-two hours). This is carried on with and followed by lectures and demonstrations on the clinical anatomy and physiology of the nervous system (twenty-two hours). Similar exercises are being carried on in surgery, obstetrics and gynecology. Practical ophthalmology, including the use of the ophthalmoscope, is studied in the middle trimester of the third year. Laryngology and rhinology are studied in the same trimester, both lines being carried out in the special clinics, with extensive material and large and efficient staffs.

The fourth year, which begins in the last trimester of the junior year, is mainly devoted to ward work in sections. Medicine, surgery and obstetrics, gynecology, pediatrics, genito-urinary surgery, ophthalmology, otology and laryngology have each one third of a year, eleven working weeks. There are five one hour clinical exercises a week, two in medicine, and one each in surgery, pediatrics, obstetrics and gynecology. The rest of the time is given over to practical work in the wards, outpatient departments, laboratories and library.

In the wards, the section members serve as a part of the house staff. The undergraduates take histories and make their own physical examinations. The first complete physical examination is made by the intern, the undergraduate acting as amanuensis. The blood and urine examinations are made by the undergradute, but are examined and described by the intern. All positive findings, as albumin, casts, elastic tissue, important blood smears, etc., are examined and checked soon after by an older man. Stomach examinations, stool examinations, blood cultures and serologic examinations are arranged for as early as possible. There has been no inconvenience or complaint either from patients, nurses or hospital authorities on account of the work of undergraduates.

### Medical Education, Medical Interns and the War

This paper, by Dr. Horace D. Arnold, Washington, D. C., appeared in The Journal, Feb. 16, 1918, p. 451.

#### DISCUSSION OF DR. ARNOLD'S PAPER

Admiral Edward R. Stitt, Washington, D. C.: We have an important problem in the Navy that is different from that in the Army. We were forced to take large numbers of men on graduation who had not received the hospital year. On account of the number detailed to ships, it was absolutely necessary to have several hundred young men who were more or less flexible and could adapt themselves to life on shipboard. We were obliged, therefore, to take men who had not received the hospital year.

The question will come up about making good to these men the loss of this hospital year opportunity. In England, in connection with the Royal Army Medical Corps, they have postgraduate courses in general medicine and general surgery, so that men who have been serving in India or elsewhere for four or five years can, on their return to London, take six months of intensive work in general medicine and general surgery. Four days in each week are devoted to general medicine and general surgery, one day a week on any specialty the man desires, and the remaining day is devoted to laboratory work. If, in our great universities, graduate work can be arranged along these lines, it would give practical work in hospitals representing an intensive internship. We should make up what the young men have lost in the way of the hospital year.

Dr. J. M. Baldy, Philadelphia: The scheme outlined brings out the present senior class with no saving of time; it brings the present junior class into service four months earlier, the sophomore class eight months earlier, and the freshman class a year earlier. Any scheme of this kind should be seriously considered by educators lest it might disorganize medical education for what may not be necessary. At the present time, it would be ill advised to attempt to carry this scheme into effect. We should wait until we see what this year's campaign is going to bring forth.

Dr. E. P. Lyon, Minneapolis: I do not believe that medical education would be disorganized by adopting the scheme outlined. The only difficulty in my opinion is that it would deprive those connected with the fundamental departments of their four months' vacation. The doctor in practice works eleven months and often more. Why should a doctor in the making work only eight months? The teacher gets off with about eight months' work, whereas the lawyer and members of other professions work eleven months or more, and the only reason that is really satisfactory is that the teacher's compensation is poor. I believe the scheme outlined is feasible and can be carried out without disorganizing the medical profession.

Dr. John M. Dodson, Chicago: The University of Chicago has had this scheme in operation for a great many years; therefore it is not an experiment. It ought to be a universal scheme, and I predict it will be within a few years. If a student desires to spend four quarters of the year in school and complete the present four year course in three calendar years, he should be allowed to do it.

President William O. Thompson, Columbus, Ohio: A number of state universities are considering the four quarter plan. The University of Washington has adopted it. It is a bigger problem than we at first realized, however, because I think it is harder to get faculties to think in terms of quarters than it is to reorganize an army.

Dr. Hanau W. Loeb, St. Louis: I approve of the plan outlined during the past summer, and up to the present time we have put a similar scheme into effect at St. Louis University.

Dr. Louis B. Wilson, Rochester, Minn.: The graduate students on the Mayo Foundation are required to put in forty-eight weeks in the year. Most of them put in fifty weeks from choice. Most of them are graduates of medical schools and have had a year in a general hospital. They show no evidence of extreme weariness, and the young men are hustlers. To my mind it is the utmost stupidity to continue a thirty-two or thirty-four week course in medicine, as we have been doing for years. It is a dead loss to the state.

Dr. George Dock, St. Louis: Efficiency boards have been testing out a lot of people, and they find they can get more out of them by intensive work in eight hours than they can in twelve. We may find that medical students can do more work in nine months in the year, properly trained, than in twelve if they are imperfectly trained. However, one can easily see the advantages of the four-quarter system apart from the splitting up scheme.

Dr. H. E. Beebe, Sidney, Ohio: I heartily approve of the four quarter system. There is one possible source of difficulty that has not been referred to, and that is the relationship of colleges and preparatory schools to this plan.

Dr. W. F. R. Phillips, Charleston, S. C.: I do not know how it may affect Northern colleges, but for our Southern colleges the continuous session would not work satisfactorily. Most of our students have to depend on the crops they raise during the summer to pay their tuition fees and other expenses.

Dr. James Ewing, New York: Although I did not hear the paper, I think the wisdom of such a scheme will depend on the schools that can adopt it. Conditions vary considerably in different schools. At Cornell a year ago we appointed a committee that spent considerable time in getting all the information possible for and against the plan. We received information from Canada that they had tried the plan and that it was not working out satisfactorily, for the reason that the product they were turning out was not up to standard.

Dr. Frank W. Lynch, San Francisco: I wish to offer the following resolution:

*Resolved,* That it is the sense of this conference that a plan of intensive training, shortening the course of medicine one year, without sacrificing present standards, be approved as a war measure; and that state boards and universities be requested to take such action as will conform to it.

The resolution was seconded and carried by a vote of 37 to 16.

## JOINT SESSION OF THE COUNCIL WITH THE FEDERATION OF STATE MEDICAL BOARDS

### Cooperation for Prevention of Medical Frauds

Dr. David A. Strickler, President of the Federation of State Medical Boards of the United States, Denver: All concerned in public health and welfare are interested in the prevention of fraud, but not all have equal opportunity to prevent it. Those who control educational institutions have to do with the moral character of the student on admission and throughout his student life. It is likewise the function of the educator to establish and maintain proper educational standards. Those who establish high standards need to be supported by the medical profession and by licensing boards in particular so that institutions of lower standards may not be permitted to flourish. Cooperation with the better colleges is essential to prevent diplomas being granted without merit. Large numbers of fake institutions are incorporated and run without supervision by state, board of education, or profession in nearly every state; institutions wherein fads of every description are promulgated, taught and disseminated by individuals who have no educational standards for themselves or their students, but who issue diplomas which are quite as imposing as those of merit and are much more likely to be exhibited to the public.

The people should be educated on the aims and accomplishments of the medical profession and to the need of legitimate educational standards for all who would practice the healing art. Minimal educational standards should be required of all institutions incorporated to teach any profession.

The prevention of fraud in the practice of medicine and the surveillance of immoral acts of physicians rests definitely with licensing boards. We meet failure, however, because the profession does not inform the board regarding offenses, and because of the lack of intercommunication between boards on matters of mutual interest.

State medical boards may be mutually helpful by reporting their action with relation to all applicants, with reasons for refusal to license, to a central body by which all information could be tabulated for the benefit of other boards. There should be a surveillance of noted characters who operate in several states under their own or assumed names, alone, or with other licensed or unlicensed persons, with a view to prosecuting them for offenses against medical decency.

All state medical boards should systematically and in a routine manner report full data in regard to medical crooks, imposters, abortionists, and the like, together with an account of all official actions affecting the rights of physicians, to the Biographic Department of the American Medical Association; and every list of applicants together with claimed qualifications should be submitted to the Biographic Department for checking up before action is taken by the board. This is cooperation in its best sense with an organization working to the same end. Colorado has followed this plan with most excellent results in many instances.

DISCUSSION

Dr. J. M. Baldy, Philadelphia: The difficulty of administering the laws of the state is largely one of politics. There is constant political pressure brought to bear on us, but we should always act on the merits of a case irrespective of the result. Most state board members, however, are placed there by politicians. Oftentimes, for political reasons, members of boards are removed as rapidly as their terms expire. They have no chance or opportunity to realize the obligations of their positions, and as a result politics enters very largely into the administration of state boards of health and examiners. There are very few states in which a more successful step has been taken against the interference of politicians than in Pennsylvania; but sometimes the irregular medical crooks come in such a way that, in spite of all we can do, they will slip through our hands.

Dr. Walter L. Bierring, Des Moines, Iowa: We ought to have an information bureau, and we should take advantage of the bureau conducted by the American Medical Association. From my association with the bulletins issued to state boards, I know it has complete data on irregular practitioners and the other matters referred to by the president.

Dr. Walter P. Bowers, Boston: Two years ago a man appeared in the examination of the Massachusetts board, and it was discovered he was impersonating a Russian Jew. He hailed from New York. That investigation led to the discovery that a man who lived in Philadelphia was carrying on a bogus diploma mill. He agreed for a sum of money to secure registration for an individual in Massachusetts. The state police of Massachusetts went to Pennsylvania, secured extradition papers and brought that man back to Massachusetts. He was tried and convicted, and sent to jail. The state board in Massachusetts is not bothered with politicians.

Dr. Hubert A. Royster, Raleigh, N. C.: One of the worst cases the board of North Carolina has had to deal with came from Pennsylvania. A man with a diploma from a Class A school appeared before our board for reciprocity. He was examined twice and failed. He then went to New Jersey, was licensed by that state board, and he is now in the Reserve Corps of the Army. Politicians do not control the board in North Carolina. Our board is not appointed by the governor, but is elected by the state medical society.

Mr. Augustus A. Downing, Albany, N. Y.: State boards cannot be too careful about the identification of the men who take their licensing examinations. Through the cooperation of Dr. Bowers and the Massachusetts state detective, we have just returned to Massachusetts a bona fide license to practice medicine in that state, which was given to a pharmacist who was never inside a medical school. We also have got the man who impersonated this pharmacist in the Massachusetts examination.

Dr. N. P. Colwell, Chicago: At the Association headquarters we have a complete official list of the graduates of all medical schools, and have the means of knowing whether a man graduated from a medical school or not. Recently a man licensed in a Southern state claimed graduation from an extinct medical college. We found that his name did not appear either among the graduates or among the students of that college. We have written to the graduates of the college of the year in which he claims to have graduated, asking whether they know anything about him. The replies thus far received do not indicate that he ever graduated from the school. We have been getting reports, such as Dr. Strickler has referred to, from only a few states. It would be better if we could get that information from all of them.

Dr. Herbert Harlan, Baltimore: We should have a bureau of registration and information. I would urge all gentlemen present to read the last issue of the *Monthly Bulletin* of the Federation, which gives the photographs of diplomas and details in regard to certain cases. Such information as that is valuable.

Dr. David A. Strickler, Denver: In Colorado the board is not forced to license any individual. The applicant must satisfy the board as to his moral character. The courts hold that it is our duty to ascertain that fact, and they will not go back of our returns.

*(To be continued)*

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Diseases of Children, Chicago

February, 1918, **15**, No. 2

1 *Etiology of Phlyctenular Conjunctivitis. W. S. Gibson, Chicago. —p. 81.
2 Surgical Diseases of Urinary Tract in Children. A. Hyman, New York.—p. 116.
3 Sexual Precocity in Male; Report of Case. A. Strauch, Chicago. —p. 132.

1. **Phlyctenular Conjunctivitis.**—Clinical observations in ninety-two cases of phlyctenular conjunctivitis revealed the presence of tuberculosis in ninety cases, as shown by a positive von Pirquet test. In the two giving a negative reaction, the diagnosis was doubtful. No other condition, either local or general, could be found with sufficient frequency even to suggest any direct influence in producing the disease. Phlyctenules were produced experimentally in tuberculous rabbits in eight instances; six times as a complication of a conjunctival reaction resulting from the instillation of tuberculin, twice in the absence of local irritation of any kind. Numerous attempts to produce the condition in animals not tuberculous were unsuccessful. The pathology of the experimental lesions was similar to that of human phlyctenules. The microscopic findings suggested a tuberculous origin. Gibson is convinced that all clinical, experimental and pathologic evidence points to tuberculosis, and tuberculosis alone, as the cause of phlyctenular disease.

### Annals of Surgery, Philadelphia

January, 1918, **67**, No. 1

4 *Results of Blood Transfusion in War Surgery. L. B. Robertson and C. G. Watson.—p. 1.
5 *Use of Dichloramin-T in Treatment of Infections and Infected Wounds. W. E. Lee and W. P. Furness.—p. 14.
6 Birth Injuries of Shoulder; Report of Cases. A. P. C. Ashhurst, Philadelphia.—p. 25.
7 *Pulse Rate and Blood Pressure Observations as Aid in Treatment of Head Traumas. P. R. Sieber, Pittsburgh.—p. 51.
8 Fractures of Spine with Cord and Root Symptoms. C. A. Elsberg, New York.—p. 63.
9 *So-Called Mixed Tumors of Salivary Glands. J. Forman and J. H. Warren, Columbus.—p. 67.
10 Case of Hygroma Colli. L. Kahn and S. Graves, Louisville, Ky.—p. 71.
11 Pulmonary Teratoma; Report of Case. H. R. Black, Spartanburg, S. C., and S. O. Black, Rochester, Minn.—p. 73.
12 Gastroduodenostomy: Its Indications and Technic. D. C. Balfour, Rochester, Minn.—p. 80.
13 *Technic of Operation for Repair of Ileocecal Valve. Results in Twenty-Six Cases. J. H. Kellogg, Battle Creek, Mich.—p. 83.
14 Case of Dumb-Bell Stone in Diverticulum of Urinary Bladder. P. Martin, Buffalo.—p. 94.
15 Recognition of Certain Lesions of Male Bladder. E. M. Watson, Buffalo.—p. 96.
16 Treatment of Gonorrheal Epididymitis, Complicated by Peri-Epididymitis. C. S. Vivian, Humboldt, Ariz.—p. 103.

4. **Results of Blood Transfusion in War Surgery.**—Robertson and Watson report on transfusion in twenty-six cases of severe primary hemorrhage accompanied by shock. In four cases of this series the citrate method was used; in one case transfusion was done with the Unger two-way stop-cock. The remainder were transfused by the Lindeman syringe-cannula method. The results obtained have shown: first, that certain patients heretofore considered as inoperable, and others as exceedingly bad surgical risks, often may be revived to a degree which not only permits of radical operative measures, but ensures a good prospect of ultimate recovery; second, in other cases in which the postoperative condition is one of progressively increasing shock, due to the initial loss of blood and to the severity of the operative measures required, blood transfusion is a permanent resuscitative measure of extreme value. In the cases of severe primary hemorrhage 700 to 1,000 c.c. were regarded as constituting an average amount and usually tided the patient over his crisis. Smaller amounts have been given with some success, but the most immediate and lasting improvement has been obtained with the large amounts. Cardiac dilatation in these

exsanguinated recipients has not been observed even with the larger amounts given.

In transfusing 1,000 or 1,200 c.c. the intervals between the injections of the blood filled syringes should be longer toward the latter part than at the beginning of the procedure, and the minimum amount of saline should be introduced into the recipient's vein between the injections of the blood filled syringes. A wounded man who has lost much blood and has a blood pressure below 90 mm. Hg is not a good subject for operation; with a blood pressure below 70 mm. Hg he is in a precarious condition. Loss of blood intensifies to a very great degree the amount of shock produced by traumatism, and in the majority of such cases the immediate issue depends on control or elimination of the effects of hemorrhage. In this series many patients admitted in an inoperable condition from severe hemorrhage have been rendered operable by blood transfusion.

The largest factor in the causation of the shocked condition as seen in patients admitted to a casualty clearing station appears to be the loss of blood, except in case of visceral injury. In two cases hemolysis hastened the death of the patient—in one of these the citrate method was used. The results in this series of cases of severe primary hemorrhage may be classified as: life saving, 22; immediately beneficial but died from infection or operation, 9; no benefit, 3; harmful, 2; total, 36. Although the mortality in this series of cases is comparatively high, the patients were in a desperate condition, and with perhaps one exception could not have been expected to survive if the procedure had been withheld.

5. **Dichloramin-T in Treatment of Infections and Infected Wounds.**—The authors have records of 6,028 civil cases in which dichloramin-T has been used, and of four months' work and 1,200 cases reported by Captain Joshua Sweet with war wounds in the U. S. Base Hospital No. 10 in France. With dichloramin-T they have been able to obtain as good results as they have ever had when using the Dakin hypochlorite solutions with the complicated technic of Carrel. In addition, they found that skin irritation will not occur if the wounds are not covered with thick occlusive dressings. This means the use of the smallest possible amount of gauze dressing and bandage. The small amount of exudate from wounds treated with dichloramin makes it practical to use these thin dressings, and in one institution there has been a saving of 75 per cent. of the gauze and bandages formerly used. Further, a still greater saving in dressing material and time results from the decrease in the number of dressings required for each wound during the period of healing. Rarely is it necessary to dress a wound, even during the first few days, more frequently than once in every twenty-four hours, and after that, intervals of forty-eight and seventy-two hours are usual.

Dichloramin, unlike the aqueous hypochlorite solution, has no effect on the knots of catgut ligatures, and no disintegrating effect on the catgut itself. The occurrence of secondary hemorrhages in wounds treated by the Carrel method was not uncommon in the authors' experience at the American Ambulance. Captain Sweet reports that, in his 1,200 cases of major infected military wounds, there was not one secondary hemorrhage. Too great stress cannot be laid on the value of dichloramin-T as a deodorant dressing. The authors emphasize again the fact that one should not depend on a chemical agent to perform, in the treatment of suppurating wounds, that which can and should be done quickly and thoroughly by mechanical means. Neither chemistry nor bacteriology can, or should be expected to replace the mechanics of surgery. At the best, these chemical germicides can react only on the bacteria with which they come in contact, which means a very superficial process. Therefore, at the primary operation all foci of infection and all devitalized tissue must be removed when possible, by surgical procedures.

7. **Pulse Rate and Blood Pressure in Head Traumas.**—Twenty-six, or 34.2 per cent. of Sieber's 76 cases presented signs of an increased intracranial pressure, accompanied by an elevation in the blood pressure and slowing of the pulse rate. In nineteen, or 73 per cent. of these, the pressure reached such a degree as to endanger the life of the patient and operation was necessary. Ten of the nineteen patients operated on made good recoveries. Of the nine deaths, two were the result of pneumonia and two of meningitis. In each of these cases pressure was relieved by operation and there was every promise of recovery until infection occurred.

In the remaining five cases decompression did not avert a fatal outcome, although at operation all showed evidence of a high grade of intracranial pressure. Twenty-three, or 30.2 per cent., of the 76 cases, when first seen, presented evidence of an advanced medullary compression or severe brain injury. In many of these cases the regulatory vasomotor mechanism had collapsed and was no longer able to maintain the arterial pressure above the high intracranial tension. In other cases the rapidly decreasing blood pressure and increasing pulse rate showed that the vasomotor mechanism was still making a feeble effort to supply sufficient blood to the bulbar centers. Of the twenty-three patients in this group, 20 resulted in death, a total mortality of 87 per cent. In 12 cases an attempt was made to relieve pressure by operation, although they presented signs of advanced compression, evidenced by irregular, shallow respiration and a rapid, low tension pulse. Only three patients recovered, giving an operative mortality in this group of 75 per cent. All the patients in this group that were not operated on died.

9. **Mixed Tumors of the Salivary Glands.**—From a study of seven specimens of the so-called mixed tumors of the salivary glands, the authors believe that there is in the head and branchial region of the human embyro mesenchyme which has been derived from ectoderm, and that inclusion or misplacement of this ectodermal mesenchyme gives rise to the so-called mixed tumors of the salivary glands.

13. **Repair of Ileocecal Valve.**—The number of cases which have been definitely cured of ileac stasis by repair of the ileocecal valve and removal of mechanical hindrances in the distal colon is now so considerable that Kellogg feels justified in making the claim that the lesions mentioned are the true cause of ileac stasis rather than Lane's kink, and in maintaining that when surgical interference becomes necessary the procedure indicated is the simple one of repair of the valve rather than the serious and mutilating operation of short circuiting or of colectomy, except in cases in which the existence of obstructive lesions can be proved.

### Arkansas Medical Society Journal, Little Rock

January, 1918, **14**, No. 8

17 Experience at County Hospital; Report of Cases. A. L. Carmichael, Little Rock.—p. 159.
18 Shall Physician Tell the Truth? T. Cothern, Jonesboro.—p. 165.

### Boston Medical and Surgical Journal

Jan. 31, 1918, **178**, No. 5

19 Mental Conditions Disqualifying for Military Service. L. V. Briggs, Devens.—p. 141.
20 Vaginal Discharge in Children; Study of Two Hundred and Fifty-Five Selected Cases, with Special Reference to Question of Diagnostic and Specific Value of Smear Examinations. I. C. Rubin, New York.—p. 147.
21 Primary Lesion of Tuberculosis; Its Significance, Diagnosis and Treatment. W. W. Howell, Boston.—p. 152.
22 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 156.

### Georgia Medical Association Journal, Augusta

January, 1918, **7**, No. 9

23 Radium as Therapeutic Agent for Cancer of Cervix and Uterine Hemorrhages. O. D. Hall, Atlanta.—p. 177.
24 Southern Surgeons for Southern Soldiers. C. C. Harrold, Macon.—p. 181.
25 Exophthalmic Goiter; with Special Reference to Etiology and Roentgen Ray Treatment. W. A. Cole, Savannah.—p. 186.
26 Syphilis of Nervous System and Its Treatment. J. N. Brawner, Atlanta.—p. 190.
27 Relation of Focal Infections to Ocular Diseases. E. S. Osborne, Savannah.—p. 197.

### Journal of Cutaneous Diseases, Chicago

January, 1918, **36**, No. 1

28 Two Cases of Bowen Type of Epithelioma. H. Morrow and A. W. Lee, San Francisco.—p. 1.
29 Erythema Multiforme, Associated with Cutaneous Pigmentation (Melanin). E. W. Abramowitz, New York.—p. 11.
30 Case of Sclerema Neonatorum and Scleroderma. D. Lieberthal, Chicago.—p. 29.
31 Case of Acanthosis Nigricans Following Decapsulation of Kidneys. F. Wise, New York.—p. 35.

### Journal of Infectious Diseases, Chicago

February, 1918, **22**, No. 2

32 *Theory of Anaphylactic Shock. J. L. Kritchewsky, Moscow, Russia.—p. 101.
33 *Specific Precipitins in Gonococcal Infections. T. Watabiki, Tokyo, Japan.—p. 115.
34 *Brilliant Green as Bactericidal Agent for Purification of Vaccine Virus. C. Krumwiede, Jr., F. S. Fielder and T. A. Watson, New York.—p. 118.
35 *Determination of Numbers of Histidin Decarboxylating Organisms in Feces in Dementia Praecox as Compared with Numbers in Normal Feces. H. M. Jones, Chicago.—p. 125.
36 *Rôle of Specific Fats in Complement Fixation. C. C. Warden, Ann Arbor, Mich.—p. 133.
37 Experimental Vaccine Shock and Resistance to Tuberculosis. E. Sexsmith and W. Petersen, Chicago.—p. 142.
38 Relation of Serum Ereptase (Peptidase) Titer to Clinical Course in Pneumonia. W. Petersen and C. A. Short, Chicago.—p. 147.
39 Trypanosome of Panamanian Cattle and Method for Concentrating Trypanosomes in Peripheral Blood. O. Teague and H. C. Clark, Ancon, C. Z.—p. 154.
40 Piroplasmosis of Cattle in Panama. H. C. Clark, Ancon, C. Z.—p. 159.
41 *Epidemic Poliomyelitis. Isolation and Cultivation of Globoid Bodies. G. D. Heist, M. S. Cohen and J. A. Kolmer, Philadelphia.—p. 169.
42 *Id. Study of Opsonic Action of Poliomyelitic Serum on Various Organisms Isolated from Fatal Cases of Poliomyelitis. M. S. Cohen and G. D. Heist, Philadelphia.—p. 175.
43 *Id. Comparative Studies of Cocci Isolated from Poliomyelitis. G. D. Heist and M. S. Cohen, Philadelphia.—p. 182.

32. **Anaphylactic Shock.**—Kritchewsky undertook to solve the problem, whether the cotyledon juice which is able to precipitate animal serum and bacterial extracts, to agglutinate bacteria and blood corpuscles, and to lake the latter has the power to provoke the clinical and anatomic changes characteristic of anaphylactic shock, when introduced into the living animal. The experiments gave a positive answer. The guinea-pigs and rabbits which received the fluid intravenously died; the clinical picture and the anatomic changes were those of anaphylaxis. The shock and the death after injection of the cotyledon fluid are due to change in the degree of the disperseness of the plasma colloids.

33. **Precipitins in Gonococcal Infections.**—Watabiki studied the questions of precipitins in gonococcal infection, and in antigonococcus serum, also whether precipitation will distinguish between the gonococcus and the meningococcus, and whether it will permit the grouping of gonococci. He found that the serum of patients with gonococcal infection may contain specific gonococcal precipitates, but this seems to be the case when the infection has been severe and has lasted for some time. The serum of patients with typhoid or other infections, not gonococcal, does not contain gonococcal precipitin. The serum of rabbits injected with 8 strains of gonococci contained precipitin, each one for all the different gonococci; but in the case of 2 strains the extract gave precipitates in lower dilutions with the serum of the other six rabbits than with homologous serum, and their serum gave precipitates with the other six extracts in lower dilutions than the homologous extract. The serum of rabbits injected with the meningococcus, *M. catarrhalis* and the colon bacillus gave no precipitates with gonococcal extracts. Apparently antigonococcus serum is not as rich in specific precipitin as in agglutinins and complement-fixing bodies, but the precipitin reaction distinguishes more definitely between gonococci and meningococci, as well as *M. catarrhalis,* than complement fixation.

34. **Brilliant Green for Purification of Vaccine Virus.**—The data presented by the authors in this article show that brilliant green has little, if any, influence on the potency of vaccine virus, and added to the present glycerol-carbolic preservative, gives a more efficient and more rapidly bactericidal preservative.

35. **Histidin Decarboxylating Organisms in Feces.**—An organism similar to the one described by Berthelot and Bertrand has been isolated by Jones; it is shown to differ from *B. mucosus* by its inability to form gas and acid in glycerol broth. This organism, called *B. aminophilus,* does not form histamin from histidin when a more available source of carbon of the carbohydrates is present. A selective plating medium for isolating this organism from mixed culture has been devised. By this medium it was shown from an examination of samples from thirty-eight different stools, that *B. aminophilus* ordinarily is not found in the human intestinal tract in sufficient numbers to be isolated by direct plating of a quantity of feces representing from 20,000 to 100,000 living bacteria.

36. **Specific Fats in Complement Fixation.**—Warden says that the value of antigens in serum tests for the presence of antibody in gonorrhea, syphilis, typhoid, and cholera appears to depend on fatty complexes of definite chemical arrangement or configuration which represent the fatty content of the several micro-organisms causing those diseases. The reactions of the test are surface reactions and depend on the physical state of the antigen. The serum test as applied to tuberculosis is fallacious and unreliable probably because of the absence of sensitizers in the serums.

41. **Globoid Bodies in Epidemic Poliomyelitis.**—The authors record the isolation from human and monkey poliomyelitic material of four different strains of an organism which morphologically and culturally agrees in every particular with the descriptions of the globoid bodies of Flexner and his associates. It was observed that the macroscopic appearance of tubes of kidney-ascitic fluid medium which contain good growths of this organism differs from that of the uninoculated control tubes to such a slight degree that often inspection of the tube alone is of no value in determining the presence or absence of a growth.

42. **Opsonic Action of Poliomyelitic Serum.**—Cohen and Heist studied a number of streptococci and other bacteria from the brain, cord and internal organs of fatal cases serologically to see if serum from patients with poliomyelitis would give a specific opsonic reaction with any of them that might point toward its presence at some time in the tissues of the patient. In addition to and distinct from the globoid bodies, there is frequently present in poliomyelitic material a rather large streptococcus, occurring in short chains. The serums of a large precentage of patients with poliomyelitis give high opsonic indexes with this streptococcus, but not with streptococci from nonpoliomyelitic sources, nor with staphylococci, diphtheroids and gram-negative bacilli obtained from poliomyelitic material.

43. **Study of Cocci from Epidemic Poliomyelitis.**—Eight strains of cocci were isolated from poliomyelitic material, examined by the authors by elementary bacteriologic methods, and also by methods aimed to establish their more intimate functional relationships. None of these strains fermented inulin and they were all short chain streptococci, and that none of them produce hydrogen sulphid, would serve to exclude them from any of the Andrewes and Horder's types except *Streptococcus mitis* or *Streptococcus salivarius,* the common habitat of both of which is the human mouth.

### Laryngoscope, St. Louis

January, 1918, **28**, No. 1

44 Treatment of Suppuration of Accessory Sinuses of Nose. E. B. Gleason, Philadelphia.—p. 1.
45 Lymph Angioma of Larynx. C. W. Richardson, Washington, D. C.—p. 8.
46 Etiology of Speech Defects. M. K. Scripture, New York.—p. 12.
47 Mechanical Spoon for Esophagoscopic Use. C. Jackson, Philadelphia.—p. 47.
48 Esophagoscopic Forceps. C. Jackson, Philadelphia.—p. 49.
49 Improved Snare. C. B. Harwood, Houston, Texas.—p. 50.

### Maine Medical Association Journal, Portland

January, 1918, **8**, No. 6

50 Can We Prevent Gastric Cancer? R. F. Chase, Portland.—p. 163.
51 First Aid to War Wounded. W. W. Robinson, Portland.—p. 166.

### Medical Record, New York

Feb. 2, 1918, **93**, No. 5

52 Problems of Drug Addiction. C. L. Dana, New York.—p. 177.
53 Initial World War Material at Army Medical Museum. R. W. Shufeldt, Washington, D. C.—p. 179.
54 Venereal Diseases; Their Relations to Insanity and Nervous Diseases. J. J. Kindred, River Crest, Astoria, L. I.—p. 184.
55 Autointoxication—Etiologic Factor of Neuroses of Children. W. R. Woodbury, Rochester.—p. 185.
56 Sanitary Condition of Mikvehs and Turkish Baths. W. A. Manheimer, New York.—p. 189.
57 Complement Fixation in Tuberculosis. W. Meyer, West Hoboken, N. J.—p. 193.

### New York Medical Journal

Feb. 2, 1918, **107**, No. 5

58 Carrel Treatment of Wounds of War. F. Le M. Hupp, Wheeling, W. Va.—p. 193.
59 Psychologic, Physiologic and Pharmacologic Basis of Nicotinism, Alcoholism and Morphinism. J. L. Tracy, Toledo, Ohio,—p. 197.
60 Postoperative Tetanus. M. Behrend, Philadelphia.—p. 199.
61 Nonsurgical Treatment of Cancer. A. C. Geyser, New York.—p. 203.
62 Analysis of Seven Cases of Friedreich's Ataxia. M. Osnato, New York.—p. 204. To be concluded.
63 Active Immunization Against Diphtheria. J. Blum, New York.—p. 208.

### South Carolina Medical Association Journal, Greenville

January, 1918, **14**, No. 1

64 Cysts of Pancreas. J. R. Sparkman, Columbia.—p. 5.
65 Abdominal Pain. B. B. Steedly, Spartanburg.—p. 10.

### Southern Medical Journal, Birmingham, Ala.

January, 1918, **11**, No. 1

66 Physicians and Healers. G. Dock, St. Louis.—p. 1.
67 *Chemical Analysis of Blood as Index to Treatment. J. S. McLester, Birmingham.—p. 14.
68 Teaching of Clinical Neurology. T. A. Williams, Washington, D. C.—p. 17.
69 Public Health in War Times. E. G. Williams, Richmond, Va.—p. 21.
70 War in Its Effects on Development of Tuberculosis. C. L. Minor, Asheville, N. C.—p. 24.
71 County Health Organization. A. T. McCormack, Bowling Green, Ky.—p. 29.
72 Traumatic Brain Surgery. J. W. Long, Greensboro, N. C.—p. 31.
73 Some of Common Errors in Gynecology. F. W. Griffith, Asheville, N. C.—p. 40.
74 Attitude of Railway Surgeon and His Relation to Claims Department. J. M. Burke, Petersburg, Va.—p. 42.
75 General Surgery in Army. W. H. Moncrief, Washington, D. C.—p. 45.
76 Changed Conditions in Practice of Ophthalmology and Otology Due to War. T. W. Moore, Huntington, W. Va.—p. 49.
77 Secondary Hemorrhage Following Submucous Resection Six Days after Operation. D. C. Montgomery, Greenville, Miss.—p. 49.
78 Medical Preparedness in Great Drive for Democracy. J. C. Bloodgood, Baltimore.—p. 51.

67. Abstracted in The Journal, April 28, 1917, p. 1287.

### Southwest Journal of Medicine and Surgery, El Reno, Okla.

January, 1918, **26**, No. 1

79 Cesarean Section as Life Saving Procedure in Puerperal Eclampsia. J. A. Foltz, Fort Smith, Ark.—p. 1.
80 Use of Lumbar Puncture in Puerperal and Postpartum Eclampsia. W. T. Wilson, Navasota, Texas.—p. 5.
81 What the Superintendent of Hospital Means to Scientific Medicine. C. S. Pettuss, Little Rock, Ark.—p. 15.

### Surgery, Gynecology and Obstetrics, Chicago

February, 1918, **26**, No. 2

82 *Excision of Vesical Diverticula after Intravesical Invagination by Suction: New Method. H. H. Young, Baltimore.—p. 125.
83 Premature Separation of Normally Implanted Placenta in Two Cases. A. H. Morse, New Haven, Conn.—p. 133.
84 *War Wounds of Knee-Joint among French Soldiers. J. R. Judd, Honolulu, Hawaii.—p. 139.
85 *Dichloramin-T. E. K. Dunham, New York.—p. 152.
86 *Use of Dichloramin-T in Treatment of Infections and Infected Wounds. W. E. Lee and W. P. Furness, Philadelphia.—p. 155.
87 *Ascending Urinary Infections; Experimental Study. V. C. David, Chicago.—p. 159.
88 *Experimental and Clinical Study of Chloroform, Ether and Nitrous Oxid-Oxygen in Pregnancy and Labor. C. H. Davis, Chicago.—p. 170.
89 Combined Bacteriologic and Histologic Study of Endometrium in Health and in Disease. A. H. Curtis, Chicago.—p. 178.
90 Colon Bacillus Infection, Extragenital, Complicating Pregnancy and Puerperal State. E. P. Davis, Philadelphia.—p. 189.
91 Rider's Tendon; Rupture of Adductor Tendons of Thigh. W. T. Davidson.—p. 192.
92 Experimental Physiologic Action of Ovarian Extracts. G. P. Gonalons.—p. 196.
93 Acute Diverticulitis of Colon. J. F. Erdmann, New York.—p. 207.
94 Recognition and Treatment of Intestinal Diverticula. D. Roberts, Brooklyn.—p. 211.
95 One year's Experience (1916) with Gunshot Wounds of Abdomen at Memphis General Hospital; Report of Fifty Cases. M. Goltman, Memphis, Tenn.—p. 217.
96 Treatment of Fractures by Suspension and Extension. J. E. Cannaday, Charleston, W. Va.—p. 226.
97 *Simple Method of Performing External Perineal Urethrotomy J. D. Barney, Boston.—p. 232.
98 Action of Radium on Cancer. H. H. Janeway, New York.—p. 233.
99 Modified Uterine and Viscera Forceps for Careful Manipulation of Tissue. A. J. Schoenberg, Chicago.—p. 237.
100 Experience in Glasgow Royal Maternity and Woman's Hospital in Summer of 1916. W. F. Hewitt, Chicago.—p. 238.

82. **Excision of Vesical Diverticula.**—The invagination of diverticulum by suction and traction is done by Young as follows: The diverticular orifice is investigated, and if necessary dilated with forceps. Into this orifice a glass tube is inserted to the full depth of the diverticulum, and immediate suction with an electric air pump is commenced. It is usually evident, almost at once, that the mucous membrane has been drawn against the orifice, and the tube is then drawn very slowly outward, a small distance, the suction being continued until the mucous membrane of the diverticulum is seen coming upward inside of the glass tube. Not infrequently the mucous membrane reaches a point 1½ to 2 inches above the bottom of the tube. The glass tube is then slowly drawn out, bringing the diverticular mucosa with it, and as soon as the end of the tube is outside of the diverticular orifice, the mucous membrane is caught with a toothed clamp, and the glass tube then removed. The intravesical delivery of the diverticulum is then completed by traction, the operator using sharp-toothed clamps applied at various points around the circumference, and then possibly further dilating the diverticular orifice in case the sac is very large and difficulty is experienced in delivering the whole diverticulum through the small orifice. As soon as the entire diverticulum has been turned inside out within the bladder, a circular incision is made through the mucous membrane around the neck of the diverticulum and the mucous membrane elevated at one point. Then, by blunt dissection, it is a simple matter to peel away and remove in one piece the entire lining membrane of the diverticular sac, the excised tissue consisting merely of mucosa and submucosa.

84. **War Wounds of Knee-Joint.**—Judd points out that the resisting powers of the synovia and ankylosing tendencies vary in individuals. In the presence of an infected projectile and infected joint fluid, the synovia may still be uninfected for a certain period. Fissures extending to the articular surface are important and are often unrecognized. Secondary infection of the ankle-joint sometimes occurs unexpectedly and is a grave complication. The earlier methods of noninterference, drainage tubes, and wholesale removal of bone have yielded disastrous results. The mortality has been greatly reduced by improved methods of treatment. Perforating wounds traversing the joint should be treated by puncture, compression and immobilization. For wounds with foreign bodies included, with or without bony lesions, early intervention is the secret of success. The new era in knee-joint surgery calls for arthrotomy within forty-eight hours, removal of projectile, foreign bodies and loose fragments, excision of path of projectile, cleansing of joint and suture without drainage. Extensive bony lesions demand primary resection. From all points of view vital preservation of the limb and its function and duration of hospital stay, the results of the improved method are vastly superior.

85. **Dichloramin-T.**—Dunham says that dichloramin-T is so slightly soluble in water that aqueous solutions must necessarily be ineffective, although the reactivity of the compound is extremely high. But solutions in oil can be used in great concentration, up to 20 per cent. if need be, thus introducing an extraordinary mass of antiseptic at a single application. And this abundant and apparently excessive mass can become effective, without undue irritation. When an oil solution of dichloramin-T is brought into contact with an aqueous medium, a portion of the active chlorin passes from the oil into the latter, and the amount so transferred depends on the character of the substances contained in the aqueous medium, particularly their ability to take up chlorin. Three experiments are cited in illustration: A 6.5 per cent. solution of dichloramin-T in eucalyptol and liquid petrolatum was shaken with, respectively, equal volumes of physiologic sodium chlorid solution, of muscle extract and of blood serum. After standing for three hours, the oil was completely separated and the active chlorin in the aqueous portion determined. The results, expressed in terms of dichloramin-T, were: 1:6,000

in the saline; 1:300 in the muscle extract, and in the serum, which was mostly coagulated, 1:111.

86. See The Journal, Sept. 29, 1917, p. 1076.

87. **Ascending Urinary Infections.**—Evidence is presented by David to show that ascending *Bacillus coli* infection of the upper urinary tract from the bladder travels most frequently by the lumen of the ureter. Periureteral infiltration is present only when peritoneal exudate of the bladder or pelvic peritoneal exudate is also present. Periureteral or subpelvic exudate is not synonymous with infection of the urinary stream. In the presence of periureteral or subpelvic infiltration the kidney parenchyma is negative in most instances. The infection of a hydronephrosis where the ureter is ligated and divided and comes in contact with infectious material may take place by spreading through periureteral lymphatics to the subpelvic fat and by contiguity involve the pelvis of the kidney.

88. **Chloroform, Ether, Nitrous Oxid-Oxygen in Labor.**—Since it is evident that anesthesia during pregnancy may be a source of considerable danger to the fetus, Davis believes that operations should be avoided, if possible, during this period. The fetus in utero and the new-born would appear to stand ether anesthesia better than chloroform or nitrous oxid-oxygen.

97. **Method of Performing External Perineal Urethrotomy.**—A soft rubber catheter, well lubricated, and of suitable size, is passed through the penis into the bladder until the outer end of the catheter is almost level with the external meatus or the end of the urethra (as the case may be). The catheter is seized 0.5 cm. from its outer end with a half curved clamp of appropriate size and length. The clamp is passed down the urethra, its convexity against the roof, until its point is felt pressing against the floor of the bulb. The catheter has meantime been pushed ahead of the clamp and coiled in the bladder. The point of the clamp is now made to impinge against the perineum, bulging it outward in the median line. The urethra is opened at this point by an incision, which need not be more than 1 cm. in length, and the end of the clamp, still grasping the catheter, easily merges through the wound. The clamp is opened and withdrawn upward through the urethra and the catheter is drawn outward through the perineal incision until its eye lies correctly in the bladder. It is secured in place by a coarse silkworm-gut suture passed through the edges of the perineal wound and tied tightly around the catheter. Constant drainage of the bladder is thus established by connecting the catheter with a bottle by the bedside, or simply by letting it lie in a urinal which the patient keeps between his legs in bed.

### Texas State Journal of Medicine, Fort Worth

January, 1918, **13**, No. 9

101 Etiology of Winter Hay-Fever in Texas. S. N. Key, Austin.—p. 308.
102 Control of Diphtheria in Small Town. J. R. Elliott, and H. H. Loos, Palacios.—p. 309.
103 Surgery of Bones and Joints; with Especial Reference to Tuberculosis. C. M. Rosser, Dallas.—p. 311.
104 Pneumonia. O. W. Ross, Leona.—p. 314.
105 Surgery of Deformities of Spine. C. S. Venable, San Antonio.—p. 316.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

Jan. 12, 1918, **1**, No. 2976

1 *Orthopedic Outlook in Military Surgery. R. Jones.—p. 41.
2 Separate Suture of Nerves in Nerve Trunks. J. N. Langley.—p. 45.
3 *Antenatal Syphilis: Suggested Action of Chorionic Ferments. A. J. Routh.—p. 47.
4 Course of Instruction in Venereal Diseases. D. Watson.—p. 48.
5 *Suggestions Toward Systematic Operative Treatment of Gunshot Wounds of Mandible. W. Trotter.—p. 49.
6 Solvents for Dichloramin-T. H. D. Dakin and E. K. Dunham.—p. 51.
7 *Skin Ink for Radiography. N. S. Finzi.—p. 52.
8 Drainage vs. Scraping in Operation of Curettage of Uterus. G. S. Thompson.—p. 53.

January 19, No. 2977

9 *Medical Aspects of Aeroplane Accidents. H. G. Anderson.—p. 73.
10 *Acute Yellow Atrophy in Syphilis. S. McDonald.—p. 76.
11 *Pericardial Knock. S. M. Smith.—p. 78.
12 Simple Apparatus for Nitrous Oxid-Oxygen Anesthesia. A. S. Wilson.—p. 78.
13 Anesthetics in Military Hospitals. T. Clarke.—p. 79.
14 *Treatment of Gunshot Wounds with Solution of Soap and Water and Primary Suture. J. B. Haycraft.—p. 80.
15 Serologic Investigation of Vincent's Angina. F. E. Taylor and W. H. McKinstry.—p. 82.

1. **Orthopedic Outlook in Military Surgery.**—The fact that about 50 per cent. of the wounded of this war have received injuries resulting in impairment of locomotor function and usefulness of limbs, Jones says, has brought the importance of orthopedic principles and methods of treatment into a prominence which no one had foreseen. In England the first orthopedic center was established in Liverpool, with a view of concentrating under one roof a staff trained in orthopedic principles and an equipment which could provide for all the stages of treatment necessary for the restoration of function. There now are sixteen centers in the British Isles containing close on 15,000 wounded. Of the men treated in these centers 75 per cent. have been returned to the army. An orthopedic center consists of: 1. A staff of surgeons who have had previous experience of the detail of orthopedic work, both operative, manipulative and educational. They plan the complete course of treatment. 2. Men with experience in operative surgery who, though not specializing in the work, are interested in it, and only need experience to fit them to take charge of wards in new centers as they are formed. 3. Still younger men who will ultimately go abroad. 4. The hospital further consists of a series of auxiliary departments, each under a medical man who has experience of the particular methods of the treatment he directs. These departments are the electric, the massage, the hydrologic, the gymnastic, and the curative workshops. The successful working of an orthopedic center depends on the coherent association of all departments in carrying out the plan of campaign mapped out by the surgeon when he sees the patient. The orthopedic problem is divided into two distinct parts—preventive orthopedics and corrective orthopedics. The latter is more especially the department of the trained orthopedic surgeon. The preventive requires the help of every surgeon who has to treat wounded men at any stage, especially the early stage.

3. See abstract No. 20, The Journal, Feb. 16, 1918, p. 491.

5. **Operative Treatment of Gunshot Wounds of Mandible.**—For considerations of treatment these cases may be conveniently divided into three classes: (1) fractures without considerable loss of substance, actual or probable; (2) fractures with considerable loss of substance, either actual from immediate destruction or probable from necrosis, but with the superficial soft parts more or less intact; (3) fractures with considerable destruction of bone and of the overlying soft parts—cases in which the bone and lower part of the face are "blown away." The first class obviously lends itself to treatment by intrabuccal fixation, and may be expected to give results almost as good as those of the ordinary fractured jaw of civil practice. The second class seems to be an especially common and troublesome type, and perhaps to lend itself to a more radical and systematic treatment than it usually receives. In cases in which large parts of the bone have had to be removed, the plastic reconstruction of the jaw has not proved to present insurmountable difficulties as a rule, and grafts, taken almost invariably from unaffected parts of the jaw itself, have been found an easy and satisfactory method of reestablishing the continuity and stability of the bone. As in these cases some part of the thickness of the bone usually is available for use as a graft, even in the affected region, the two-stage operation is not often necessary. The primary and immediate operation giving full access to the fracture with the purpose of limiting hemorrhage, sepsis and necrosis and attaining a limited and relatively aseptic scar, is an indispensable preliminary to a systematic application of plastic bone surgery to large destructive lesions of the mandible. If the surgeon keeps clearly in mind the principle that protection of raw surfaces in order to secure rapid

union must be the first consideration, the minor procedures that facilitate this will suggest themselves readily.

7. **Skin Ink for Radiography.**—The formula used by Finzi is as follows:

| | gm. or c.c. |
|---|---|
| Acid. pyrogallic | 1 |
| Spirit. vini meth. | 10 |
| Liq. ferri perchlor. fort | 2 |
| Acetone ad. | 20 |

This gives a concentration of 5 per cent. pyrogallol and 2 per cent. iron. The solution is best kept in a bottle with a camel's-hair brush attached to the cork so that it can easily be painted on. The mark is a brownish gray at first, but after a few hours turns a brilliant black.

9. **Aeroplane Accidents.**—Scheme for first aid at an air station: The steward on being notified of an accident dispatches the ambulance, which stands always in readiness by the sick-bay, to the scene of the accident. Two sick berth attendants go with the ambulance, and with them is a bag containing the following articles: (1) morphin solution and two Wildey's hypodermic syringes; (2) a bottle of chloroform and face mask; (3) brandy; (4) a bottle of sterilized water; (5) six first-aid field dressings and slings; (6) picric acid dressings; (7) a tourniquet, cloth cutting scissors and a knife. The surgeon on duty is on the aerodrome during flying hours, and proceeds to the scene of the accident by car or foot. If the accident is at a distance, a mile or more, it is better to go by aeroplane. Anderson has now gone by air to cover thirty forced landings and accidents at a distance, and is convinced of the utility of this method in arriving quickly and not otherwise tired and out of breath after a long run. Officers and flight mechanics sent to the scene of the accident should be trained in first aid with special reference to aeroplane accidents.

The aeroplane seat cushion is taken from the machine and placed under the injured pilot's head, while his body rests on a flying coat spread out on the ground. A rapid examination is carried out to determine the injuries received. If the injured person is conscious and in much pain, morphin should be injected and he should be conveyed quickly to the dressing station, where clothes can be cut away, injuries examined, and treated accordingly. If unconscious, some cutting away of clothing can be done on the field, injuries examined, and perhaps a dislocation reduced or a fracture accurately diagnosed during the unconscious period. The pilot's leather clothing for a time usually protects the body, but the face and lower limbs rarely escape. As the pain is so severe, and this applies to other injuries apart from those caused by fire, it is better to give chloroform on the field, and this is kept up on the way back to the dressing station. Morphin should also be given, but it takes some time to act.

10. **Acute Yellow Atrophy in Syphilis.**—During the past two months McDonald has seen five typical cases of acute yellow atrophy in the postmortem room. In an experience of over 5,000 postmortem examinations performed since 1898 McDonald has only investigated one other case. The present series of five cases have all occurred in syphilitic subjects in the course of, or subsequent to, treatment by salvarsan preparations and mercury. In practically all the cases a full course of intravenous injections of salvarsan had been given, coupled with the usual intramuscular injections of mercury. In each case the diagnosis of syphilis was confirmed by a Wassermann test. These cases were not of undue severity, and showed no special symptom of importance till a sudden onset of jaundice was noticed, without at first any special disturbance, the disease suggesting nothing more than an ordinary catarrhal jaundice. At a varying period of from two to eight days, however, acute symptoms appeared with suddenness. They were ushered in by a period of wild excitement and increased icterus, with hematemesis. The patients rapidly passed into a condition of deep coma, and death occurred in the five patients at periods of one to four days from the onset of the acute symptoms. The urine was markedly bile stained, and in each patient showed tyrosin; in some leucin was also demonstrated. In four of the cases diminution in the size of the liver was demonstrated during life.

11. **Pericardial Knock.**—There is a sound heard on auscultation in cases of penetrating wounds of the chest near the cardiac region which is unlike anything met with in civil practice. It is of the nature of a click, and varies from a faint sound heard by careful auscultation, to a noise which may be compared to that heard in the ear piece of a telephone when the lever is moved up and down. It may be heard sometimes when standing at the foot of the patient's bed. Sometimes the patient is conscious of it, and on one occasion called Smith's attention to it. In nearly every case the sound disappeared after forty-eight hours, although in one patient who was recovering from a chest wound without any complications the sound persisted for ten days. The sound has been, as a rule, most marked near the apex beat. It is usually double, corresponding to the heart sounds, and its intensity waxes and wanes with respiration, sometimes disappearing completely in full expiration. A distinct fremitus can be felt by the hand laid on the chest. It has been suggested that the sound is due to emphysema of the connective tissue of the mediastinum. The usual disappearance of the sound after a short period, and the absence of serious symptoms in many cases, suggest that it may be due to air in the interstitial connective tissue of the lung which is struck on by the beats of the heart.

14. **Gunshot Wounds Treated with Soap and Water.**—The solution used by Haycraft has been of the strength 1 in 40. Pure sapo durus (1 part), obtained in blocks, is cut into shavings and dissolved in hot water (20 parts) which has been previously boiled. When required for use the solution is mixed with an equal volume of sterile water. Superficial wounds are completely excised and soap solution well rubbed into the surface; they are then stitched up. Single penetrating wounds: The skin wound is completely excised, the exposed surface of the wound in the muscle cut away, and the track of the missile laid thoroughly open. The wound being held widely open with retractors, the surface of the track is cut away all 'round, from the inside, with scissors until all damaged muscle, so far as it is visible to the naked eye, is removed. Foreign bodies, clothing, or any small, loose fragments of bone, are removed, all bleeding points ligatured. and the whole wound thoroughly swabbed out with soap solution. Muscles and fasciae are closed with catgut and the skin sutured. If the metal has passed almost through the thickness of a limb, it is removed by a counter incision and the wound converted into a seton wound.

Seton wounds: Both entrance and exit wounds are treated as above, and it is generally possible in this manner to expose and excise the whole track, one half from each incision. In cases in which this has been impossible for anatomic reasons the center of the track has been well rubbed with gauze and soap. If it only involved the division of a thin layer of muscle, the entrance and exit wounds were directly connected, laying open freely the whole track, which could then be dealt with. If there is gross loss of muscular tissue so that the ends cannot be approximated, or if a large dead space is left, the skin is sutured over the wound and a very small split rubber tube introduced for twenty-four to forty-eight hours. In cases in which it is difficult to approximate the skin edges without undue tension one or more incisions may be made down to the deep fascia parallel to and at some distance from the wound. This occurs most often in the forearm and lower part of the leg. Amputations have been completely stitched up with a very small split tube introduced into one corner for twenty-four hours. Penetrating wounds of knee-joints have been completely excised down to the synovial membrane, the joint well irrigated with soap solution, and the wound closed in layers. The effect of the soap solution on the wound appears to be hemostatic. Instruments, needles, etc., tend to become somewhat slippery—a slight disadvantage.

Out of a total of 98 cases in which the result was observed, 91 eventually healed and 7 failed altogether. Out of 38 cases of compound fracture, 33 eventually healed and 2 failed. A considerable proportion of cases healed dry without any discharge. A few cases became very swollen, red and shiny about the second day, simulating acute cellulitis. After a day or two the swelling began to subside, redness disappeared and the skin became crinkled, due to diminution of subcutaneous edema. Haycraft says that these cases may cause alarm at first, but it is rarely necessary to remove any stitches. In some cases in which the wound was gangrenous before operation a brownish discoloration appeared around the wound, and the part might even become tympanitic. On removal of one or two stitches gas and offensive discharge escaped, and the infection as a rule subsided.

### Edinburgh Medical Journal

January, 1918, **20**, No. 1

16 Cerebrospinal Fever. P. W. Maclagan.—p. 3.
17 Two Child Welfare Schemes. G. H. G. Dundas.—p. 26.
18 Training of Student of Medicine. J. Mackenzie.—p. 31.
19 Teaching of Chemistry to Students of Medicine. J. Walker.—p. 48.

### Medical Journal of Australia, Sydney

Jan. 5, 1918, **1**, No. 1

20 *Appearances of Lungs after Death from Asphyxia and Reasons. W. F. Litchfield.—p. 1.
21 Reeducation of Disabled Soldier. H. R. G. Poate.—p. 2.
22 Modern Treatment of Gonorrhea. L. E. Ellis.—p. 5.
23 Inguinal Colostomy. R. H. Russell.—p. 7.

20. **Appearances of Lungs after Death from Asphyxia.**—Litchfield says that after death from what might be called dry asphyxia, the lungs are light, dry and bloodless, while after death from drowning the lungs are heavy, wet and more or less engorged, although this wetness is not due to inspired water. Litchfield's hypothesis is that in dry asphyxia, the right heart fails before the left, and so the lung is sucked dry of blood, while in drowning the left heart fails before the right, with the result of engorgement and edema of the lungs. In dry asphyxia, owing to the negative pressure in the lungs, the dyspnea is predominantly inspiratory; blood is sucked into the thorax; the right heart becomes distended to the bursting point, and its function paralyzed; while the left heart is still able to beat. In drowning, when water on inspiration strikes the larynx and upper air passages, violent expiratory effort or coughing is induced, and the dyspnea becomes mainly expiratory, with the result that the right heart does not become so intensely gorged that it cannot beat, and in the meantime the left heart fails before the great increase of systemic arterial blood pressure, which is a constant feature in asphyxia.

### National Medical Journal of China, Shanghai

December, 1917, **3**, No. 4

24 *Active Immunity to Systemic Plague Infection. F. Eberson.—p. 125.
25 Two-Stage Operation in Large Ovarian Cysts. W. B. Russell.—p. 140.
26 Parasitology of Dysentery. E. S. Tyau.—p. 142.
27 Value of Scientific Study of Botany to Chinese Medical Students. W. M. Porterfield, Jr.—p. 148.

24. **Active Immunity to Systemic Plague Infection.**—The close relationship of the phenomenon of antianaphylaxis and that of resistance to proteotoxins suggested to Eberson the feasibility of applying the facts concerning the former to a method involving apparently similar principles. He assumed that repeated injection of proteotoxin, if this contained specific substances of the plague organism, would give rise to an immunity toward plague itself. Experiments were made on animals. The treatment of rabbits with proteotoxins obtained with *B. pestis* confers a definite resistance on the part of the animal to systematically introduced plague organisms. The apparent immunity protects in at least 75 per cent. of the animals treated, taking the entire number of cases into consideration. Below a certain dose of bacteria, the protection conferred is much greater. Combined intravenous and intraperitoneal injections of the proteotoxin seem to be more effective than either method by itself, although intraperitoneal treatment of rabbits results in a powerful resistance to plague bacteria administered by that route. The immunity, in so far as it has been possible to determine it in these experiments, is definitely marked for at least one month after treatment. Injections given at intervals of two to three weeks give rise to a definite resistance to inoculation with living, virulent plague. *B. pestis* appears to be the matrix for a specific poisonous substance analogous to proteotoxin, if not identical with it, and capable of inducing in the animal body a specific resistance to the organism which is used in the manufacture of the toxic element. Eberson's observations support the hypothesis that one of the most potent factors in the protective mechanism is that of leukocytosis.

### Archives des Maladies du Cœur, etc., Paris

December, 1917, **10**, No. 12

28 *Functional Capacity of Right Heart. L. Calandre.—p. 561.
29 *Cardiovascular Disturbances in Typhus. D. Danielopolu.—p. 571.

28. **Sign of the Functional Capacity of the Right Heart.**—Calandre remarks that most of the tests applied to determine the functional capacity of the heart are addressed to the left side of the heart. By the time that the heart is dilated and there is cyanosis, the right heart is much damaged. One of the earliest evidences of insufficiency of the myocardium is the relaxing of that state of semicontraction which every sound muscle presents even in repose. Calandre has noticed that this early relaxing modifies the venous pulse in a certain way, as he shows by some typical tracings. In normal conditions the venous pulse shows three waves, the *a*, *c* and *v* waves. With a slow heart beat, during diastole, in addition to the three normal waves, the *a*, *c* and *v* waves, a fourth wave, Gibson's *h* wave, the *s* wave of different authors appears. This *s* wave appears between the last *v* wave and the commencement of the next revolution, that is, during the resting phase of the heart. When the heart is clinically sound this *s* wave is not modified by the respiration. With a myocardium that has lost some of its tonus this *s* wave does not appear when inspiration coincides with the resting phase of the heart, during which the *s* wave otherwise occurs.

29. **Cardiovascular Disturbances in Typhus.**—Danielopolu found that the myocardium and the suprarenals suffered more than any other organs in his experience with 500 cases of typhus in military and civilian circles in Roumania in 1917. Various forms of arrhythmia were common, and the arterial pressure was often abnormally low. He found most effectual treatment with strophanthin by the vein. Digitalis was much less reliable, and no benefit followed the use of camphor. Strophanthin has an undoubted cumulative action. He gives it in doses of two or three tenths of a milligram, repeated two or three times a day. In these small doses it has no diuretic action, and has to be supplemented with theobromin. He has given thousands of these injections with no mishap. He begins them at the first symptoms of myocardium insufficiency, and keeps them up until the normal rhythm is restored, lengthening the intervals. He used the drug made from the *Strophanthus gratus*. The low blood pressure was combated with epinephrin in comparatively large doses. Associated with strychnin, it gave good results in the intense and prolonged asthenia of toxic forms of the disease. The effect of the epinephrin was fleeting.

### Archives de Médecine et de Pharmacie Militaires, Paris

May, 1917, **67**, No. 5

30 *Heliotherapy for War Wounds. A. Aimes.—613.
31 The Radiologic Services in the Army. A. Charlier.—p. 638.
32 *The Negatoscope. L. Bois.—p. 652.
33 Suture under Bacterial Control. G. Picot and R. Michel.—p. 657.
34 Conference of the Chiefs of the Dermato-Venereologic Centers. O. Pasteau.—p. 676.

30. **Heliotherapy for War Wounds.**—Aimes remarks that direct sunlight as an adjuvant in treating war wounds is seldom correctly utilized. Experience has confirmed beyond question the value of heliotherapy supplementary to operations, the relief of local pain and the general soothing influence, and the subsequent normal aspect and functioning of the muscles. It has materially hastened the healing of burns in his experience, but for this the rays must have direct access to the tissues. The exposures for heliotherapy should be direct and total, without interposition of gauze, glass, petrolatum or any fat salve. He insists that the whole body must be exposed in all forms of surgical tuberculosis. With nontuberculous affections, extensive regional exposures may suffice. The head should always be carefully protected with

a broad brimmed hat, an umbrella or hood over the head of the bed or litter. The body should be absolutely naked; if this is not possible, the region should be largely exposed, especially the glands in the region as they are actual reservoirs of bacilli. He begins very gradually, the first day exposing the feet alone, for five minutes at three sittings with at least an hour's interval. By the fifth day he is giving three exposures, the feet thirty minutes, the legs twenty, the thighs fifteen, the abdomen ten and the forearm five minutes. The thorax also is exposed for five minutes the seventh day, protecting the heart region. By the twelfth day three total exposures of an hour with only half an hour for the trunk and neck. After the third month the whole body can be exposed for several hours. With tuberculous bone lesions, immobilization is indispensable. Bivalve plaster casts are preferable and all casts should be carefully supervised. As the sun's rays are bactericidal, antiseptic dressings are seldom needed. Dry dressings or artificial serum are excellent. Wire netting to protect the wound while allowing its exposure to sun and air is often useful. Except in excessively smoky cities, heliotherapy can be applied anywhere, and in the aftercare of the wounded may render immense services.

32. **The Negatoscope.**—The apparatus here illustrated is arranged to show radiographic negatives at a glance. It is especially useful during an operation, the surgeon thus having before his eyes the radiographic findings.

### Bulletin de l'Académie de Médecine, Paris

Dec. 29, 1917, **78**, No. 50

35 *The Bolting of Wheat Flour. E. Maurel.—p. 799.
36 Paratyphoid B Bacilli in Shellfish. G. Daumézon.—p. 806.
37 *Film Dressings for Burns. F. Fremiet and Pfulb.—p. 809.
38 *Gas Treatment of Scabies, etc., in Animals. T. A. Clayton.—p. 811.

35. **White and Whole Wheat Bread.**—Maurel presents testimony to show that whole wheat bread is not digested and assimilated as well as that made from the intermediate grade of wheat flour, bolted to 75 or 85 per cent. The whole wheat bread is useful to combat constipation. Flour bolted less than 70 per cent. is useful for persons with overexcitable digestive tract as it tends to constipate. Aside from these groups, and hence including the majority, the persons with normal digestion, bread made from flour bolted to 75 or 85 per cent. is the best utilized by the organism.

37. **Healing Under a Film Dressing.**—Fremiet and Pfulb state that in case of burns under a film dressing there is a continuous passage outward of leukocytes, traversing the granular tissue, while the film dressing forms a protecting barrier. The consequence is that the infectious processes are limited to the superficial layers and healing proceeds aseptically by the simple play of the normal defenses of the organism without the aid of antiseptics.

38. **Clayton's Gas Applied in Treatment of Scabies and Other Skin Diseases and Vermin in Man and Animals.**—See Paris Letter, p. 476.

### Journal de Médecine de Bordeaux

December, 1917, **88**, No. 14

39 Criminal Abortion and Professional Secrecy. H. Berthélemy.—p. 291; Fieux.—p. 295.
40 *Subacute Melancholia in Soldiers. (Le cafard.) J. Caussimon.—p. 298.
41 *Sodium Sulphate. P. Carles.—p. 300.

40. **Subacute Melancholia.**—The soldiers call these attacks of a combination of grouch, worry and depression, the *cafard*. It is not neurasthenia nor psychasthenia; there is no neuralgia or rheumatism or heart disturbance, but vasomotor phenomena are common. This suggests that disturbance in the circulation in the brain or medulla from some vasomotor spasm may be responsible for this recurring form of the "blues."

41. **Test for Arsenic in Sodium Sulphate.**—Carles warns that when sodium sulphate forms a turbid solution with distilled water there is probably arsenic left in it. This can be revealed by adding 5 gm. of sulphuric acid and an equal amount of zinc to 100 gm. of distilled water. The vessel is then capped with a white filter paper cap. This piece of paper, about 4 or 5 inches in diameter, is moistened with a 1 per cent. solution of mercuric chlorid and dried before it is used. The edges of the paper are turned down over the neck of the bottle and it is held firm with a tumbler or salve box turned upside down or a piece of glass. If the paper is still white by the end of forty or fifty minutes, the reagents are certainly pure. Then about 25 gm. of the sodium sulphate is placed in the bottle and the whole agitated as it dissolves. If there is arsenic present, the paper will turn yellow and then brown, the depth of the tint proportional to the arsenic content. The discoloration is caused by the arseniated hydrogen formed by contact with the nascent hydrogen. Carles is confident that this test will be found useful for detecting minute amounts of the poison in various drugs. It reveals the arsenic even with as small a content as one hundredth of a milligram per cent. He found this test particularly useful in detecting arsenic in cream of tartar.

### Lyon Chirurgical

September-October, 1917, **14**, No. 5

42 *Intracranial Foreign Bodies. C. Villandre.—p. 793.
43 *A Year After Trephining. J. Murard.—p. 810.
44 *Hernia of the Brain. G. Aigrot.—p. 814.
45 *Fracture of the Jaw. P. Japiot.—p. 823.
46 *Paul's Tube for Colon Operations. C. G. Cumston.—p. 849.
47 *Secondary Resection of the Elbow. G. Leclerc.—p. 853.
48 *Bone Resection for Muscular Retraction. Thévenet.—p. 865.
49 *Ankylosis of the Elbow. Thévenet.—p. 871.
50 *Osteochondritis after Pleurotomy. Thévenet.—p. 877.
51 Postseric Tetanus. Jullen.—p. 879.
52 *Experimental and Clinical Grafting Operations. R. Ingebrigtsen.—p. 884; M. Le Jemtel.—p. 895; E. Greggio.—p. 898; Bonnefon.—p. 903; R. Leriche and A. Policard.—p. 916.

42. **Extraction of Metal Foreign Bodies in the Skull.**—Villandre relates experiences which show that even when a foreign body seems to be causing no disturbance, radioscopy may reveal an inflammatory reaction in the depths, an abscess developing slowly and silently. In all recent wounds he advocates removal of the foreign bodies as the routine procedure, and gives illustrations of the arrangement with the radioscopic screen which permits this with the greatest safety and ease. This is the only way to protect against serious damage later, as the serious features of the wound are not so much the trauma and the mechanical injury as the infectious germs carried with the foreign body inside the skull. We can accept the rule that every scrap of metal entering the brain may bring with it germs which may set up an early meningo-encephalitis or, after a phase of more or less prolonged tolerance, there may be an abscess in the brain. Its torpid evolution will certainly prove fatal in time unless arrested by an operation. He has had twenty-nine cases of these supposed "tolerated" projectiles in the brain. No operation was attempted in seven cases, but all the others except eleven required finally operative relief for fistula, abscess, or epilepsy. In the group of eleven in which an operation was performed on general principles, without signs of mischief, in three a deep abscess was found.

43. **Ultimate Outcome of Wounds of the Skull.**—Murard reports on forty patients trephined over a year ago for war wounds of the skull. Of the twenty-one men living after an interval of from twelve to sixteen months, four have resumed active duty and three light duty; ten still complain of headache and throbbing in the skull defect. This latter group might be improved by a cartilage graft to close the gap in the skull. One of the men still has a frontal fistula. Of the four who resumed active duty, two have been fatally wounded since and the third has been wounded anew. The military regulations now order that all men trephined for war wounds of the skull are to be discharged from the service. Pure sensory disturbances disappeared early and aphasia rapidly subsided in one case. Jacksonian epilepsy also subsided promptly, but motor disturbances from deficiency, paresis and paralysis, yielded very slowly and some are not entirely gone even yet. These disturbances seem to disappear from the root of the member toward the periphery, like a garment that is being pulled off. The muscles of the limbs take the longest to recuperate. Of the twenty regarded as cured, all have resumed active life.

44. **Hernia of the Brain.**—Aigrot is convinced that hernia of the brain after a recent war wound is always the work of an infectious process which induces meningitis or suppuration and the brain tissue is forced up. The aim in treatment should be to evacuate the cyst or abscess in the depths; this is all that is necessary. The brain will then subside spontaneously into place without the necessity for lumbar puncture or compression of the hernia tissue. He gives the details of ten typical cases out of forty in which the hernia followed a few days after the war wound had been supposedly cleared out within four or five hours of the injury.

45. **Radiography of Fractured Lower Jaw.**—Japiot gives the details of sixteen cases with several illustrations, discussing the interpretation of the roentgen findings. With a war wound of the jaw the teeth may be shattered and small fragments driven in various directions. They can be differentiated from metal fragments by the absence of vibration when the electrovibrator is applied to them. Metal scraps can be felt vibrating under the finger if they are magnetic. In some of the cases illusrated the line of fracture passed through teeth still standing in place. Other typical injuries are described and the indispensable importance of roentgenoscopy is emphasized. In old cases it may reveal the causes of persisting infection and fistulas or of nonunion. He has examined nearly 1,000 cases of fracture of the lower jaw, and describes the methods found most reliable for roentgenographic examination.

46. **Paul's Tube for Operations on the Colon.**—Cumston extols the advantages of Paul's technic and the use of his glass tube in colostomy and colectomy and for all operations on the bowel for ileus with diffuse peritonitis.

47. **Secondary Resection for Suppurating War Wounds of Joints.**—Leclerc's eighteen cases of operation on the elbow for septic arthritis following a war wound of the joint gave satisfactory results in fifteen cases; he was unable to save two of the men who succumbed to septicemia, and in a third case the arm had to be amputated. In eleven of the other cases the joint is stiff now, a year later, but in a good position; two have a flail joint left; one recovered almost complete use of the elbow and one actually complete restoration of function. The septic phenomena were arrested within ten days at most. In some of the cases arthrotomy had already been done without getting rid of the infection.

48. **Resection of Bone for Muscular Retraction.**—Thévenet describes two cases of cicatricial retraction of the muscles of the forearm or of the thumb in which he restored the use of the hand by resecting the whole wrist in the first and resecting the head of the first metacarpal bone in the second case. He gives the reasons for his selection of these operations on the skeleton, the outcome confirming the correctness of his premises.

49. **Ankylosis of the Elbow.**—Thévenet treated two men with complete bony ankylosis by secondary resection of the joint as he describes in detail. The functional results were excellent; nearly all the active movements of the joint were regained. In two other cases the ankylosis was of the fibrous type and he mobilized the joint under general anesthesia. Although it was done with great gentleness, infection flared up anew in each case. One of the men was then treated by resection, with fairly good functional results.

50. **Osteochondritis Following Pleurotomy.**—Thévenet reports a case of very serious and extensive serpiginous osteochondritis of the ribs consecutive to pleurotomy for purulent pleurisy at which one rib was resected. In the course of the two following years the man had to have nine operations performed on the ribs and costal cartilages but there has been no sign of further trouble since the last operation in May, 1917. The pleurisy was on the right side but the osteochondritis gradually involved both sides.

52. **Autoplastic Nerve Grafting.**—Ingebrigtsen operated on the ulnar nerve to release it from cicatricial pressure causing intense pain, fourteen months after a war wound of the arm. This relieved the pain for two months, when it returned. A second liberation of the nerve gave only transient relief, the pains then returning, with a tendency to paresis. A stretch of 4 cm. long of the nerve was then resected and the gap bridged with a stretch 8 cm. long taken from the internal superficial brachial nerve where it emerged from the axilla. This was cut in two; thus doubled, the nerve graft was sutured to bridge the gap in the ulnar nerve. It was sutured with silk greased with petrolatum, but the whole length of the graft lay in fibrous tissue, the sequels of the preceding injury and operations. The conditions were not favorable for recuperation, and the patient returned five months later with pains and paralysis, compelling the resection of the graft. The microscopic findings in the graft are reproduced. The case confirms that white petrolatum around the suture seems to prevent the development of adhesions. The old neuritis and the other conditions interfered with the success in this case. In his forty operations on peripheral nerves, a graft was found necessary only in four cases.

52. **Graft of Dog Sciatic Nerve.**—Le Jemtel relates that a young housemaid cut her wrist, severing the arteries and nerves as well as the tendons. After long suppuration the wound healed, but trophic disturbances developed like those of mal perforans. Gangrene seemed imminent but was warded off by bridging the gap in both the median and ulnar nerves with a strip, 12 cm. long, taken from the sciatic nerve of a dog, and cut across, each gap being thus bridged with a section 6 cm. long. During the suturing the field of operation was kept constantly irrigated with warm saline. No attempt was made to suture the retracted tendons. Within a few days the trophic disturbances subsided and approximately normal conditions were restored, as also in the sensory sphere, but the motor disturbance was not improved. A year later the hand was of nearly normal aspect but retracted in a claw shape. This permitted objects to be lifted, pushed, carried and even grasped, and a weight of 11 pounds could be lifted.

52. **Grafted Aponeurosis.**—Greggio presents a second communication on his successful grafts of aponeurosis tissue in dogs. When the animals were killed, from one to over two years afterward, the grafts were found fully vitalized and vascularized, with no signs of absorption or degeneracy.

52. **Grafts of the Cornea.**—Bonnefon declares that microscopic control of the fate of grafts is very discouraging as it shows that the graft is always substituted, regenerated. It loses its physiologic personality, all except the epithelial coat. This at least has been his experience with grafts of the cornea in animals. His six years of experimental work in this line have demonstrated that experimental grafts are successful because they are regenerated from the surrounding transparent cornea. Clinical grafts are not made on the sound cornea but on degenerated, cicatricial tissue and hence active regeneration cannot be depended on. All transplantation and grafting work must be based on the elementary biologic laws which govern survival and regeneration. These old biologic laws defy all the progress in technic.

52. **Fate of Cartilage Grafts.**—Leriche and Policard examined under the microscope scraps of cartilage which had been implanted to close a gap in the skull thirty-six days and nearly a year before. They found that the cartilage proper was substituted by connective tissue, only the connective tissue part of the graft retaining its vitality and personality. Their findings emphasize anew the importance of always retaining on the graft its peripheral coat, the periosteum or perichondrium.

### Paris Médical

Dec. 22, 1917, 7, No. 51

53 *Hysteria as an Element in Contracture of the Hands. (Mains figées.) J. Boisseau and M. D'Oelsnitz.—p. 501.
54 *Swollen Calf after War Wound. R. Grégoire and Marsan.—p. 506.
55 *Spinal Anesthesia. H. Meuriot and O. Platon.—p. 508.
56 *Classification of Heart Disease. A. Leclercq.—p. 511.

53. **Contracture of the Hand Cured by Suggestion.**—Boisseau and D'Oelsnitz refer to cases of contracture or paralysis in soldiers with or without organic lesions. They have had 108 cases of the kind in which the contracture had lasted from one to eighteen months in 63 and from eighteen to thirty-six months in 45. The contracture was of the "accoucheur's hand" or the "priest blessing" type in many, and was usually

of a type that can be reproduced at will. These and other features of the cases convinced them that the motor element in the affection was of hysteric or—as they prefer to call it—of pithiatic origin and hence susceptible of being cured by psychotherapy. They prepared the men for the treatment by keeping them in a circle of already cured cases, thus impressing on them the possibility of a cure. Then the application of systematic psychotherapy resulted in a sudden and complete cure of the motor element in 71 cases; in 17 cases the cure was rapid and complete, while it took some time for the complete cure in 14 cases. The psychotherapy failed completely in only 6 cases, and in all these there was no concomitant organic lesion. Of course the long disuse of the muscles took longer before normal conditions were restored but the abrupt overcoming of the long contracture confirmed the pithiatic nature of the contracture or paralysis.

54. **Treatment of Swollen Calf after War Wounds.**—Grégoire describes a technic for releasing the muscles, especially the soleus, when the calf becomes hard and painful after a war wound of the leg. These "gros mollets," he says, have been the terror of surgeons during the war, but they are easily warded off by detaching the soleus from its points of attachment to the tibia, incising the muscle fibers close to the bone. This provides ample drainage and opens up the focus of fracture or gas gangrene.

55. **Spinal Anesthesia.**—Meuriot and Platon expatiate on the advantages of the spinal technic in operating on the legs and especially on the pelvis when the patient has to lie face downward. The war has led to the adoption of this technic more and more; Pauchet now has a record of over 2,000 operations done with spinal anesthesia, and they prefer the latter for all operations below the tenth pair of dorsal nerves. There is no vomiting with it, as they apply it, and no period of agitation as the patient rouses. The latter feature is particularly advantageous when a cast has to be applied and we have to wait for the plaster to set. Of course the anesthetic is a poison, and those whose liver and kidneys show that they are unable to counteract the toxic effect of the anesthetic should be excluded from spinal anesthesia. The wounded in war, however, are generally young and in good health, and hence evidence of toxic action from the anesthetic is very rare. They encountered it only in three of their 240 cases, and the manifestations were slight and transient. Two in this group of three were officers over 50, and the other showed signs of insufficiency on the part of the liver. In peace times, little attention was paid to insufficiency of the liver and kidneys as contraindicating spinal anesthesia and this explains the dissatisfaction with it. In operations on women soon after and during pregnancy and in persons over 50 the liver is apt to be below par. Even with the healthy young men of the army there are liable to be symptoms showing secondary excessive pressure (vertigo and headache) or indicating slight toxic action on the bulb (cold sweat, vomiting, syncope). But it is possible to ward off all this by care to withdraw enough of the cerebrospinal fluid to reduce the pressure. This may be estimated without an instrument of precision, but with the manometer it can be accurately determined, and the spinal anesthesia can proceed without fear of hypertension. They always make the injection with the patient seated, and they wait for three or four minutes before they let him recline, thus giving the anesthetic time to settle on the lower roots, and when he reclines they keep the head and shoulders raised on pillows to prevent diffusion of the drug to the brain. They always use the same solution, 0.07 gm. stovain in 2 c.c. of artificial serum, and draw 1 or 2 c.c. of the spinal fluid into the syringe and mix it well until the stovain acts on the albumin in the spinal fluid, as showed by slight turbidity.

56. **Classification of Heart Disease.**—Leclercq points out the simplification of indications in heart disease if we class the cases as those with cardiosclerosis, with cardio-arteritis, or with cardio-atheroma. Sclerosis of the heart and aorta indicates a grave outlook, with complications from hypertension and impermeability of the kidney. Treatment aims to aid in the elimination of toxins. In the cardio-arteritis group, the prognosis depends on the infectious cause responsible for the inflammation, mostly rheumatism or syphilis, and treatment should be directed to this cause and to the ultimate asystoly. In the atheroma cases, the prognosis depends on the slow poisoning of the system from lead, tobacco or alcohol, or on senile changes. Treatment here should be addressed to the poisoning or should be restricted to simplifying the diet and mode of life to conform to the reduced functional capacity of the heart and kidneys. This classification according to the physiopathology corresponds much better to clinical experience and desiderata than the classification of the textbooks, as it not only identifies etiologically, anatomically and clinically each case encountered, but furthermore indicates the proper treatment and lifts the curtain before the future.

### Presse Médicale, Paris

Dec. 17, 1917, **25**, No. 70

57 *Exposure of Large Vessels in the Nates. J. Fiolle and J. Delmas.—p. 709.
58 *Endocarditis with Slow Course. R. Debré.—p. 710.
59 *Technic for the Wassermann Test. A. D. Ronchese.—p. 712.
60 *Early Mechanotherapy for the Wounded. J. Amieux.—p. 716.

Dec. 20, 1917, **25**, No. 71

61 *The Teratogenous Influence of Attempts at Abortion. Mme. N. Wilbouchewitch.—p. 721.
62 *Cartilage Grafts for Skull Defects. G. Rouhier.—p. 722.

57. **Exposure of the Trunk Vessels in the Buttocks.**—Fiolle and Delmas comment on the difficulty of access to the gluteal, sciatic and internal pudic arteries owing to the size of the gluteus maximus. By a technic described with illustrations they show how it is possible to push this muscle to one side without cutting it. The incision in the skin runs from the center of the outer aspect of the greater trochanter, three fingerbreadths below its upper edge, straight up to this edge and 2 cm. above. Then it curves gently upward and inward, toward the posterior superior iliac spine, stopping 2 cm. short of it. The aponeurosis is then slit lengthwise along the outer margin of the greater trochanter, and the gluteus maximus is drawn aside and inward with a broad retractor. This leaves all the important vessels and nerves amply exposed to view.

58. **Slow Endocarditis.**—Debré discusses the differential diagnosis, stressing the insidious and progressive onset: the patient tires easily, grows pale and weak and has pains in the joints and periods of fever. Later there are eruptions or purpura, or there may be what seems to be a false felon on a finger, and the spleen becomes enlarged with phases of exacerbation and pain, and streptococci may be found in the blood. Periods of aggravation and remission of the symptoms alternate during months and the end comes suddenly from embolism. Sodium salicylate has no effect. Malignant endocarditis affects mostly children, while the slow form attacks adults. No benefit from any treatment to date has been recorded, but there is a possibility that specific serotherapy may yet offer better chances for success.

59. **Modified Technic for the Wassermann Test.**—Ronchese says that the technic he uses combines all the advantages of the nonheated serum with the precision of the heated serum technic. He uses an antihuman hemolytic system, with the proper dose of antihuman sensitizer calculated for the special complement. Tables giving comparative findings with other technics are appended to sustain his claims.

60. **Motor for Exercising the Legs in Bed.**—Amieux illustrates a simple motor of one-sixth horse power that serves for gentle graduated exercise of the legs before the wounded man is able to get up from bed.

61. **Congenital Deformity Traceable to Efforts for Abortion.**—Five cases are described in which healthy parents with one or more healthy children have had a child born with deformities of different kinds, or idiot or epileptic, and the mother confessed that she "did everything to arrest the pregnancy." The author asserts that the product of some toxic or traumatic procedure to induce abortion may be the first of a series transmitting the defects to the descendants. This chapter of pathologic histology of the embryo has been studied on animals but not in the human species to date.

62. **Cartilage Grafts for Skull Defects.**—Rouhier declares that the results have been constantly favorable to date in the thirty-four cases in which he has closed a gap in the skull with a graft taken from the costal cartilage, utilizing the broad sheet formed by the blending of the cartilages from the sixth rib downward. The graft is slightly concave on the under side, and he cuts out a wedge in the top center to insure a hinge-like adaptation of the graft to the curve of the skull. The article is illustrated. Local anesthesia is necessary. The graft heals in place in three weeks and the skull feels and looks solid.

### Progrès Médical, Paris

Dec. 15, 1917, **32**, No. 50

63 *The Temperature, Pulse and Respiration Curve in the Gassed. P. Voivenel and P. Martin.—p. 433.
64 *The Chassis Dressing. A. Chalier and F. Benoist.—p. 436.

Dec. 22, 1917, **32**, No. 51

65 The Mental and Nervous Phenomena that Follow Shell and Other Shocks in War. H. Damaye.—p. 441.
66 Surgical Notes. A. Aimes.—p. 444.

Dec. 29, 1917, **32**, No. 52

67 *The Eye after Vaccination against Typhoid. E. Ginestous.—p. 449.
68 Suppurating Mediastinitis: Posterior Thoracotomy. J. Guyot and Cassard.—p. 450.

63. **Asphyxia from War Gases.**—Voivenel and Martin report extensive experience with three types of gases, and comment on the different types of reaction observed to their toxic effects at different times. The composition of the gas may differ, but the condition of the men, whether intensely exhausted or fresh at the time, has some effect in modifying the clinical picture. The triple curve of the temperature, the pulse and the respiration gave an almost identical chart in all the cases that terminated fatally. In the group of the more serious cases the charts were almost identical for all, while the charts in the mild cases had similar characteristic features. The treatment found most effectual was with subcutaneous injection of 0.05 gm. sodium cacodylate, or 0.05 gm. spartein sulphate or 0.001 gm. strychnin sulphate. The injections were kept up daily for a week. The benefit was prompt and pronounced, and kept up after treatment was suspended. The experiences related confirm the extraordinary susceptibility of the gassed to fatigue and chilling. Even changing from one room to another sent the temperature up. When the triple curve of temperature, pulse and respiration constantly rose, the men all died the first or second day.

64. **The Chassis Dressing.**—Chalier and Benoist call attention anew to their method of dressing wounds which offers a number of advantages. Two years of experience with it have convinced them more and more of its superiority. Four rolls of cotton are wrapped in gauze and laid around the wound without touching it. On this square elastic frame is placed a sheet of glass, flat or convex, and the whole is fastened in place with strips of gauze or adhesive plaster. Nothing touches the wounded tissues, while they are constantly open to the eye and the course of the lesion can thus be inspected from day to day, and the dressing changed without touching the wound proper.

67. **Eye Disturbances after Vaccination against Typhoid.**—Ginestous reports two cases in which vision declined after antityphoid vaccination and the men incriminated the vaccination. Further investigation, however, revealed preexisting albuminuric retinitis in one case and in the other toxic amblyopia from abuse of tobacco to which the man was not accustomed. A third case realized the possibility mentioned recently by several writers that the temperature reaction to the vaccination might induce a febrile herpes, and that this herpes might settle on the cornea. This was what occurred in this case; two days after the fourth injection double keratoconjunctivitis developed. In less than a month there were miliary abscesses in the right cornea and a large ulceration in the left cornea with perforation. The lesions healed leaving perfect vision in the right eye, but in the left there is central leukoma and vision is only 1 : 50. These herpetic complications are rare, but their connection with the antityphoid vaccination can be accepted, he says.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Dec. 13, 1917, **38**, No. 99

69 Preventive Vaccination. F. Pancrazio.—p. 1306.

Dec. 16, 1917, **38**, No. 100

70 *Projectiles in the Pleural Cavity. G. Ceresole.—p. 1315.
71 Trachoma in Italy. T. di Giuseppe.—p. 1316.
72 Medical Ethics during the War. E. Villa.—p. 1327.

70. **Projectiles in the Pleural Cavity.**—Ceresole comments on the difference in the symptoms with different shaped projectiles. When the missile has a rough or jagged surface it is liable to set up an aseptic inflammation with final encapsulation of the foreign body. Nothing of this kind occurs with a smooth aseptic foreign body in the pleural cavity.

### Policlinico, Rome

Dec. 16, 1917, **24**, No. 51

73 Diseases with Convulsions in the Base Hospitals. F. Bonola.—p. 1481.
74 Keeping Count of the Sponges. (Apparecchio conta-pannilini.) L. de Gaetano.—p. 1487.
75 Prophylaxis of Malaria. M. Andreotti.—p. 1492.

### Rivista de Clinica Pediatrica, Florence

December, 1917, **15**, No. 12

76 *Otitis Complicating Pleural Empyema in Children. L. Notari.—p. 617.

76. **Otitis with Pleural Empyema in Children.**—Notari has encountered seven cases of this kind, and has compiled statistics showing the relative frequency of otitis with infectious diseases in children. Smaniotto found evidences of suppurative otitis in 80 per cent. of the infant cadavers examined; Hassolauer, in 62 per cent. of the infants with infectious diseases; Teichmann in 50 per cent. of 268 children with disease of the respiratory apparatus; Rasch in 99 per cent. of children with pneumonia. Other figures confirm the great prevalence in the younger children. Notari found only five cases on record in which the otitis followed empyema. In these and in his own cases the otitis was always on the same side as the empyema. The germs probably are forced up into the ear by the mechanical impulse of coughing, sneezing or blowing the nose. It is possible that a badly managed nose douche might force air and germs with it up into the ear. The child lies generally on the diseased side even after the operation for the empyema, and this also favors the ascent of germs. His patients were three infants of from 12 to 25 months and four children from 3 to 7. All the children recovered after costotomy, and the discharge from the ear soon subsided in all. The staphylococcus was found in one case; the pneumococcus in five others.

### Brazil-Medico, Rio de Janeiro

Nov. 27, 1917, **31**, No. 47

77 Venous Hypertrophic Cirrhosis of the Liver. C. Fonte.—p. 401.

Dec. 1, 1917, **31**, No. 48

78 *Rational Treatment of Yellow Fever. H. de B. Aragão.—p. 409.
79 Giant Big Toe. (Hallomegalia escaphoide.) A. F. de Magalhães.—p. 411.

78. **Yellow Fever and Epidemic Jaundice.**—Aragão expatiates on the many points of analogy between yellow fever and epidemic jaundice, and the frequent coexistence of the two diseases when the former was prevailing. The nervous system seems depressed in both and the heart weak; in yellow fever, death occurs commonly between the sixth and tenth day, in epidemic jaundice between the eighth and the sixteenth, although the mortality with the latter is small. In yellow fever the germ is not found in the blood after the third day, and consequently drugs to act effectually on it in the blood must be given within the first three days. The resemblance between yellow fever and infectious jaundice suggests that the treatment found effectual in the latter might cure yellow fever. Hence he advises salvarsan or its substitutes given in large doses during the first three days of yellow fever, never less than 50 or 60 cg. of salvarsan. By thus striking hard and promptly, the germs will be annihilated before the danger phase has been reached.

### Gaceta Medica de Caracas

Oct. 15, 1917, **24**, No. 19

80 Pituitary Extract in Obstetrics. Razetti.—p. 175.
81 *Forms of Leishmaniosis in Venezuela. G. Rincones.—p. 176.
82 Pyramidon by the Subcutaneous Route. A. Machado.—p. 177.
83 *Induced Pneumothorax. A. Larralde.—p. 179.
84 Sodium Cacodylate in Treatment of Amebic Dysentery. J. E. Montes.—p. 184. To be continued.

81. **Various Forms of Leishmaniosis in Venezuela.**—Rincones quotes Darling's statement that leishman granuloma seems to be restricted to those regions where there are laboratory facilities capable of detecting the leishman bodies. No case of ulcerating leishmaniosis has been reported to date in Venezuela, but it is possible that the leishman bodies may be responsible for certain cases of supposed rebellious malaria with enlargement of the spleen. In certain localities, Ortiz, for instance, a form of chronic ulcer is endemic, and it completely cripples a large proportion of the inhabitants. It is possible that intravenous injections of tartar emetic might ward off or cure these cutaneous lesions. He also suggests the possible leishman nature of another ulcerating lesion, generally on the face, started by the bite of the *pito,* a kind of beetle. Still another form of probable leishmaniosis encountered in Venezuela is similar to the espundea of Brazil; the lesions do not ulcerate.

83. **Induced Pneumothorax.**—Larralde reports that in eighteen of the sixty-eight cases in which he induced an artificial pneumothorax, the patients have been entirely free from symptoms of all kinds during the interval since, up to two and a half years in some. In another group of eighteen the improvement was marked and durable. In four cases no improvement was apparent; in thirteen it proved impossible to make the pneumothorax effectual, and in seven the conditions were found so grave that this method of treatment was abandoned. In eight cases nothwithstanding the improvement in certain areas the disease continued its course to a fatal termination. With no other measures would it have been possible to arrest thus the course of the disease in so many of these febrile progressing cases of acute tuberculosis with extensive infiltrations and cavities. His experience has convinced him more and more that, done cautiously the procedure is harmless while it is the most effectual measure at our disposal for treatment of pulmonary tuberculosis.

### Semana Medica, Buenos Aires

Oct. 11, 1917, **24**, No. 41

85 *Mountain Environment and the Brain. J. A. Lopez.—p. 407.
86 *The Charitable Institutions of Buenos Aires. E. R. Coni.—p. 412. Continuation.
87 Antiphagin Treatment of Tuberculosis. G. Escobar.—p. 424.

Oct. 18, 1917, **24**, No. 42

88 *Development of Schoolchildren. L. R. Cassinelli.—p. 437.
89 *Tuberculin Treatment of Tuberculosis. A. Cetrangolo.—p. 442.
90 Color Reactions of Fluorene with Different Aldehyds. L. Guglialmelli. and A. Delmon.—p. 456.
91 *Tramps. E. M. Martinez.—p. 458.

85. **Influence of Rarefied Air on the Intelligence.**—Lopez made a number of tests on a troop of cavalry during a series of encampments among the Andes mountains. The highest camp was 3,672 meters above the level of the sea. The maximal and minimal blood pressure is tabulated, with other findings. The psychic functions, the intelligent response to various tests, showed no change from the average elsewhere, so that from a military point of view rarefied air does not affect the efficiency of the troops.

86. **The Charitable and Welfare Work Institutions of Buenos Aires.**—In these instalments of his long work on *Buenos Aires caritativo y previsor,* Coni describes the extensive provisions for foundlings, orphans and other wards of the state.

88. **The Development of the Schoolchild.**—Cassinelli is medical inspector for the National Board of Education, and he here relates some of his impressions from data collected during many years of this service. He noted for instance that on an average the children grew taller during the summer while the weight remained stationary; in the winter they increased in weight while there was comparatively little change in height. He gives a table showing the average height and weight of girls and boys, with various other measurements, especially the diameter from shoulder to shoulder and the anterior-posterior diameter. The figures given are the average of 10,000 Argentine children between 6 and 14. The girls weigh the most, and up to 13 are taller. The chest diameters are also constantly larger in the girls, but the spirometer tests gave much higher figures for the boys at 12 and over. The vital capacity as shown by the spirometer, was 800 c.c. (Barnes spirometer) at 6 and 3,000 at 14 among the boys; in the girls, from 820 to 2,500. Muscular strength as shown by the dynamometer gave 5.5 up to 29.26 for the boys from 6 to 14; for the girls, 5.5 to 22.22 at 14. He gives further the findings with the Binet tests at different ages showing the normal standards for the age. He protests against the practice common in Argentina of building huge expensive structures for schools without due provision for playgrounds, etc., urging that the "example of the great *Republica del Norte* be followed where a school can be founded in twenty-four hours as is done in New York, Chicago, Philadelphia, etc."

89. **Tuberculin Treatment of Tuberculosis.**—Cetrangolo is the physician in charge of the national sanatorium for the tuberculous, and his experience confirms the assumption that the tubercle bacilli entering the air passages usually locate first at the base of the lung, near the bronchi, and not at the apex. The right base is generally the site of the lesion, on account of the readier access, and the bacilli pass thence to the environing glands and slumber there until something happens to reduce the resisting powers. Then they sally forth to overcome the organism. The tuberculin reaction merely indicates that the bacilli have found lodgment in the body. What we need to know is whether the bacilli are getting the upper hand or not. This we can ascertain by Viton's method of therapeutic administration of tuberculin, as described in The Journal, March 24, 1917, p. 946. He gives minute doses and calls this the vaccine diagnosis and therapy of tuberculosis. Cetrangolo is convinced that tuberculin to be truly effectual must be given in very small doses. His patients do not do so well when the larger doses are reached. With the minute doses the indications for tuberculin treatment are enlarged. He gives five temperature charts showing the regulating effect on the temperature of these small doses at three or four day intervals. The dose he uses is a 1 per cent. dilution of No. 1 of the Denys-Dessy series.

91. **The Tramp from the Psychiatric Standpoint.**—Martinez is physician to the prisons of Granada, Spain, and he describes the three main types of vagabonds, the psychopathic, the degenerate with anomalies of various kinds, and the causal type, the latter including those tramping from lack of employment or emigrants, and the voluntary tramps.

### Siglo Medico, Madrid

Nov. 24, 1917, **64**, No. 3337

92 The Alleged Sleep Center. B. G. Alvarez.—p. 886.
93 Differentiation of Pneumonia and Appendicitis in Children. C. S. de los Terreros.—p. 887.
94 Cholelithiasis. S. Larregla.—p. 893.
95 Differentiation of Syphilitic Lesions and Herpes in Genital Region. Sicilia.—p. 896.

Dec. 1, 1917, **64**, No. 3338

96 *Syphilitic Polyneuritis. E. M. Villapadierna.—p. 906.
97 Angina Pectoris. C. Calleja.—p. 910. Commenced in No. 3335, p. 849. See Abstract 92 on page 497.

96. **Syphilitic Polyneuritis.**—The pains, impotency and contracture in the legs had lasted for three years before the causal syphilis was recognized and improvement realized under treatment for syphilis.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 24, 1917, **2**, No. 21

98 *State of Nourishment of Amsterdam Schoolchildren. J. Lubsen. —p. 1865.
99 *General Reduction in Weight. G. P. Frets.—p. 1880.
100 Change in Action of Ptyalin as it Ages. F. de Bruyne.—p. 1884.
101 Rapid Recovery from Bullet Wound in Lung. G. J. Colder and H. H. van der Meer.—p. 1888.

98. **Height and Weight of Amsterdam Children during the War.**—Lubsen relates that in January, 1916, the weight and height of 3,680 schoolchildren at Amsterdam were recorded,

but as there was no previous record of the kind, no comparisons were possible except with children of other countries. In January, 1917, the height and weight of a larger group, 5,064 schoolchildren, were recorded and the averages compared with those of the previous year. The data are tabulated from various points of view. They show that there has been no appreciable change in the average height and weight during this period of high war prices and consequent danger of undernourishment. One fact brought out by these data is that the children of the well-to-do are taller and weigh more when they first enter school. After the age when they first enter school the children of the poor and of the well-to-do classes all grow proportionately about the same. The poorer children in question all get one or more warm meals daily. They were supplied at first by a charity organization but later it became a municipal institution. Lubsen emphasizes the importance of the fact here brought into the limelight, namely, that the period in which the evil effects of inadequate nourishment on the growth are most pernicious is the period of early childhood, below school age. This fact should be borne in mind in estimating the damage from the restrictions entailed by the world war. He cites a number of reports on similar investigations conducted in Germany in the last two years. They show an unmistakable influence from the change in the diet although at first it seemed to be merely the using up of the reserves of fat. All the writers insist, however, that the German children look well and lively. In their appearance there is nothing to suggest undernourishment, and Lubsen quotes Chittenden's statements in regard to the physiologic adaptation to a reduction in food during the period of growth.

99. **Prevalent Loss of Weight from Undernourishment.**—As a contribution to the subject of the influence on the public health of the prevailing scarcity and high prices of food, Frets gives the figures of the weight, month by month, of 103 inmates of an asylum for chronic diseases. Many of them were able to be up and about all day and do useful work. The figures show for 1915 an increase in weight of 77.5 kilograms for the whole group. In 1916 the whole group lost 117 kilograms. In the first nine months of 1917 there was a total loss for the group of 390 kilograms. This is a loss of about 3.9 kilograms per capita since the introduction of the bread card.

### Hospitalstidende, Copenhagen

Nov. 28, 1917, **60**, No. 48

102 *Precocious Puberty. K. H. Krabbe.—p. 1165.

102. **Precocious Puberty.**—Krabbe describes the case of an imbecile male child about a year old with virile development of the genitals, frequent erections and a tendency to tetany. By exclusion, the assumption of hyperplasia of the suprarenal cortex seems justified as the explanation of the anomalies in this child. Krabbe has found records of over 130 cases of precocious puberty on record. In those that came to necropsy a tumor was found in the ovaries in 4; in the testes in one; a tumor in the suprarenals in 4 boys and 6 girls; in the pineal body in 5 boys and 1 girl, and hydrocephalus in 1 case. In the total number, 48 were boys and 87 girls. Only 4 cases are known in Scandinavian literature, all but one in boys from 4 to 14. The one girl seemed to have a tumor in the pineal body, but no cause for the premature puberty in the boys could be discovered. Krabbe thinks that tumors in the pineal body and suprarenals probably cause the production of certain metabolic substances which have a stimulating action on the interstitial cells of the testicles and ovaries. But this occurs only in these pathologic conditions; the normal suprarenals and pineal body probably have no special function in this respect.

### Hygiea, Stockholm

Nov. 30. 1917, **79**, No. 22

103 *Albuminuria with Jaundice. A. Höjer.—p. 1201.
104 *Alternating Irrigation of the Ear. M. Alfelt.—p. 1207.

103. **Albuminuria with Jaundice.**—Höjer disputes the generally accepted opinion that the albuminuria with jaundice is the result of the passage of bile elements into the blood. He contends that the same noxious influence responsible for the jaundice has probably acted also on the kidneys, and the albuminuria is the result of this simultaneous damage of the kidneys.

104. **Alternating Hot and Cold Ear Douches.**—Alfelt gives the details of five cases to show the benefit liable from these contrast douches in certain ear affections, catarrh with adhesions, otosclerosis and nervous deafness with or without subjective symptoms or arteriosclerosis. The hearing was more or less improved in some of the cases but the tinnitus was not modified. He rinsed the ear out first with 100 c.c. of warm water at about 42 C. (107 F.) following this at once with 5 or 10 c.c. cold water drawn directly from the hydrant. This was kept up, alternating the warm and cold water, until about a liter of the warm water had been used. The series was concluded with the warm water. The ear was then carefully dried and a cotton pledget worn for an hour. The sitting was repeated daily for four or six weeks. Sometimes fewer sittings were required. In one case of chronic adhesive catarrh in a woman of 49 with nervous deafness the stimulating influence on the cochlea was so pronounced that in three weeks the hearing had much improved, bone conduction increased, and the range of tones heard was extended both up and down, while the Rinne test kept negative. In a woman of 43 with familial otosclerosis, the hearing was materially improved in the course of three weeks and bone conduction increased. The limit for the lower tones was improved and for high tones became nearly normal. The drum membranes are normal. In one man of 60 with nervous deafness and arteriosclerosis the hearing improved a little and bone conduction became normal. In all these cases the tinnitus persisted unmodified.

### Ugeskrift for Læger, Copenhagen

Dec. 6, 1917, **79**, No. 49

105 *Bladder Tumors. N. Falbing.—p. 1937.
106 *Obstetric Arm and Leg Holders. H. Wulff.—p. 1944.

Dec. 13, 1917, **79**, No. 50

107 *Treatment of Abortion. S. A. Gammeltoft.—p. 1977.

105. **Electrocoagulation of Bladder Tumors.**—Falbing's experience with two cases reported here in detail confirms the advantages of application of the high frequency current in cases of nonmalignant papillomas and other tumors of the bladder. One of his patients was a woman of 73. No anesthetic was required and the bladder has behaved and looked absolutely normal during the three years to date. "Bladder papillomas are so liable to become malignant that it is as if the bearer were carrying dynamite around with him. With the high frequency current the papilloma can be obliterated as effectually as by excision while the electric treatment is simple and harmless." He hails it as a most valuable acquisition.

106. **Leg Holder for Parturients.**—A strap passing behind the neck buckles to broad wristlets and thus the arms are held up on a level with the shoulder, although the hands can be freely moved around within this range. Another strap passing over one shoulder and under the other arm buckles to two long bags which fit over foot and leg, and hold the leg flexed at the knee and thigh. Although held firmly there is no appreciable constraint as arms and legs can be moved freely within a certain range as the woman lies with the buttocks at the edge of the table or bed.

107. **Treatment of Abortion.**—Gammeltoft tabulates the details of 337 abortion cases and the outcome under the various measures applied—all in the Bispebjærg public hospital. He admits that abortion can be managed more expectantly in an institution than in the home. The principle is accepted that the uterus must be cleared out with all incomplete abortions, and the abortion curet is the best means for this purpose. With abortion under way in the first months of pregnancy, active treatment is practicable and is indicated if the patient is febrile or bleeding. With abortion after the twelfth week, it is best to strive for a spontaneous course. If intervention is indispensable, he seeks to get the cervical canal dilated to the extreme possible to attain at this stage. With disease in the ovaries or tubes, expectancy carried to its farthest extreme should be the rule.

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## URINARY ANTISEPSIS

### A STUDY OF THE ANTISEPTIC PROPERTIES AND THE RENAL EXCRETION OF COMPOUNDS RELATED TO PHENOLSULPHONEPHTHALEIN: PRELIMINARY REPORT *

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The ideal internal urinary antiseptic must be a drug which is chemically stable, nontoxic, and nonirritating to the lower urinary tract; which is antiseptic in high dilution (in urine, as well as in water), and which is eliminated unchanged in high percentage by the kidney. There is no such drug known. A consideration of the properties possessed by phenolsulphonephthalein, however, shows that this compound comes very close to filling all these requirements. Phenolsulphonephthalein is chemically stable, nontoxic and nonirritating, and is eliminated by the kidney with incredible rapidity and completeness; but it has no antiseptic properties, excepting in water in its free acid form. (Clinically it is used as the monosodium salt.) This remarkable compound, synthesized in 1898 by Sohon,[1] at Remsen's[2] suggestion, investigated later in Abel's[3] laboratory, and introduced into clinical use by Rowntree and Geraghty[4] twelve years later, has become the basis of the most widely used and the most satisfactory of all the tests of renal function. This is due to the remarkable rapidity and completeness with which phenolsulphonephthalein is eliminated by the kidney, and to its nontoxicity, and to the ease with which it lends itself to colorimetric estimation. As evidence of nontoxicity, Rowntree and Geraghty have given 1 gram doses to dogs without evidence of renal injury. Its marvelous rapidity and completeness of elimination is realized when one considers that a 6 mg. dose, given intravenously, and therefore diluted about a million times by the blood stream, appears in the bladder in about two minutes; and, after one hour, from 60 to 70 per cent. has been excreted by the normal kidney. Furthermore, about 30 or 35 per cent. of this amount appears during the first fifteen minutes, and about 40 or 50 per cent. during the first half hour. In view of these remarkable properties, it was thought worth while to attempt a modification of the phenolsulphonephthalein molecule, with the hope that an antiseptic compound might be produced which still retained the properties of the original drug. As the problem gradually increased in scope, it was found advisable to investigate a large number of compounds distantly related to phenolsulphonephthalein, as well as those closely related. The total number of compounds experimented with at present is about 195, the antiseptic properties of which will be enumerated in subsequent publications. This is a preliminary report dealing only with compounds closely related to phenolsulphonephthalein.

These compounds were not easily obtained. The original few were supplied by Mr. H. A. B. Dunning of Hynson, Westcott and Dunning, and by Clark and Lubs of the Bureau of Animal Industry, Washington. Other compounds, made and donated through the courtesy of Dr. J. H. Sachs of the Graduate Department of Chemistry, Johns Hopkins University, and still others, obtained here and there from various sources, supplied sufficient material for the first few months of investigation, and gave very interesting results. During the past year, however, the work has been carried out, and is at present being continued, with the collaboration of Dr. E. C. White, chemist in the Brady Urological Institute. A more detailed report, including tables of antiseptic values and rates of excretion, and with discussion of the chemical phases, will shortly be published as a joint article.

Although the literature contains no record of any attempt to synthesize an internal urinary antiseptic, various workers (following the pioneer work of Ehrlich in chemotherapy) during recent years have attempted to correlate chemical structure and physiologic action, and thus produce compounds with a desired specific therapeutic action. It is not my purpose to discuss this literature. For an excellent summary of recent work done along the lines of chemotherapy, the reader is referred to publications of Lewis.[5] The problem which Lewis and his co-worker, Krauss,[6] are investigating is analogous to the problem on urinary antisepsis outlined above, in that they started with a dye (trypan red) which possesses the peculiar property of becoming localized in the caseous centers of tuberculous masses, and experimented with numerous modifications of this compound, with the hope that one might be produced that would inhibit the development of the tubercle bacillus, and still retain the localizing tendency of the original compound.

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* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital.

[1] Sohon, M. D.: An Investigation of Some Derivatives of Orthosulfobenzoic Anhydride, Am. Chem. Jour., 1898, **20**, 257.

[2] Remsen, I.: On a New Class of Compounds Analogous to the Phthaleins, Am. Chem. Jour., 1884, **6**, 180.

[3] Abel, J. J., and Rowntree, L. G.: On the Pharmacological Action of Some Phthaleins and their Derivatives, with Especial Reference to their Behavior as Purgatives, Jour. Pharmacol. and Exper. Therap., 1909, **1**, 231.

[4] Rowntree, L. G., and Geraghty, J. T.: An Experimental and Clinical Study of the Functional Activity of the Kidneys by Means of Phenolsulphonephthalein, Jour. Pharmacol. and Exper. Therap., 1909, **1**, 579.

[5] Lewis, P. A.: Observations Bearing on the Possibility of Developing an Experimental Chemotherapy of Tuberculosis, Bull. Johns Hopkins Hosp., 1917, **28**, 120; Chemotherapy in Tuberculosis, Am. Jour. Med. Sc., 1917, **153**, 625.

[6] Krauss, R. B.: The Preparation of Compounds of Trypan Red with Iodin and Other Substances, Jour. Am. Chem. Soc., 1914, **36**, 961.

Limited space does not permit a discussion of the so-called urinary antiseptics in present use, and of the great need of a really efficient drug for this purpose, which may be given either intravenously or by mouth and which will cause an inhibition of bacterial development in the urine, regardless of the reaction of the latter. For a complete summary of this phase of the subject, and a discussion of the relative values of the various urinary antiseptics in common use, the reader is referred to the paper published by Hinman[7] in 1915. This paper will be freely quoted. Of the urinary antiseptics in common use, hexamethylenamin is by far the best, but has very definite limitations, owing mainly to the fact that an acid medium is essential for the liberation of formaldehyd. Furthermore, "the necessity of concentration, and time for the accumulation of formaldehyd in antiseptic amounts, largely destroys the value of the drug for kidney antisepsis; for bladder antisepsis in cases with polyuria or frequent urination, except when retention in some form is present; in cases of urinary fistula, notably postoperative prostatics during the period of incontinence, and in cases with continual bladder drainage as in true incontinence or with retention catheter; and for urethral antisepsis no matter what the infection. The greatest usefulness of hexamethylenamin is in bladder prophylaxis in cases in which the above urinary conditions are not present. . . . Methylene blue, in a dilution of 1 : 150,000, will inhibit the growth of staphylococci," and would therefore seem of value in this type of infection; but there has been no experimental work showing that methylene blue does not undergo modification either in the blood stream or in the urine so as to lose its antiseptic value, which will be shown below to be the case with many other compounds. Hinman states that "the value as internal urinary antiseptics of other substances such as salol, oil of sandalwood, salicylic, boric and benzoic acids, is very limited," and concludes that there is no known drug with properties even approaching those of an ideal urinary antiseptic.

As stated before, an ideal internal urinary antiseptic must be chemically stable, nontoxic, antiseptic in urine (as well as in water), and must, like phenolsulphonephthalein, possess the property of high-percentage elimination. Possibly a compound not entirely nontoxic, but relatively so, might be suitable for the purpose. Provided the renal elimination of a given compound is sufficiently rapid and complete, and that this compound causes bacterial inhibition in urine in sufficiently high dilution, it is conceivable that small doses might serve to produce urinary antisepsis, even though the compound is moderately toxic. In view of the general toxic effects on the animal organism that an antiseptic compound may be expected to have, and the possibility of injury to the renal epithelium and of irritating effects on the lower urinary tract, one realizes the hopelessness of the problem if the synthesis of a completely harmless urinary antiseptic is the goal. The matter then resolves itself into a question of relative toxicity; that is, the attainment of a compound combining minimum toxicity with maximum efficiency, so that small but effective doses may be safely used.

## METHODS OF INJECTION

Each compound was investigated with two objects in view; first, to determine the rate of elimination by the kidney, and second, to determine the antiseptic properties. Rabbits were used for injection purposes because (1) they are easily available and cared for in large numbers; (2) the ear vein is easily injected, and (3) the urethra of the male rabbit is large and easily catheterized. The drugs were injected intravenously in 10 mg. amounts in 1 per cent. solution, and the rabbits catheterized after one hour. In the case of each drug a colorimetric estimation of percentage of excretion was made with the Hellige colorimeter, 10 mg. of the drug diluted in 1,000 c.c. of water being used as a standard. In order to make certain that the total excretion for one hour was quantitatively recovered, the bladders of the rabbits were irrigated after catheterization, and the irrigation added to the urine obtained through the catheter. The percentage of excretion of each compound was estimated by averaging the results of at least two injections on different rabbits. It would have been impossible to determine the rate of excretion of such a large number of compounds had it not been that nearly all of them were highly colored and hence readily detected in the urine. Colorless compounds were rejected, excepting a few in which the antiseptic tests were unusually promising.

## BACTERIOLOGIC TECHNIC

Antisepsis in urine is quite a different thing from antisepsis in water. As will be shown further on and in subsequent papers, there are numerous compounds which are germicidal in high dilution in water, but which lose this property entirely when diluted in urine, and which even permit the growth of organisms in urine when in relatively strong concentration. This astonishing fact has proved to be a great obstacle. It may be readily seen that the compound, the antiseptic power of which is due to its acid or basic properties, would become inert in urine on account of the buffer[8] value of the urinary salts. Other compounds, containing ionic silver, become inert in urine because the silver is precipitated by the chlorids. There remain, however, a large number of drugs whose loss of antiseptic strength in urine is due to some unknown interfering action, the nature of which is as yet undetermined. It must not be understood that this loss of antiseptic power in urine is noted after the compound has been passed through the animal body, but it occurs when urine is added to the aqueous solution of the compound in a test tube. For this reason it became necessary to carry on parallel germicidal tests both in urine and in water.

The colon bacillus was used throughout the experiments because it is the most frequent invader of the urinary tract, and because it is resistant to antiseptics, and is readily cultivated. Investigations with other organisms are to be carried on in the future. Each compound was studied with the view of determining (1) its germicidal properties (in water and in urine) and (2) its antiseptic or inhibitory properties in urine.

1. *Germicidal Test.*—In order to rule out a large number of undesirable compounds, it was necessary to establish an arbitrary standard of germicidal strength, and compare them all with phenol (carbolic acid). The arbitrary method chosen was the determination of the highest dilution of each compound which, in

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[7] Hinman, Frank: Urinary Antisepsis: A Clinical and Bacteriologic Study, The Journal A. M. A., Nov. 20, 1915, p. 1769.

[8] The term "buffer" action refers to the ability of mixtures of certain acid and alkaline salts in solution to maintain a practically constant hydrogen ion concentration, in spite of the addition of moderate amounts of acid or alkali. For detailed discussion, see publications of Henderson and Palmer, Clark and Lubs, and Shohl and Janney.

1 c.c. amount, will kill one loop (3 mm. internal diameter) of a twenty-four-hour broth culture of the colon bacillus, in one hour, at 37 C. Dilutions of the drug were made with sterile pipets in sterile test tubes, and all but 1 c.c. of each dilution was discarded. After the inoculation of each dilution with one loop of colon bacilli, and incubation for one hour, 0.1 c.c. of each dilution was transfered to melted agar, and plated. In transfering these 0.1 c.c. amounts, it was found convenient to use capillary pipets drawn out (from 3 mm. glass tubing) long enough to reach the bottom of the test tubes. By connecting the large end of one of these capillary tubes to a carefully calibrated small syringe (by means of a small rubber tip), it was found that 0.1 c.c. amounts could be drawn up with remarkable accuracy, irrespective of variations in the size of the capillary tubes. These tubes were used over and over again, large numbers being sterilized together by means of dry heat.

Parallel tests were run for each compound, sterile water being used for one series of dilutions and sterile urine for the other. It was found to be unnecessary to adopt any method of sterilizing the urine to be used for this purpose. Agar plates poured each day containing 0.1 c.c. of urine taken from a specimen voided in a sterile (second) flask by a normal individual were uniformly sterile. The factor of possible error due to modification of the urine through the process of sterilization was thus eliminated. For example, sterilization of urine by heat produces a marked change in the hydrogen ion concentration, the urine becoming much more alkaline.

The effect of the reaction of the urine in aiding or hindering the germicidal activity of a drug is an all-important factor. Henderson and Palmer[9] have shown that the hydrogen ion concentration of urine is normally subject to a considerable range of variation ($p_H$ 4.8 to $p_H$ 7.4), and that the average of this range is $p_H$ 6.0 on the hydrogen ion scale, corresponding to 0.000001 N acid.[10] The importance of the reaction of urine when used as a culture medium has been pointed out by Shohl and Janney, who find that the colon bacillus fails to grow in urine at certain definite acid ($p_H$ 4.8) and alkaline ($p_H$ 9.2) end-points. In order to eliminate possible error, due to strongly acid or alkaline urine, the hydrogen ion concentration of each specimen of urine to be used for antiseptic experiments was determined, and the specimen rejected if the reaction was not approximately that of average normal urine, that is, $p_H$ 6.0.

2. *Antiseptic Test.*—More important than the determination of the germicidal strength of these compounds was the determination of the highest dilution of each in urine that will cause an inhibition of bacterial development. For this, dilutions in urine were made in 10 c.c. amounts, sterile test tubes being used. Each tube was inoculated (as in the germicidal test) with one standard loop of a twenty-four-hour broth culture of the colon bacillus, immediately after which 0.1 c.c. of each inoculated dilution was plated, as proof that the inoculation had been made, and for the purpose of comparison with a second plate which was poured (0.1 c.c. again being transferred) after the inoculated dilutions had been incubated for twenty-four hours at 37 C. The contrasting of these two plates, poured at twenty-four hour intervals, showed whether or not growth had taken place during the incubation period. The first plate (poured immediately after inoculation) usually showed about 10,000 colonies, roughly estimated. A second (twenty-four hour) plate which was sterile or which contained very few colonies (less than 100) was considered proof of inhibition, while a plate showing countless numbers of colonies proved the absence of inhibition. In the vast majority of instances the contrast between Plates 1 and 2 was so marked that there could be no possible doubt. A daily control of inoculated drug-free urine invariably contained countless numbers of colonies in the second (twenty-four hour) plate, showing that normal urine acts as a favorable culture medium for the colon bacillus.

### PHENOLSULPHONEPHTHALEIN AND SALTS

The properties of phenolsulphonephthalein itself, and of some of its metallic salts (sodium, silver, copper, mercury and barium), as illustrated in the structural formula given in Figure 1, were first investigated. Phenolsulphonephthalein, in its free acid form, although almost insoluble, is nevertheless germicidal (against the colon bacillus, according to the arbitrary standard described above) in a dilution of 1 : 10,000; that is, it has about fifty times the strength of phenol. In urine, however, even in almost saturated solution, phenolsulphonephthalein permits the growth and development of the colon bacillus. A suggested explanation of this loss of power is that the watery solution kills by virtue of its acidity whereas in urine the acid properties are lost on account of the buffer value of the urinary salts. Furthermore, the monosodium salt, the form used clinically, has no germicidal action even in water, and in urine permits the growth of the colon bacillus even in a 1 : 200 dilution. The silver salt is extremely germicidal in water (having 5,000 times the strength of phenol), but in urine the silver is precipitated by the chlorids, and the germicidal strength, due to the silver ion, is lost. The germicidal properties of the silver salt of phenolsulphonephthalein, both in water and in urine, correspond very closely to those of silver nitrate. The fact that the chlorids are responsible is shown by a similar disappearance of germicidal action when the dilutions are made in physiologic sodium chlorid solution. Furthermore, when the silver salt is injected intravenously, the ionic silver is lost in the body, and the phenolsulphonephthalein appears in the urine free from silver, probably as the sodium salt. Mercurous and mercuric salts and the cupric salt, although having some germicidal value in urine, were discarded because of their toxicity. The barium salt was quite inert.

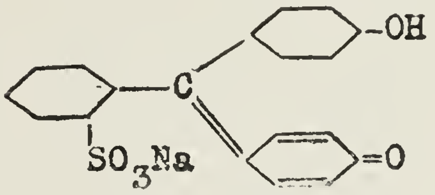

Fig. 1.—Phenolsulphonephthalein (monosodium salt).

*Conclusion.*—The metallic salts of phenolsulphonephthalein give no promise of value as urinary antiseptics.

### SULPHONEPHTHALEINS

The compounds listed in the accompanying table are all analogous to phenolsulphonephthalein, differing from the latter compound only by the presence of various substituent groups in the phenol nucleus. All of these compounds excepting two are practically insoluble in water, as the free acid, but are readily soluble in the form of the sodium salt. Pyrocatechinsulphonephthalein and guaiacolsulphonephthalein, however, are soluble in water without the addition of alkali. Some of these compounds are quite germicidal in water (possibly owing to excess alkali necessary to bring them into solution); but, with the exception of one only, it is a uniform rule that they lose this action when diluted in urine. Pyrocatechinsulphonephthalein, the only one to retain its value, is germicidal in urine in a dilution of 1 : 500, and inhibitory in urine in a dilution of 1 : 1,000.

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[9] Henderson, L. J., and Palmer, W. W.: On the Intensity of Urinary Acidity in Normal and Pathological Conditoins, Jour. Biol. Chem., 1913, **13**, 393.

[10] For discussions concerning the hydrogen ion concentration of urine, and the technic for colorimetric estimation, see publications of Henderson and Palmer, Clark and Lubs, and Shohl and Janney.

Very surprising results were obtained by the injection of these compounds. Although they are all quite closely related chemically, some of them are eliminated by the kidney with the same marvelous rapidity and completeness with which phenolsulphonephthalein is eliminated, while others appear in the urine only in traces or not at all. The excretion seems to be governed by no rule. With this class of compounds, no definite relationship between chemical structure and "renal affinity" could be established. The addition of methyl groups to the phenol nucleus (cresolsulphonephthalein) certainly does not interfere with excretion, while excretion is prevented by isopropyl, amino and carboxyl groups, as shown by thymolsulphonephthalein, aminosulphonephthalein and salicylsulphonephthalein.

THE EXCRETION AND THE ANTISEPTIC PROPERTIES OF THE SULPHONEPHTHALEINS

| Name | Antiseptic Strength | | | | Excretion Percentage After One Hour |
|---|---|---|---|---|---|
| | In Water | | In Urine | | |
| | Kills in One Hour | Fails in One Hour | Inhibits Development | Permits Growth | |
| Phenolsulphonephthalein....... | ....... | 1:200 | ....... | 1:200 | 70 |
| Thymolsulphonephthalein...... | 1:200 | 1:1,000 | ....... | 1:200 | Trace |
| Salicylsulphonephthalein........ | ....... | 1:200 | ....... | 1:200 | Trace |
| Hydrochinonsulphonephthalein | ....... | 1:200 | ....... | 1:200 | 40 |
| Cresolsulphonephthalein........ | ....... | 1:200 | ....... | 1:200 | 70 |
| Tetra-aminophenolsulphonephthalein | 1:200 | 1:1,000 | 1:200 | 1:500 | 0 |
| Alphanaphtholsulphonephthalein | 1:200 | 1:1,000 | ....... | 1:200 | Unstable |
| Orcinsulphonephthalein......... | ....... | 1:200 | ....... | 1:200 | 70 |
| Pyrocatechinsulphonephthalein | 1:2,000 | 1:5 000 | 1:1,000 | 1:2,000 | 0 |
| Tetranitrophenolsulphonephthalein | ....... | 1:200 | ....... | 1:200 | Hemoglobinuria |
| Guaiacolsulphonephthalein..... | 1:200 | 1:1 000 | ....... | 1:200 | Trace |
| Resorcinsulphonephthalein...... | ....... | 1:200 | ....... | 1:200 | 75 |
| Pyrogallolsulphonephthalein... | ....... | 1:200 | ....... | 1:200 | 30 |
| Phenol........................ | 1:180 | 1:220 | 1:900 | 1:1,000 | |

The most interesting and disappointing feature shown by the sulphonephthaleins is the effect of the addition of OH groups to the phenol nucleus. Pyrogallolsulphonephthalein, hydrochinonsulphonephthalein and pyrocatechinsulphonephthalein are all hydroxy derivatives, differing only in the number and position of the OH groups, and, of these, the pyrogallol and hydrochinon compounds are excreted, whereas pyrocatechinsulphonephthalein, the only sulphonephthalein shown to be antiseptic in urine, unfortunately, is also the only one not excreted.

*Conclusions.*—1. Several other sulphonephthaleins are excreted by the kidney with great rapidity, just as is phenolsulphonephthalein.

2. None of the sulphonephthaleins investigated would be of value as urinary antiseptics, since the only one showing antiseptic strength in urine fails to be excreted.

### HALOGEN DERIVATIVES OF SULPHONEPHTHALEINS

To illustrate the chemical structure of the halogen derivatives of sulphonephthaleins investigated, the structural formula (Fig. 2) is given. Those investigated were tetrabromphenolsulphonephthalein, tetrachlorphenolsulphonephthalein, di-iodophenolsulphonephthalein, dibromcresolsulphonephthalein and dibromthymolsulphonephthalein. These compounds, all used in the form of the sodium salt, show moderate germicidal ability in water, probably owing to excess alkali necessary to bring them into solution; but they all become inert in urine. Furthermore, none of them excepting tetrachlorphenolsulphonephthalein are excreted, and we therefore have in compounds of this class a definite relationship between chemical structure and "renal affinity."

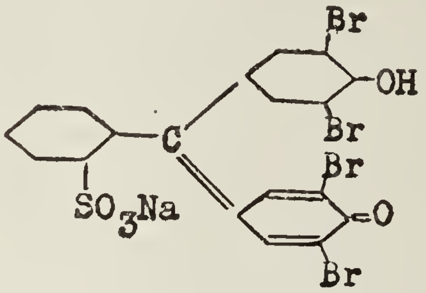

Fig. 2.—Tetrabromphenolsulphonephthalein (monosodium salt).

*Conclusions.*—1. Substitution of bromin in compounds of the sulphonephthalein type prevents excretion by the kidney.

2. Halogenated sulphonephthaleins give no promise of value as urinary antiseptics.

### PHTHALEINS

These differ from sulphonephthaleins in that a carboxyl group replaces the sulphonic acid group, as shown in the formula (Fig. 3). Those investigated were phenolphthalein, thymolphthalein, tetrabromtetrachlorphenolphthalein, tetra-iodophenolphthalein, phenoltetrachlorphthalein and sulphonated phenolphthalein. None of these compounds were antiseptic in urine, nor were any of them excreted by the kidney, excepting the sulphonated phenolphthalein. It is interesting to note that the sulphonation of phenolphthalein gives a soluble compound (phenolphthalein sulphonic acid), the sodium salt of which is excreted almost as rapidly as is phenolsulphonephthalein. The similarity of names, however, between this compound and phenolsulphonephthalein should not give the impression that the two are the same. They differ in composition, structure and method of preparation. Since the sulphonation of phenolphthalein causes its rapid excretion, the conclusion might be drawn that the sulphonic acid group is essential for rapid elimination; but this theory is upset by the action of the following group of compounds. The sodium salt of sulphonated phenolphthalein has no antiseptic value.

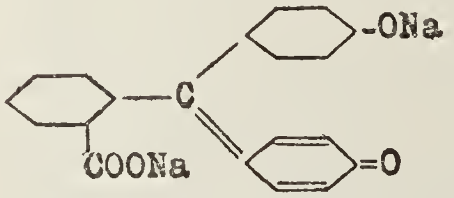

Fig. 3.—Phenolphthalein (sodium salt).

*Conclusion.*—The phthaleins give no promise of value as urinary antiseptics.

### XANTHONES

Compounds of this class are characterized by the fact that the two phenol groups are linked together by an oxygen atom, as illustrated by the structual formula given in Figure 4. It will be seen that this formula differs from that of phenolphthalein only in the presence of an oxygen atom, although the two compounds possess divergent biologic properties. The compounds of this class investigated were fluorescein (resorcinphthalein), sulphonefluorescein (resorcinsulphonephthalein), orcinsulphonephthalein, rhodamin and resorcinsaccharein. All of these compounds in solution are greenish and extremely fluorescent, and without exception they are excreted by the kidney with a rapidity as great as that of phenolsulphonephthalein, if not greater; the average rate of excretion for the group being 70 per cent. in one hour. Since these compounds are quite different chemically, but have one characteristic in common (the oxygen linking two phenol groups), and since they all show great "renal affinity," it is reasonable to assume that we have here a definite relationship between chemical structure and physiologic action. This class further shows that the sulphonic acid group is not essential for rapid excretion.

As germicidal agents, all four are inert excepting rhodamin, which comes very close to filling all the requirements. Rhodamin, which differs from fluorescein in that the two hydroxyl groups are replaced by amino groups, is chemically stable and nontoxic, is rapidly excreted, and kills the colon bacillus in one hour in a dilution of 1:2,000, in water; but when the compound is diluted in urine, this property is entirely lost. An investigation of the nature of this interfering action in urine has not been completed, but present experiments indicate that the loss of antiseptic power of rhodamin in urine cannot be accounted for merely by the buffer value of the urinary salts, which would tend to neutralize any acid or basic properties that a drug might possess.

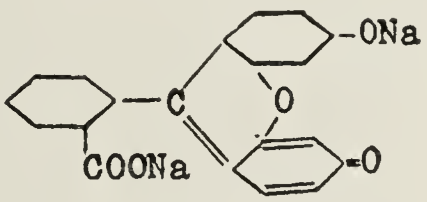

Fig. 4.—Fluorescein (sodium salt).

## COMMENT

It is hoped that these experiments may call attention to the inadequacy of the urinary antiseptics in general use, and stimulate interest in the possibilities offered by synthetic chemistry. These investigations are at present being continued, and the properties of various related compounds studied, some of which are old and well known, and others of which are new compounds, synthesized so as to contain various chemical groups that have been shown to produce desired biologic properties.[11]

## CONCLUSIONS

The property possessed by phenolsulphonephthalein, by virtue of which it is rapidly eliminated by the kidney, is by no means limited to this compound. Several other more or less closely related compounds show the same striking "renal affinity," and might also be of value in testing renal function were it not that phenolsulphonephathalein itself is so nearly ideal for this purpose.

Compounds of the xanthone class, that is, phthaleins (though not necessarily sulphonephthaleins) in which there is an oxygen atom linking the two phenol groups, show a similar remarkable "renal affinity."

The bromination of these compounds, both sulphonephthaleins and xanthones, interferes with their excretion.

In view of the hitherto overlooked fact that numerous actively germicidal compounds lose their strength (owing to an as yet unexplained cause) when simply diluted with urine in a test tube, the value of every drug used for the purpose of urinary antisepsis ought to be questioned until its antiseptic strength *in urine* has been experimentally demonstrated.

Since it has been possible to establish a certain relationship between chemical structure and renal excretion, and to predict, with a reasonable amount of accuracy, which drugs will and which will not be rapidly excreted; since the synthesis of germicidal compounds, very closely related to the types excreted, has been accomplished; and since one of these germicidal compounds (rhodamin) was excreted and would have been successful but for the interfering action of the urine, the problem has been shown to be worthy of further investigation.

# MEDICAL JURISPRUDENCE

## THE GENERAL RULES OF LAW GOVERNING THE LIABILITY OF PHYSICIANS AND SURGEONS FOR MALPRACTICE *

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A discussion of the legal liability of physicians and surgeons for malpractice of necessity encompasses a vast area. It not alone includes liability for injuries growing out of the alleged malpractice, but takes in as well liability for the acts of interns and nurses acting under instructions, and also such acts of the patient as tend to relieve the professional man of liability.

Aside from the question of negligence and want of reasonable care, which will be found more fully discussed below, the general rule now obtaining throughout the courts of the United States may be summed up briefly to hold as follows: A physician or surgeon contracts that he possesses that reasonable degree of skill, learning and experience which is ordinarily possessed by others of his profession; and that he will use reasonable and ordinary care and diligence in the treatment of the case committed to him, and that he will use his best judgment in all cases of doubt as to the best course of treatment. He is under an implied obligation when he undertakes to treat diseases or injuries to bring to his aid such obtainable remedies and appliances as discovery and experience have found to be the most appropriate and beneficial in aiding recovery. The law, however, raises no implication on the part of the surgeon to effect a cure. In other words, when a skilful and careful surgeon exercises his best judgment in a case of doubt, he cannot be held liable for a want of success. The mere fact that a patient grows worse under a physician's treatment, and becomes better when his services are dispensed with, is not evidence of malpractice.

The courts in defining the skill and care required in the treatment of a case have used such descriptive words as "proper," "reasonable," "ordinary." These words mean practically the same thing. Such care must be used as would ordinarily be regarded as proper under the circumstances of the case. It is interesting to note that a surgeon is not liable for want of the *highest* degree of skill. Nor is a physician *ipso facto* liable by virtue of the fact that his mode of treatment is not the best that might have been adopted; he is only required to exercise reasonable skill, taking into account the advancement of professional learning.

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[11] In addition to the references already given, the following will be found of interest:
Clark, W. M., and Lubs, H. A.: The Colorimetric Determination of Hydrogen Ion Concentration and Its Applications in Bacteriology, Jour. Bacteriol., 1917, **2**, 1.
White, E. C., and Acree, S. F.: On the Quinone-Phenolate Theory of Indicators: The Electrical Conductivity of Solutions of Phenolsulphonephthalein and of Its Bromo and Nitro Derivatives, Jour. Am. Chem. Soc., 1917, **39**, 648.
White, E. C.: On the Quinone-Phenolate Theory of Indicators: The Reactions of Phenolsulphonephthalein and of Some of Its Derivatives, Thesis, Univ. Wisconsin, 1915.

* The large majority of the statements made in this article are not the writer's opinions, but are based on decisions of the higher courts.

What constitutes reasonable care and skill must be determined in each case from the circumstances. A leading Connecticut decision holds that to render the physician liable, the negligence need not be great and gross, but a want of ordinary diligence, care and skill is sufficient. This important ruling has been followed in a New York opinion by the Court of Appeals. In determining what constitutes the reasonable and ordinary skill and diligence, which it is the duty of a physician to possess and exercise, the test is the degree of skill and diligence which other physicians in the same general neighborhood and in the same general line of practice ordinarily have and practice.

In estimating the damages that a patient has sustained, when malpractice has been established, the jury is permitted to take into consideration the additional pain and suffering that the patient has suffered, but *not* the suffering caused by the original injury. The patient in establishing malpractice must show, not only that the physician was negligent or unskilful, but also that the injury resulted from such negligence or unskilfulness. The injured person is not bound to seek aid from other physicians to mitigate the consequences of the mistake of the attending physician.

As to the obligation of a physician to continue to attend a patient once under his care, the generally accepted doctrine is well put in a Maine decision which holds that a physician who leaves a patient at a critical stage of the disease without reason or sufficient notice to enable him to procure another medical attendant, is guilty of culpable dereliction of duty. This rule has been still more drastically drawn in some cases wherein it has been held that the physician must judge at his peril as to when it is safe to discontinue treatment, in the absence of consent by the patient to its discontinuance or reasonable notice to procure other attendance.

When a physician engages to attend a patient without limitation of time, he cannot cease his visits except, first, with the consent of the patient, or, secondly, on giving the patient timely notice so that he may employ another physician, or, thirdly, when the condition of the patient is such as no longer to require medical treatment; and of that condition, the physician must judge at his peril. When a physician is called in generally without limitation, the presumption is that his service is under an implied engagement to attend the patient through the illness, or until his services are dispensed with; but when the patient comes to the office of the physician from whom he receives proper treatment, and then fails to return for further treatment, in consequence of which he suffers injury, he is not entitled to maintain an action against the physician for such injury, because it is the result of his own default and misfeasance.

When a physician sends another physician, who is in independent practice, to attend a patient, he is not liable for injuries sustained by the patient if the injury results from the negligence of the other physician, and this is so notwithstanding his promise to attend the patient personally.

Various rules have been propounded by our courts in determining the medical man's liability for errors of judgment. The best summary of this branch of the law, in the writer's opinion, is to be found in the following words, used by the Colorado courts:

> When there are reasonable grounds for doubt and difference of opinion, the professional man, after the exercise of his best judgment, admitting that he possesses the necessary knowledge, is not responsible for errors of judgment or mistakes, and is only chargeable with error where such error could not have arisen except from want of, or the exercise of, reasonable skill and diligence.

The attention of medical men should be directed to the so-called rule against trying experiments. It would appear from this doctrine of law that any advancement in the profession must be at the personal risk of the physician rather than of the patient. Thus, any deviation from the established mode of practice is sufficient to charge the surgeon in case of any injury arising to the patient.

If the settled practice of the profession allows but one course of treatment in the case, any departure from such course may properly be regarded as the result of want of knowledge, skill and experience or attention. In other words, when a particular mode of treatment is upheld by the consensus of opinion among the members of the medical profession, it should be followed by the ordinary practitioner; and if he sees fit to experiment with some other mode, he does so at his peril. This leads us to two conclusions as a matter of law: (*a*) A physician may not try experiments with his patients to their injury, and (*b*) the established treatment must be followed. The only limitation applying to this rule is that the acts and skill of the physician are to be judged by the school of practice to which he belongs. He must come up at least to the average standard of the school of practice to which he professes to adhere.

When a patient charges a physician with injuries resulting from improper or negligent treatment, he assumes the burden of proof. He must accordingly prove to the satisfaction of the court or jury, as the case may be, by a fair preponderance of the credible evidence, that the physician did not exercise ordinary skill and care.

The old decisions occasionally distinguished between the liability of medical men for malpractice toward patients who paid for the services rendered, and those for whom the services were gratuitously performed. It may be stated, as a fair deduction from recent authorities, that this distinction no longer exists. The generally accepted rule in the courts today holds that the law requires the same degree of care of a surgeon when his services are gratuitous as when he receives compensation therefor.

In an action for malpractice, the physician's reputation for skill and learning will not avail him as a defense. The question in issue is the degree of care and skill in a particular given case. Reputation does not affect the treatment of the case in litigation. This rule, however, works conversely to hold that evidence of a reputation for negligence and unskilfulness as well as prior actions for malpractice will not avail to establish or aid the patient's case.

It goes, of course, without saying, that on the trial of an action for malpractice, the question as to whether the physician has or has not acted negligently or unskilfully is a question of fact, not one of law, and therefore determinable by the jury.

The generally accepted doctrine today holds that an action against a physician or surgeon for malpractice does not survive his death. There, have, however, been exceptions to this rule in some of the states.

Considerable discussion and litigation have arisen out of the question of the liability of a surgeon for performing a surgical operation without the consent of the patient. The law thus far established is that a physician is liable for operating on a patient, unless he obtains the consent either of the patient, if competent to give such consent, or if not, of some one who, under such circumstances, would be legally authorized to give the requisite consent. In certain instances consent will be presumed unless the person operated on has been the victim of false or fraudulent representations, or has been deliberately deceived. We may take it as established by no mean authorities that, except in cases in which the consent is express or implied by circumstances, and occasions other than a mere general retainer for medical examination and treatment, and except also when there is a superior authority which can legally and rightfully dispose of the person of the patient, and which gives consent, a surgeon has no right to violate the person of a patient by a serious major operation, or one removing an important part of the body. A surgeon, however, is not liable for failure to procure the consent of a husband to a surgical operation on his wife, if the wife herself consents to it, and it is immaterial that the operation involves the removal of the wife's ovaries, which will deprive the husband of offspring.

While it is practically conceded by all the cases that it is competent for a physician or surgeon in an action for malpractice to prove negligence of the patient, or of another whose negligence is chargeable to him, directly and proximately contributing to the injury, there is some confusion among the cases as to whether the effect of such negligence is to bar a recovery altogether, or merely to mitigate or reduce the damages. There are three different aspects in which the question of the effect of negligence of the patient himself, or of a third person whose negligence is chargeable to him, may arise:

(*a*) When it appears that there was no breach of duty on the part of the physician or surgeon, and that the injury was due entirely to the patient's negligence. In such a case it is clear that there can be no recovery at all.

(*b*) When it appears that there was a breach of duty on the part of the physician or surgeon, but that the breach in and of itself would not have resulted in substantial injury to the patient, and when the patient's own negligence has aggravated the physician's breach, the two acts jointly causing serious injury to the patient. In these cases it is very generally held that there may be no recovery, as the patient's negligence, though of a lesser degree than the physician's, is the proximate cause of the injury.

(*c*) When it appears that there was a breach of duty on the part of the physician or surgeon, which alone would have resulted in serious injury to the patient, but which has been aggravated by the patient's own negligence. In these cases the patient may recover from the physician, but the patient's negligence may be set up in mitigating the damages recoverable.

As a hand rule for measuring the rights of a patient who has been guilty of contributory negligence, it may be briefly stated that to preclude a recovery, the patient's own negligence or improper conduct must have contributed substantially to produce the injury.

The question as to the liability of a surgeon for the negligence of an intern attached to the hospital in which the former performs an operation was presented for the first time to the courts of the United States in a case entitled *Harris* v. *Fall,* decided in January, 1910, by the Circuit Court of the United States, for the Northern District of Illinois. The language of the court in its opinion is not very clear, and the sole deduction to be made therefrom is that the contract of a surgeon undertaking to perform an operation in a general hospital does not imply liability for mistakes in care, dressings and treatments given by the hospital attendants, *during convalescence after the operation is finished.* The question of the surgeon's liability for the negligence of interns or nurses *during* the operation was not decided by the court. In another decision it was held that the surgeons of a hospital were not liable for the negligence of the nurses in scalding a patient in a hot bath prescribed by the surgeons, when the latter were not near enough to be aware of the negligent act and to prevent it. The nurse herself, of course, would be liable if a proper case of negligence should be made out. In a Massachusetts case, the rule was flatly laid down that a surgeon is not responsible for the negligence of hospital nurses in attending a patient after a surgical operation. As to the liability of the hospital for the negligence of its nurses or attendants, this doctrine rests on the general foundation that a master is responsible for the torts of his servants, within the scope of their employment. A hospital that is a public charitable institution is generally relieved from liability.

There are many and various technical rules of procedure in litigations for malpractice, including questions of pleading and evidence, that have not been touched on in this article, which deals mainly with questions of substantive law. Two questions of technical procedure, however, are noteworthy and should be brought to the reader's attention.

1. The great majority of the states have statutory provisions providing that communications between physicians and patients as to professional matters are privileged and not subject to testimony in court, without express waiver. The general doctrine governing the right of a plaintiff in an action for malpractice to avail himself of privilege, as against testimony of the defendant or other physicians, holds that testimony on behalf of the patient in an action brought by himself against his physician operates as a waiver of his privilege, both as to the physician himself and to others called in consultation with him, but not as to physicians independently employed—unless, it may be, the patient testifies as to his communications to the latter.

2. The question is in some doubt as to whether the recovery of his fees by a physician in an action brought for that purpose is a bar to a subsequent action brought by the patient for malpractice.

The New York decisions generally hold that a recovery by the physician acts as a bar; but there are numerous sound authorities to the effect that, the question of malpractice not having been litigated in the action for fees, the patient is free to pursue such an action. The latter rule is the sounder, in my opinion, but the question is one which depends on the jurisdiction in which the action is brought and the questions presented on the previous litigation.

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# TRICHINOSIS

## A REPORT OF THREE CASES SIMULATING MENINGITIS, WITH THE FINDINGS OF TRICHINA LARVAE IN SPINAL FLUID *

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Since Van Cott and Lintz[1] first reported the findings of trichinae in the spinal fluid, there have been reports by Bloch,[2] Elliott,[3] Lintz,[4] Cummins and Carson,[5] and Salzer[6] confirming the observation. These reports do not emphasize the occurrence of meningeal symptoms. Bloch particularly emphasizes the presence of trichinae in the spinal fluid without any symptoms referable to the brain and cord. He says, however, that "the presence of a positive Nonne and Noguchi would indicate meningeal irritation." Elliott mentions a positive Kernig sign, but asserts it is a false Kernig and one due to pain. Bloch and Hassin[7] report a case of trichinosis in a young man, who developed a left-sided hemiparesis, and showed exaggerated knee jerks, a bilateral Babinski reflex, and left-sided ankle clonics. No trichinae were found in the spinal fluid. The following cases are reported because of the definite meningeal symptoms, the changes in the spinal fluid, and the difficulties encountered in early diagnosis.

At the Cook County Hospital, all patients enter the receiving ward, where an examining physician makes a diagnosis. The patient is then sent to the proper ward. In the three cases herein reported, the patients entered the contagious disease hospital, Jan. 4, 1918, with an examining-room diagnosis of epidemic meningitis. The three are members of the same family. No history was obtainable, except from the oldest girl, who is about 12 years of age.

### REPORT OF CASES

Case 1.—S. P., girl, aged 6 years, was sick six days with headache and vomiting. There was no diarrhea and no abdominal distress. The patient, an Italian child, was brought to the ward in an irrational state. The striking feature of the case was marked irritability, in spite of which, the child responded when told to show her teeth, put out her tongue, etc. There was a marked edema of both upper eyelids. The temperature on admission was 100.1 F., the pulse was 112 and the respiration, 24. There was a definite rigidity of the neck, and when the child was lifted by the head, she cried. Photophobia was present. There were a few crusts on the nose but no herpes on the lips. The heart and lungs were normal. There was no tenderness, but an uncertain degree of general rigidity about the abdomen. The liver was negative and the spleen was not palpable. There was tenderness over the extremities. The Kernig sign was strongly positive. The knee jerks were absent and there was no Brudzinski's sign. The spinal fluid was under increased pressure, was clear and showed 58 cells per cubic millimeter; the Nonne reaction was positive and Ross-Jones' test, negative. Haines solution was reduced. The presence of lymphocytes was observed, but there were no organisms. On the basis of these findings, a diagnosis was made as follows: The clinical manifestations of the patient pointed to a definite meningitis. The character of the spinal fluid, together with the absence of knee jerks, pointed to a poliomyelitis, although there was no evidence of paralysis.

The next day, the child was extremely sick. Her temperature was 103, and her pulse, 96. The Brudzinski and the Kernig signs were positive. There was an edema of the legs and the eyes, as well as marked tenderness over the extremities, particularly over the right elbow when held in a position of flexion. The blood count revealed a leukocytosis of 8,000, and an eosinophilia of 10 per cent. Spinal puncture was repeated and revealed fifty cells which were lymphocytes. The fluid was under increased pressure. Trichinae were found, two or three in a field. The Nonne reaction was positive and Ross-Jones' test, negative. Haines solution was reduced. A section of muscle removed from the biceps on the same day showed unencapsulated trichinae. Blood was removed, Jan. 10, 1918, from a vein in the elbow, and examination was delayed until Jan. 14, 1918. It was examined according to the technic of Herrick and Janeway, and many trichina larvae were found. The blood count, January 11, revealed a leukocytosis of 11,000 and an eosinophilia of 8 per cent. As the patient was observed, the edema of the eyelids and the legs grew less, and muscular tenderness was definitely localized; but stiffness of the neck persisted, as well as the Kernig and the Brudzinski signs. The patient was transferred to the Children's Hospital.

Case 2.—D. P., boy, aged 8 years, who had been sick four days, was admitted to the hospital, Jan. 4, 1918. He was a brother of the child described in the foregoing. He was unable to rise and looked sick. His face was swollen, particularly about the eyelids. His older sister said he had been sick for four days with headache and vomiting. The temperature on admission was 101.8; pulse, 110 and the respiration, 28. The head was large and square. There was a marked edema of the upper eyelids, particularly of the left, which almost closed the eye. There was a herpetic sore on the upper lip. The throat was congested. The heart and the lungs were normal. The abdomen was not tender, but there was a degree of general rigidity present. Neither the liver nor the spleen was palpable. In both axillae, there were numerous small pinpoint hyperemic spots, which tended to fade on pressure. Both the upper and the lower extremities were tender to touch. There was an infected vaccination mark over the left upper extremity. The Kernig sign was strongly positive and the knee jerks exaggerated. The Babinski reflex was doubtful. A spinal puncture was made, and the spinal fluid was under increased pressure, being clear and showing fifty cells per cubic millimeter. The presence of lymphocytes was observed. The Nonne reaction was positive and Ross-Jones' test, negative. Haines solution was reduced. A diagnosis, as in the former case, was made as follows: The physical findings were very suggestive of a meningeal inflammation or irritation, but the etiologic factor was uncertain. Vigorous catharsis was then ordered. Two days later, the patient had definite soreness of the muscles and edema of the legs and the eyes. The blood count revealed a leukocytosis of 30,000 and eosinophilia of 50 per cent. Repeated blood counts revealed a leukocytosis of 15,000 and an eosinophilia of 15 per cent. Another differential revealed an eosinophilia of 24 per cent. The boy improved rapidly. Another special puncture was made two days after admission, but was bloody (traumatic). The blood was examined for trichinae, but none were found. No examination of the muscle was made.

Case 3.—T. P., girl, aged 12, was the oldest of the three children brought to the ward with a diagnosis of meningitis. She said she had been sick for about two days, complaining only of headache and stiffness of the neck. There was no other history. She did not appear very sick. The temperature was 100.8, and the pulse, 88. The head was negative and eyes were watery as if she had been crying. Both eyelids were swollen and edematous. There was no photophobia.

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* From the Contagious Hospital of Cook County Hospital.

[1] Van Cott, J. M., and Lintz, William: Trichinosis, The Journal A. M. A., Feb. 28, 1914, p. 680.

[2] Bloch, Leon: Trichinosis; Report of a Case with the Trichina Larvae in the Spinal Fluid, The Journal A. M. A., Dec. 18, 1915, p. 2140.

[3] Elliott, A. R.: Trichinosis; Report of a Case with Trichina Larvae in the Spinal Fluid, The Journal A. M. A., Feb. 12, 1916, p. 504.

[4] Lintz, William: Trichinosis and the Cerebrospinal Fluid, The Journal A. M. A., June 10, 1916, p. 1856.

[5] Cummins, W. T., and Carson, G. R.: A Case of Trichinosis with Embryo in the Spinal Fluid, The Journal A. M. A., June 10, 1916, p. 1856.

[6] Salzer, B. F.: A Study of an Epidemic of Fourteen Cases of Trichinosis with Cures by Serum Therapy, The Journal A. M. A., Aug. 19, 1916, p. 579.

[7] Bloch, Leon, and Hassin, G. B.: Med. Rec., New York, 1917, **91**, 537.

Herpes were present on upper lip. There was a small amount of rigidity of the muscle of the neck, which was apparently not voluntary. The heart and the lungs were apparently normal. The abdomen revealed a slight tenderness in the region of the spleen, but the spleen was not palpable. There was a slight rigidity of the abdomen. There was no pain or tenderness over the extremities, except in the left elbow joint, but it was difficult to localize pain definitely. No evidence of any paralysis was discovered.

The Kernig sign was positive, both knee jerks were absent, and the Brudzinski sign was negative. Forty c.c. of the spinal fluid were removed. It was under increased pressure, was clear, and showed 240 cells per cubic millimeter, and lymphocytes. The Ross-Jones test was negative and the Nonne reaction positive.

The findings present were suggestive of a meningitis. The character of the spinal fluid, on the contrary, suggested poliomyelitis, which diagnosis was further supported by the absence of knee jerks and pain in the region of the elbow.

Jan. 5, 1918, there was no change. The Kernig sign was positive and there was a suggestion of Brudzinski's sign. The throat was congested. The skin of the abdomen revealed a few red pinpoint areas, not petechial, and unlike rose spots, which fade on pressure. There was pain in the region of the elbow anteriorly and not over the joint. The rigidity of the neck was only moderate.

January 6, there was headache with pain in the legs, arms and back. The patient had difficulty in sitting up, and in elevating the right arm. There was no evidence of paralysis. Knee jerks were now present but were hard to elicit. The Kernig sign persisted. The blood count revealed a leukocytosis of 10,800, and an eosinophilia of 8 per cent.

January 7, the patient was very sick, with a temperature of 103 and a pulse of 110. A spinal puncture was made. The spinal fluid was under increased pressure, and the first portion was bloody. When it was examined, actively motile ous trichinae were found.

January 11, the spinal puncture was repeated. The fluid was clear, was under increased pressure, and showed eighty cells per cubic millimeter, as well as the presence of lymphocytes. Trichina larvae were present. The Nonne reaction was positive and the Ross-Jones test negative. The Haines solution was reduced. The nitric acid test for albumin was negative. The biceps muscle was harpooned, and actively motile trichinae were found. The blood examination was made according to Herrick and Janeway technic, and numerour trichinae were found.

No history of the eating of ham, pork or pork sausage was elicited from the children or parents. Subsequently the mother was admitted to the medical ward of the hospital, and gave a good diarrheal history, but no trichinae were found in the muscles.

### COMMENT

If we analyze the foregoing it will be observed that we are dealing with three cases showing distinct meningeal symptoms. Also in two of these, the spinal fluid containing the trichina larvae showed marked cellular increase. Van Cott and Lintz,[1] Bloch[2] and others have suggested the possibility of meningeal irritation due to the presence of trichinae in the spinal fluid. None of the previous reports mention any increased cell count. Van Cott and Lintz[1] observed a moderate increase in pressure, as well as a gray sediment on standing. The centrifuged specimen showed a number of lymphocytes and failed to reduce Fehling's solution.

Elliott[3] counted 3 cells per cubic millimeter. Cummins and Carson report a count of 3 cells. Lintz[4] reports an occasional lymphocyte and failure to reduce Benedict's solution in three cases.

The spinal fluid in our cases, as already noted, was clear and under increased pressure. The cell count was as high as 240 and as low as 40 per cubic millimeter. The Nome reaction was positive, the Ross-Jones' test was negative, and Haines solution was reduced. The nitric acid test for albumin was negative. We consider this as definite evidence of meningeal irritation. Our record shows a similar evidence in Case No. 2, in which no trichinae were found in the spinal fluid. It is unlikely that the toxemia associated would cause these changes, and there is a possibility that the trichinae were overlooked in the examination of the spinal fluid. That the meningeal symptoms are very likely due to meningeal irritation is in accord with definite changes in the spinal fluid, so that two of the cases might be called meningitis due to trichina. While it is true that a Kernig sign may be due to muscular swelling and edema, nevertheless the Kernig sign in these cases was present before the edema developed. The edema noted was not similar to the ordinary type, which pits on pressure, but was rather hard, glistening and boardlike, particularly over the extremities. Granting a false Kernig sign, on what basis other than meningeal irritation are we to explain the stiff neck, the suggestive Brudzinski sign, the exaggerated knee jerk (in one case), and the headache and vomiting, unless the cause could possibly be the toxemia? But toxemia cannot account for the cellular change in the spinal fluid.

I wish to call attention to the necessity of differentiating these early cases with meningeal symptoms from poliomyelitis. Van Cott and Lintz state that "in children marked weakness of the limbs is present," and report one case in a child of 8 years, in whom locomotion was difficult because of the great prostration. In Case 2, the patient was unable to arise on the examining-room table and stand, unless supported. In the other two cases, the patellar reflexes were absent. In addition, tenderness was present over the extremities, and patients complained of pain on pressure. In children, it is at times difficult to determine whether one is dealing with a perineuritis or a myositis, as the pain response is very readily obtained. When, in addition to these factors, a physician examines the spinal fluid, and finds it clear, under increased pressure, and observes a cell count ranging from 240 to 40, he may justly suspect poliomyelitis in the absence of any evidence of paralysis. The diagnosis of trichinosis, however, is established by the occurrences of edema, the presence of an eosinophilia in the blood picture, and the isolation of the trichinae from the spinal fluid or muscle.

The high eosinophilia of 50 per cent., in Case 2, and the comparatively low eosinophilia in the other two children, who were extremely ill, is in accord with the observations of Opie,[8] to the effect that the more severe the infection the lower the eosinophilia, and vice versa. In this connection I should also like to make the following observations:

In Case 3 the patient, who was the oldest of the three, developed an urticaria. By many physicians urticaria is considered an anaphylactic reaction. It is known that in the postanaphylactic stage there is an increase in eosinophilia (Herrick[9]). Accordingly, a differential count was made when the urticaria first appeared, and was found to be 12 per cent. Twenty-four hours later it was 10 per cent.

### SUMMARY

1. Trichinae in the spinal fluid in two cases produced definite clinical symptoms of meningitis.

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[8] Opie, E. L.: Am. Jour. Med. Sc., 1904, **127**, 217, 477.

[9] Herrick, W. W.: Experimental Eosinophilia with an Extract of an Animal Parasite, Arch. Int. Med., February, 1913, p. 165.

2. The spinal fluid in trichinosis, in addition to the trichinae, showed an increase in lymphocytes, from 240 to 40 per cubic millimeter, reduced the Haines solution, and gave a positive Ross-Jones test.

3. Trichinosis with meningeal irritation must be differentiated from poliomyelitis.

# THE DREYER METHOD OF AGGLUTINATION

## AS USED AT THE ARMY MEDICAL SCHOOL*

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That agglutination tests, made after typhoid and paratyphoid vaccination or after the diseases themselves, may have uniformity and comparable values, the following technic, a slight modification of that of Dreyer,[1] is offered.

The method consists simply of macroscopic agglutination tests on varying dilutions of serum, using a killed culture of *B. typhosus* or *B. paratyphosus* A or B, the agglutinability of which has been determined by titration against a given standard, established by the Department of Pathology, University of Oxford.

The necessary apparatus is readily available, and consists of a Wright's capsule, for securing blood; about thirty small test tubes, chemically clean, but not necessarily sterile; one 1 c.c. pipet, graduated in tenths, such as used in Wassermann work; one 2 c.c. pipet for making the dilutions; a few ounces of physiologic sodium chlorid solution, not necessarily sterile; and a quantity of the standard culture. By comparison with this standard culture, a new supply may be made for extended work.

The technic for the test is quite simple. Sufficient blood is taken in the capsule to yield 0.3 c.c. of serum. This amount is withdrawn in a pipet and transferred to the first tube. This tube has previously received 2.7 c.c. of saline solution, while the following nine tubes have each received 1.5 c.c. of saline solution. Of this first 1:10 dilution of serum, 1.5 c.c. are carried into the second tube, mixed thoroughly, and 1.5 c.c. of this 1:20 dilution is carried forward. This procedure is carried out through the series of ten tubes, the last 1.5 c.c. being discarded. Beginning in the weaker dilution, the diluted serums are each divided into three tubes, each tube containing 0.5 c.c. of the serum dilution. The tube rack then contains three series of ten tubes containing serum dilutions ranging from 1:10 to 1:5,120.

To each tube in the first series, 0.75 c.c. of the standard culture of *B. typhosus* is added; to each tube of the second series, 0.75 c.c. of the standard culture of *B. paratyphosus* A is added; and to each tube of the third series, a like amount of the culture of *B. paratyphosus* B is added. The tubes are then thoroughly shaken.

The tubes are then placed in a water bath at from 50 to 55 C. for two hours; are removed and cooled for fifteen minutes, and are then read. The highest dilution showing agglutination, without sedimentation visible to the naked eye, gives the reading. The dilution of the serum in this tube, divided by the factor of agglutinability of the culture used, gives a final reading expressed in the number of agglutinin units per cubic centimeter of the serum. (It must be kept in mind that the addition of the culture has increased the dilution of the serum one and a half times, the first tube representing a dilution of 1:25, the last a dilution of 1:12,800.) These readings are comparable with each other, whenever the same technic has been used, and a standard agglutinable culture has been used.

If it becomes necessary to make up a new supply of the standard agglutinable culture of *B. typhosus*, the procedure is as follows: *B. typhosus* is subcultured daily in broth, for about ten days, to increase its agglutinability and reduce its auto-agglutinability. Finally it is planted in broth in partly filled flasks and incubated twenty-four hours. At the end of that time, 0.1 per cent. formaldehyd solution (full strength) is added, it is placed in an ice box for four or five days, and it is shaken repeatedly. The then sterile culture is ready to be standardized for (1) opacity and (2) agglutinability.

To standardize for opacity, two series of fifteen tubes each (tubes of equal size and of clear glass) are set up, and varying dilutions of standard culture in one series, and the culture under standardization in the other, are made in accordance with the accompanying schedule.

DILUTIONS

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Culture— | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 |
| Physiologic sodium chlorid solution— | 1.9 | 1.8 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.0 | 0.8 | 0.6 | 0.4 | 0.2 | 0.0 |

A tube from one series, chosen at random, is matched for opacity with the tubes in the other series. The dilution of each culture in these tubes is noted. This procedure is repeated six times and the average taken. The necessary dilution of the new culture is thus determined, the dilution to be made with physiologic sodium chlorid solution, to which has been added 0.1 per cent. formaldehyd solution. It is then to be bottled and kept in the ice box.

To standardize for agglutinability, an immune serum is procured. A rabbit immune serum of known agglutinin unit content is to be preferred, though human serum, taken soon after inoculation, serves the purpose. The agglutinating serum is set up in two parallel series, in varying dilutions, the variations not to be excessive. To one series the standard culture is added, to the other the culture under standardization. These tubes are then shaken, incubated at 55 C. for two hours and read for the highest dilutions showing agglutination visible to the naked eye. That dilution in the known culture is to that dilution in the new culture as the factor of the known culture is to *x* (the factor of the new culture).

This method is, of course, similarly applicable to the *B. paratyphosus* A and B. It is also applicable to the three strains of *B. dysenteriae* and *B. coli*, though in the latter cases, at the Army Medical School, it was necessary to establish our own standard.

The foregoing method is an ideal one for the Gruber-Widal method for the diagnosis of typhoid or paratyphoid fever in the uninoculated, and is the best method for following the resistance of the patient as expressed in agglutinin units. For the quantitative determination of antibodies produced after Army triple typhoid vaccine, it offers the only simple and practicable method that will yield results that are comparable not only within themselves, but also with the results of other workers in the same field.

For the diagnosis of typhoid or paratyphoid fever in patients previously inoculated with the Army triple typhoid vaccine, it offers a valuable adjunct to the cultivation of the organism from the blood or the stool, for it has been found that by this method, though a positive Widal exists, owing to a previous inoculation, quantitative fluctuations of the agglutinin content are indicative of active infection.

Cultures of the three types of pneumococci and of four strains of meningococci are being used at the Army Medical School in an effort to procure comparable results in determining the antibodies produced after protective inoculations. It has been found necessary to heat these cultures, in addition to the formaldehyd solution, particularly in the case of the meningococcus, to prevent autolysis.

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* From the Department of Pathology, Army Medical School.

[1] Dreyer, G., and Torrens, J. A.: Lancet, London, 1915, **2**, 1369.

A few suggestions may facilitate work along this line. Readings should always be made under constant lighting conditions. Bacterial count may be substituted for standardization by opacity. One-tenth per cent. formaldehyd solution kills bacteria, but not fungi. If work is to be done intermittently, it is best to bottle the culture in small bottles, for preservation, since contamination by fungi is common. For routine work, large bottles, from which the daily amount is removed under aseptic conditions, yield best results. Under proper storage conditions (a dark ice chest), the factor *of* agglutinability does not change in six months, and probably continues the same for a much longer period of time.

# THE URINARY TRACT IN PULMONARY TUBERCULOSIS

## A REPORT OF THE STUDY OF SIX HUNDRED CASES

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For years we have had forced on our attention, at frequent intervals, the question of the relative value of surgical and medical treatment of tuberculosis of the kidney, and of the true significance of the various symptoms and signs on the presence or absence of which the diagnosis of this condition is made. We frequently see patients who apply for relief of advanced tuberculosis of the second kidney, very shortly after the first kidney had been removed for tuberculous involvement. In the Sea View Hospital alone, since 1913, we have seen at least twenty-five such patients who were admitted within eight to twelve weeks after the nephrectomy.

This problem cannot be dismissed with the statement that "a kidney which is practically destroyed and which acts as a focus for dissemination of the disease, and the toxins generated in which irritate the second kidney during their elimination, should be removed—the second kidney being in good condition," nor that "a kidney which contains the sole active focus of tuberculosis in the body should be removed to prevent dissemination of the disease." The fact remains that in the cases of renal tuberculosis in which nephrectomy is done, the large majority of primary deaths are due to inability of the remaining kidney, and the secondary death rate is high.

It seems to us that the most important points to settle in considering the relative values of the surgical and the medical treatment of this condition are, "Do we judge correctly the significance of the symptoms and signs we attribute to it?" and "Do we read aright the results we obtain with the precise methods of examination of the urinary organs which are now at our command?" In other words, do we operate in some cases which had best be let alone, because of misconception of the significance of these symptoms and signs?

To get more light on this perplexing subject, we have carefully observed at the Sea View Hospital a series of 600 cases of tuberculosis, and have studied the relation of the urinary organs to tuberculosis of the body in general, the presence and absence of symptoms referred to the genito-urinary organs and their significance, and the presence and absence of signs referred to these organs and their significance.

The series under consideration differs from some of the groups of cases previously observed and reported by others, in that this series consists entirely of cases not unlike those which the physician and surgeon meet in everyday practice, rather than of necropsy findings in those who have succumbed to the tuberculosis, and in whom, naturally, the disease had made more extensive ravages. This will explain the more favorable findings—the considerably smaller percentage of complications in the genito-urinary organs found in this series than in those of other observers. The patients under observation were 386 men and 214 women—all adults.

Because of:

1. The difficulty in demonstrating the tubercle bacilli in the urine; and
2. When the bacilli are found, the difficulty of diagnosing the seat of the focus in the urinary tract, whether it is:
   (*A*) in one kidney or the other, in the ureter, bladder, or in the prostatic urethra;
   (*B*) if foci were present in several of these organs, or
   (*C*) whether no tuberculous lesions were present or demonstrable in any of the urinary organs in spite of
      (*a*) the urine containing tubercle bacilli, or
      (*b*) of the presence of subjective symptoms referred to the genito-urinary tract or of both,

the following careful routine was observed, and the following results noted:

1. A note was made of all patients who gave a history of subjective symptoms referable to the genito-urinary tract, such as nocturnal and diurnal frequency of urination, tenesmus, etc. These numbered sixty-three (10.5 per cent. of the total).

2. A twenty-four hour specimen of urine of each of the 600 patients under observation was examined by the usual routine method, and a separate search was made for acid-fast bacilli.

3. In all patients whose urine showed acid-fast bacilli, the bladder urine was drawn by catheter under rigid aseptic precautions, to guard against contamination of the urine by smegma bacilli, which are also acid fast and otherwise resemble, morphologically, the tubercle bacillus, and which are often found in the anterior urethra in the male and are very commonly present on the external genitals of the female.

The following reports of observations as to the frequency with which the smegma bacilli are met about the urogenital organs are cited to show the necessity of such precautions: Young and Churchman[1] took smears from the fossa navicularis in twenty-four patients, and found the smegma bacilli in eleven (46 per cent.). Brereton and Smith[2] examined two series of cases with the following results: In 126 insane patients, red-stained bacilli were found in eighty-five (67.5 per cent.) after the smears were decolorized with 25 per cent. sulphuric acid. After being counterstained with methylene blue, which stains smegma bacilli but not the tubercle bacilli, only nineteen of these smears (22 per cent.) were found to contain red-stained bacilli. The second series consisted of twenty patients. In these, red-stained bacilli were found in thirteen (65 per cent.) after decolorization of the smears with 25 per cent. sulphuric acid, and in only two (10 per cent.) after the smears had been counterstained with methylene blue. Brereton and Smith question whether true smegma bacilli have ever been cultivated, and until a satisfactory method has been discovered for cultivation of the true smegma bacilli, we believe it is useless to base any diagnostic value on a procedure that depends on their growth.

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[1] Young and Churchman: Am. Jour. Med. Sc., 1905, **130**, 52.
[2] Brereton and Smith: Am. Jour. Med. Sc., 1914, **148**, 267.

4. Samples of ninety-one urines that showed the presence of acid-fast bacilli were sedimented and injected into guinea-pigs. A positive result was obtained in only twenty-three cases (25 per cent.). This is a much smaller percentage for the total number of cases studied than was found by other observers, being only one in twenty-seven cases as compared to one in eleven found by Cunningham and one in ten found by Bernstein.

5. A searching cystoscopic examination of the bladder, the trigon and the ureteral orifices was made in the sixty-three patients who presented subjective symptoms referable to the genito-urinary tract, as well as in such other patients as would consent to it. In those patients whose catheterized bladder urine showed acid-fast bacilli, the ureters were catheterized (when that was possible) for further examination of the urine from the individual kidneys. In view of the interesting results obtained, it is unfortunate that many of those who had no subjective symptoms referable to the urinary tract refused cystoscopic examination and ureteral catheterization.

6. The genital organs of the 386 men patients showed the following associated tuberculous lesions: twenty-three tuberculous prostates, eleven tuberculous seminal vesicles, and sixteen tuberculous epididymides.

7. In a number of cases, tests of the kidney function were made, to note the effect of tuberculosis of the kidney on its function. In this series, the phlorizin glycosuria test (which we find to be as reliable as any, in all except diabetic patients) was made.

## RESULTS OBTAINED

Routine examination of the urine was made of 449 patients whose urinary organs were negative to any form of perceptible tuberculous involvement or to subjective symptoms. In 220 the urine was normal, and in 229 the urine showed some albumin, casts, etc.

The presence of tubercle bacilli was by no means limited to such urines as showed apparently damaged organs. Of fifty cases in which the presence of the bacilli was the only indication of tuberculosis in the urinary tract, in twenty-six the urine was otherwise negative, and in twenty-four it showed albumin, casts, etc.

The 151 cases which showed some other abnormality than simple chronic nephritis, were divided into two main groups: Group A, consisting of ninety-one patients, showing the presence, microscopically, of tubercle bacilli in the urine, and Group B, sixty cases in whose urine repeated microscopic examination failed to show the presence of the tubercle bacillus.

Animal inoculation with sedimented urine from the ninety-one patients of Group A proved positive in only twenty-three. Among the sixty patients of Group B were found two whose urines proved positive on animal inoculation.

The number that gave subjective symptoms referable to the urinary tract was sixty-three. A careful cystoscopic examination of these sixty-three cases showed rather surprising results: Twenty-three showed bladder lesions; forty showed no bladder lesions on the most careful scrutiny. Of the forty, twenty-three presented tuberculous lesions in the genital organs, and seventeen showed no tuberculous lesions discernible anywhere in the genito-urinary tract.

We thus see that much the larger number (64 per cent.) of these patients did not have discoverable lesions in the bladder which would explain the symptoms. In these cases the symptoms can be accounted for only as being reflex, being due to irritation of the urine as it passes through the bladder, or being due to both. We must mention here, as tending to acquit the urine of such irritating action, that some of these cases of subjective symptoms without bladder lesions showed no tubercle bacilli in the urine by microscope or by animal inoculation; one had urine that was normal in every way—that did not show a trace of albumin or a cast, and five had tubercle bacilli in the urine without albumin, etc.; and that of twenty-three cases of subjective symptoms which had no lesions in the bladder but did show tuberculous foci in the genital organs, several had normal urine, eighteen showed no tubercle bacilli, and only five showed tubercle bacilli microscopically or by microscopic examination and animal inoculation. On the other hand, tuberculous lesions were found in the bladder in seventeen patients who had no subjective symptoms.

FINDINGS IN THE TWO GROUPS

| Group A, 91 Cases | Group B, 60 Cases |
|---|---|
| 50 were negative to animal inoculation, and otherwise showed no symptoms or signs of tuberculous involvement | |
| 15 gave positive results in animal inoculation, and otherwise showed no symptoms or signs of tuberculous involvement | 2 cases proved positive by animal inoculation, and otherwise showed no symptoms or signs of tuberculous involvement |
| 6 showed lesions of the bladder, but did not have subjective symptoms | 6 cases showed lesions of the bladder, but did not have subjective symptoms |
| 15 had lesions of the bladder and subjective symptoms | 8 had lesions of the bladder and subjective symptoms |
| 5 had no bladder lesions, but did have subjective symptoms referred to the bladder | 12 had no bladder lesions who did have subjective symptoms referred to the bladder |
| | We thus find that the foregoing 28 cases, in which we would expect to find tubercle bacilli, were in Group B, i. e., they failed to show the presence of the bacilli on microscopic examination. |

Because many of the patients who presented tuberculous lesions in the genito-urinary organs outside the bladder (that viscus appearing normal) complained of painful urination, we will mention here that four men with such lesions and with apparently normal bladders presented no subjective bladder symptoms.

A number of patients were examined by the phlorizin glycosuria test for functional activity of the kidney. The normal kidney will excrete sugar in from eighteen to twenty-one minutes after the hypodermic injection of 1 c.c. of a 1:200 solution of phlorizin. The length of time before the sugar appears is increased when the kidney substance is damaged. In our cases the results were negative. Kidneys which excreted tubercle bacilli, the urine, however, being otherwise normal, responded in the normal time; kidneys which were the seat of chronic inflammation as shown by the excretion of albumin and of other abnormal constituents showed a delayed excretion of sugar.

### CONCLUSIONS

1. As to the relation of subjective symptoms to lesions of the urinary tract: We find that frequency, painful urination, tenesmus, etc., do not prove the presence of discoverable lesions in the urinary tract. In fact, in but little over one third of such cases did we find lesions which appeared in themselves as sufficient cause for these symptoms.

2. As to the relation of symptoms to the presence of tubercle bacilli in the urine: Neither can we say that these symptoms, as a rule, are the results of the passing of irritating urine, since in many of these cases the urine is entirely negative or is not sufficiently affected to give reasonable grounds for assuming that it irritates the bladder mouth and urethra sufficiently to cause the subjective disturbances found.

3. As to the presence of tubercle bacilli in the urine in tuberculosis of the genito-urinary organs:

(*a*) Many urines which show the presence of acid-fast bacilli by microscope prove negative in animal inoculation tests. (The converse is infrequent.)

(*b*) Tubercle bacilli are often found in the urine without subjective symptoms or apparent lesions in the urinary organs.

(*c*) Tuberculous lesions in the bladder are often found when the urine shows no tubercle bacilli.

The explanation of the presence of tubercle bacilli in the urine in some cases of genito-urinary tuberculosis and of its absence in others is that the tubercle bacilli are eliminated in "showers," so that it is quite possible to get specimens between the "showers" that are free from tubercle bacilli.

4. Great care is essential in diagnosis of tuberculosis of the kidney, in view of the fact that tubercle bacilli are found in the urine in patients who have neither demonstrable tuberculous lesions of the genito-urinary tract nor symptoms referable to the urinary organs.

"When is a kidney tuberculous?" In the light of these researches and of the reports of other observers (Rist and Kindberg), we can no longer say that the presence of a few tubercle bacilli in the urine shows tuberculosis of the kidney. In former times, before the refinements of diagnosis now available were at our disposal, the argument that a tuberculous kidney must be removed had some basis of good reason, because a diagnosis of tuberculosis of a certain kidney was not made, as a rule, till the kidney was badly injured. Now, the finding of a few tubercle bacilli in the urine from a certain kidney is not sufficient to condemn that organ on the one hand, and on the other hand, the second kidney may show tubercle bacilli in its urine, at the next examination.

1847 Madison Avenue.

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**Whale Fat.**—In Denmark whale fat has been used for margarin since 1914, and Norway is now making experiments with hardened whale fat on account of the shortage of other materials for the margarin industry, according to *Commerce Reports*, February 2. Whaling off the coast of Norway is to begin for government account with the idea of supplementing the fat supply from this source. In 1914 Denmark used 20,000 barrels of hardened whale fat for making margarin, and the product made from it is said to keep well and taste well and to be even better in the form of lard. Different percentages of vegetable oil, such as cottonseed and soya bean, are used to make the lard of the proper consistency. In Denmark, where these products have been used three years, no results deleterious to the human organism have been observed.

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# A METHOD OF DRAINING THE BODIES OF THE VERTEBRAE

## PRELIMINARY REPORT

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Symptoms suggestive of osteomyelitis of the spine in a case of sepsis due to infection by the *Streptococcus viridans* brought vividly to my mind the necessity of working out some technic by means of which, in suitable cases, the bodies of the vertebrae may be rendered accessible to surgical intervention. A brief review of the literature, as well as a personal conference with Dr. Bradford of Boston, convinced me that, as yet, no satisfactory method had been devised. Although in the instance of the patient in question the local symptoms of osteomyelitis subsided, it seems to me of value to report a method which, on the cadaver, gives an excellent operative exposure.

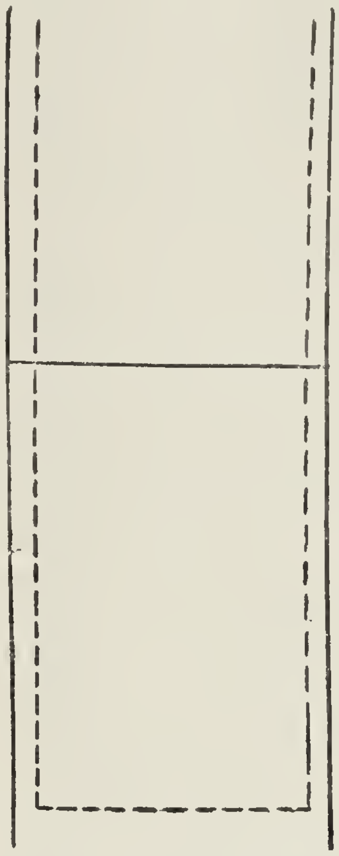

Fig. 1.—The H shaped skin incisions and the line of the hemostatic suture enclosing the muscle flap (dotted line).

The method previously used consists of a resection of the transverse process through a midline incision similar to that used in the typical laminectomy (Menard). It is readily seen by reference to Figure 2 that this method does not expose the body of the vertebra, because the lamina and pedicle are in the way. To approach the body, an oblique route will have to be followed which will enable the operator not merely to bring his instrument to bear on the body of the vertebra, but also to see it accurately. This can be accomplished by the following technic, the essential part of which consists in the upward retraction of a wide muscular flap,

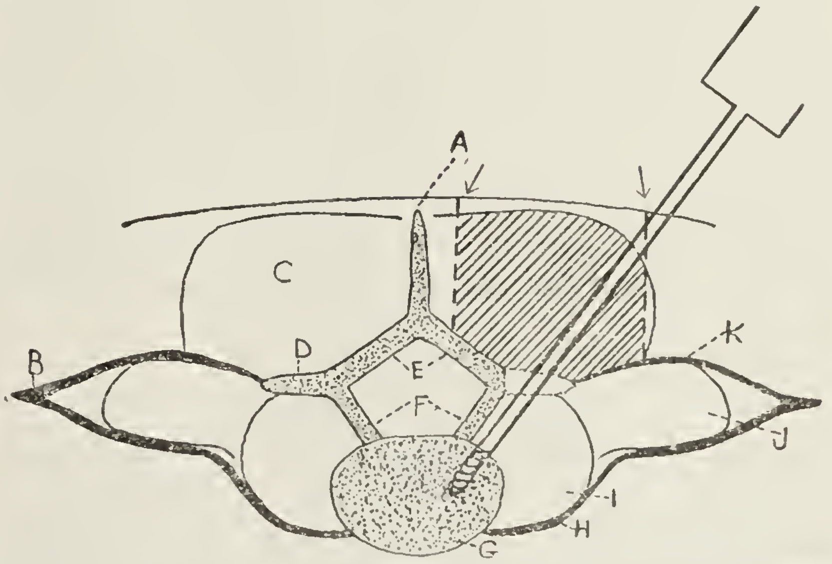

Fig. 2.—Diagrammatic cross section at the level of the first lumbar vertebra, illustrating the principle of approaching the vertebra by the oblique route. The arrows indicate the two longitudinal skin incisions. The shaded area illustrates the muscles which are deflected upward. The resected transverse process is indicated by a dotted line. *A*, spinous process; *B*, lumbar fascia; *C*, spinal muscles; *D*, transverse process; *E*, laminae; *F*, pedicles; *G*, body of vertebra; *H*, anterior layer of lumbar fascia; *I*, psoas; *J*, quadratus lumborum; *K*, middle layer of lumbar fascia.

which permits the operator to work in an oblique line, parallel to the slant of the pedicle:

Assuming that the first and second lumbar vertebrae are diseased, a 6-inch longitudinal incision is made a little to the left of the midline, and at the outer border of the ileocostalis muscle a second longitudinal incision corresponding to the first is also made. These are joined at their midpoint by a transverse incision. The skin flaps are dissected upward and downward, exposing the thick mass of the spinal muscles, that is to say, the multifidus spinae, semispinalis dorsi, iliocostalis and longissimus dorsi. To prevent hemorrhage, a hemostatic suture is now inserted, beginning at the upper outer angle of the wound, running down to the lower angle, across to the spine and upward along the spinous processes. The suture must be taken sufficiently deep to reach the middle layer of the lumbar fascia on the outer side, and the lamina on the spinal side. Corresponding to this suture, a muscle flap is outlined with its base upward, and the entire muscular mass thus freed is drawn toward the head of the patient with strong retractors. This exposes the laminae and transverse processes of the vertebrae in question and the corresponding portion of the middle layer of the lumbar fascia. It is a simple matter now to resect the transverse processes at their base. Working from the outer angle of the wound, the operator's finger can readily free the psoas from the body of the vertebrae. Then, by using an appropriately shaped instrument, he can retract the psoas and the quadratus lumborum, so that he can see the body of the vertebra, and, with a long burr, bore a hole into it and follow up this procedure with a curet.

At this level the nerves are of comparatively little significance and are distinctly smaller than in the lower lumbar region. Even here, however, they can be found and injury avoided, if the operator is careful. After suitable drainage has been instituted, the wound is closed by bringing the muscle flap down into position, suturing it in place and suturing the skin at all points except those at which the drainage tubes emerge. Naturally, their course must be oblique, and they therefore emerge from the outer skin incision.

In the dorsal region the technic is somewhat more difficult because of the ribs, but it is comparatively simple to resect the rib in addition to the transverse process.

41 West Eighty-Third Street.

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**Reclaiming Surgical Dressings.**—The superintendent of the Pennsylvania Hospital at Philadelphia says that 65 per cent. of the surgical dressings used in that institution are reclaimed. Instead of the 200,000 yards of gauze that would have been required in a year, only 55,000 yards were used. The soiled dressings after being collected in paper bags at the bedside or dressing room are taken to the laundry and transferred to net bags and placed to soak in cold water, the water being changed three or four times a day. The next day the net bags are transferred to the sterilizing washer and put through the following steps: two cold water washes without soap or alkali for ten minutes each; forty-five minutes washing in hot water and soap solution; two rinsings in hot water for ten minutes each; after a small amount of hot water is placed in the washer the cylinder is run for forty-five minutes under steam pressure of 12 pounds; after being put through the extractor they are taken while moist to the gauze room where they are stretched, trimmed and prepared for final sterilization.

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# PROFOUND TOXEMIA AFTER ADMINISTRATION OF NEODIARSENOL (A BRAND OF NEO-ARSPHENAMIN)

J. W. MILLER, M.D.
CINCINNATI

That the administration of the various brands of arsphenamin and neo-arsphenamin are not free from danger is shown by this case:

### REPORT OF CASE

A chemist, aged 26, who presented himself for examination and treatment, Dec. 5, 1917, had been exposed to infection eight weeks before. On the appearance of a lesion he reported promptly to his physician, who recognized a syphilitic chancre on the corona glandis. The patient appeared to be in excellent physical condition. The site of the chancre was markedly indurated, and a faint macular eruption covered the shoulders and abdomen. There was general adenopathy, and a positive Wassermann reaction. He received 0.6 gm. of neodiarsenol with absolutely no reaction. One week later, December 12, he reported for a second injection; the site of the chancre showed less induration, and the macular eruption had entirely disappeared; 0.75 gm. of neodiarsenol in 15 c.c. of freshly distilled sterile water was slowly introduced into the vein. He reported next day feeling perfectly well with the exception of a slight headache. The following day, the 14th, he worked as usual in the laboratory of a large manufacturing concern, but told his associates his muscles felt sore, "griplike." On the morning of the 15th he had an epileptiform convulsion and became comatose.

Convulsive seizures continued with intermissions of several hours between the paroxysms for the next forty-eight hours. The respirations were noisy and stridulous, and of the Cheyne-Stokes type. The temperature ranged from 102 to 106 F., and there were profuse sweats. The urine obtained by catheterization amounted to 400 c.c. during the first thirty-six hours. The specific gravity was 1.020; the urine was highly acid, and showed a trace of albumin, diacetic acid, and acetone. Microscopically, blood corpuscles, and hyaline, blood and epithelial casts were found. Complete suppression of the urine finally occurred. The pupils were dilated, and marked retraction of the head to the right was noted. There was a decided increase of spinal pressure, the spinal fluid being Wassermann negative. I ordered epinephrin and Fischer's alkaline solution by rectum as soon as I was notified of the patient's condition. Within a few hours the patient was removed to a hospital, where venesection was performed, 500 c.c. of blood were withdrawn, and then half a liter of Fischer's solution introduced. This was repeated in six hours. Improvement was only temporary, and physiologic sodium chlorid solution was then substituted. Morphin, 0.008 gm., and chloroform inhalations helped to control the convulsive attacks. Death occurred forty-eight hours from the onset of uremic symptoms.

### COMMENT

After reviewing the literature relating to similar unfortunate occurrences following the use of various arsenic compounds, I feel certain that the drug was responsible for the fatal outcome. Osler,[1] in writing on acute nephritis, mentions (1) cold, and (2) the poisons of acute specific fevers, as the chief etiologic factors, and further states that "acute nephritis may be associated with syphilis and with acute tuberculosis, particularly the former. Bradford states that many of the idiopathic cases and those incident to cold may be of syphilitic origin." That the patient received his treatments during a period of extremely cold weather, the temperature ranging from zero to 15 degrees below, and was also constantly exposed to toxic agents incident to his occupation, which may have some bearing, must be borne in mind. I agree with Likes and Schoenrich,[2] in speaking of diarsenol, and the same may be said of neodiarsenol, "that the preparation in general is good." They ascribe the accidents to variability in quantity and quality in the occasional ampule, due to careless measurements and chemical construction.

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[1] Osler, William: The Principles and Practice of Medicine, Ed. 8, New York, D. Appleton & Co., 1912, p. 697.

628 Elm Street.

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# DUODENAL FISTULAS

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Scarcity of literature on a medical or surgical subject has, as a rule, one of two meanings: either that the condition is extremely rare, or that the subject has certain unpleasant features connected with it that lead to a perhaps unconscious desire to forget it on the part of the one to whom experience has come. Just how frequently a fistula of the duodenum occurs after suture of a perforation or other operative procedure is difficult to estimate, as there are no reliable statistics available, and such complications are apt to remain unrecorded. Experience gained during apprenticeship, from association and hearsay, and in two personal cases, forces me to conclude that fistulas of the duodenum following operative procedures are neither the rare nor the simple, benign affairs the silence of the professional pen might lead one to conclude. Reference to this subject has almost invariably a pessimistic tone, and but little encouragement is given. Edgerton[1] says, "The result may be a short running, rapidly fatal, duodenal fistula." Pannett[2] says: "As far as can be ascertained from the writings of the last ten years, a duodenal fistula never heals without surgical aid, and if left, is invariably fatal. Moreover, death may be exceedingly rapid. Recovery from a duodenal fistula, even with adequate surgical treatment, is a rarity." At the time of the writing of the lines just quoted, only three "recovery" cases were to be found in the literature of the ten previous years, and these were surgical cures. This behooves us to make greater efforts and a freer interchange of helpful suggestions.

In this paper we are limited to duodenal fistulas because the difficulties encountered in their treatment are peculiar to fistulas so located; the treatment of fistulas is of a rapidly lessening degree of difficulty as they descend the first few feet of the jejunum. This condition of affairs is true for several good and sufficient reasons:

1. Inanition is such as will occur following a fistula in no other part of the intestinal tract, and is comparable in effect to a break in a mill race above the water wheel; no power is obtained.

2. Dehydration rapidly follows unless energetically combated by rectal or subcutaneous injections. This dehydration follows the loss of a large output of fluid in the form of bile (1 liter), pancreatic fluid (0.5 liter), etc., and also the interference with fluid absorption.

3. A marked specific toxic action may follow the systemic absorption of the normal or changed secretions from the uncovered fistulous tract. So little is known of the chemistry of the duodenal secretions that only a surmise is possible as to the presence or absence of a changed secretion in these cases following trauma to the duodenum.

4. The digestive action of the normal secretions has full sway on the duodenal fistula and the tract leading to the surface, to such an extent that the hole shows a progressive enlargement in contradistinction to the behavior of most other intestinal fistulas. Digestion of the skin of the abdomen and back is so rapid and unrelenting as to make the life of the patient a hardship, to himself because of discomfort and pain, and to the nursing force because of the frequency of the needed dressings.

5. The secretions to be controlled are so varied as to render the problem much more difficult than appears at first sight. These are the secretions of the stomach, the liver, the pancreas, and the duodenum itself.

6. Bleeding from the raw surface of the tract may assume alarming proportions.

7. Fat necrosis is sometimes observed in these cases.

8. Extension of peritoneal inflammation may occur, owing to digestion of adhesions.

9. The amount of discharge is out of all proportion to the size of the aperture; this may be due to the sphincteric action of the circular muscle fibers at this location, as described by Ochsner.[3] In view of the foregoing, any methods that have led to a successful issue are of vital interest, in the combating of so difficult and serious a situation.

The treatment of this condition falls into two classes, either the radical surgical interference, or the expectant medical treatment. The surgical method again may be divided into the direct attack on the fistula itself, or an indirect attack on the site of the trouble by some form of a gastro-enterostomy, with or without pyloric exclusion or a jejunostomy. As my two cases come under the second general heading of expectant or medical treatment, I shall not go into the respective merits of the several distinctively surgical methods. Needless to say, they have their advocates and their indications.

The expectant treatment is indicated, provided the patient's general condition will warrant delay, or when the general condition will not permit of radical interference. Surgical intervention, if considered at all, must be made early; one must not be led into waiting until there is no longer sufficient strength to withstand an operation. The expectant treatment has several objects in view: (1) protection of the skin and the tract itself against the digestive action of the secretions; (2) introduction of fluids and nourishment in quantities sufficient to maintain, not only life, but also the reparative power of the tissue; (3) reduction in the amount of gastric and intestinal secretions, and (4) neutralization and dilution of these secretions.

1. The use of a low melting point paraffin applied hot to the dry skin is good; the main point in this application is that the skin must be dry, and this is impossible to accomplish after the epidermal surface has become eroded. Under the latter condition a good zinc oxid lanolin ointment seems to be most efficacious. A solution of pure gum rubber in benzin also forms a satisfactory protective layer. For the tract itself, the

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[2] Likes, S. H., and Schoenrich, H.: New York Med. Jour., 1916, **104**, 64.

[1] Edgerton, F. C., in Johnson: Operative Therapeusis, **3**, 618.

[2] Pannett, C. A.: Lancet, London, 1914, **1**, 1109.

[3] Ochsner: Tr. Am. Surg. Assn., 1905, **23**, 314.

injection of liquid petrolatum and zinc oxid ointment to the bottom of the tract is not only painless, but apparently is of benefit, and liquid petrolatum, because an inert mineral oil, should be given by mouth in large doses so that it may, in part, coat the fistulous tract from within out.

2. So long as the rectum will retain solutions, it is the best portal for the introduction of fluids and nourishment in this type of case, and a 10 per cent. glucose solution with plenty of sodium bicarbonate added to keep the body strongly alkaline, as shown by the urine with a methyl red indicator, is one of the best ways to accomplish one's purpose. A small amount of tincture of opium will aid in the control of rectal spasms. The time may come when food must be given by mouth, and then such foods must be used as produce the least secretory stimulation.

3. The arrival of the acid chyme in the duodenum is the excitant that begins the chain of events ending in the absorption of "secretin," which, in turn, stimulates to activity the pancreas, liver and upper intestinal glands. Interference with this initiatory process decidedly lessens the output of the latter glandular organs. Fats, oils and allied substances have an inhibitory action on gastric secretion, though the fats may have a direct stimulating effect on the pancreas itself. Milk also calls forth but little gastric secretion, while meat extracts, proteosis, dextrin and maltose call into existence large amounts. Low gastric acidity also favors delay in the opening of the pylorus; not only, therefore, must acid food and acid-producing food be avoided, but also alkalies should be given by mouth in frequent small amounts to neutralize as far as possible the gastric acidity. Alkaline solutions, such as calcium hydroxid, sodium bicarbonate, and alkaline mineral waters have a distinctly inhibitory effect on the amount of gastric secretion. Of the drugs, atropin and epinephrin have the greatest inhibitory effect.

4. Dilution and neutralization of the secretions is very desirable, and a slightly alkaline solution permitted to flow slowly to the bottom of the fistula through a rubber catheter, as in a Murphy drip proctoclysis, will effectively do this, and alone probably would be sufficient if perfect protection of the external skin could be accomplished. However, the seepage of even these diluted secretions over the abdomen, sides and back may quickly cause extension of the skin digestion to such a degree as to force the discontinuance of this method. In looking over the literature recently, I find the report of one other case successfully treated by this method of continuous irrigation of the tract.[4]. In this case the fistula developed on the fifth day after operation, and was healed six days later. The use of this method is advisable as long as the local skin conditions permit. Large amounts of fluid by mouth also dilute the juices.

The first case was comparatively simple, as the fistula was high in the duodenum, probably several inches above the point of emergence of the bile and pancreatic fluids. The second case, however, must represent the most serious type of duodenal fistula, as the opening was directly opposite the papilla of Vater, and the suture line must have been rather continuously bathed in a fluid of extreme digestive power.

## REPORT OF CASES

Case 1.—A man, aged 55, in 1912 underwent a Billroth No. 2 operation, resection of the stomach for cancer. The duodenal stump had been inverted with difficulty, and on the eighth day after operation a full tray was given by mistake. Six hours later intense pain developed, and a discharge of bile and pancreatic fluid came to the surface along the tract of a strip of rubber tissue (no gauze). The abdominal skin digestion was rapid and extensive. Immediately food was withheld by mouth; atropin and sodium fluorid, 1 grain, were given by mouth to inhibit pancreatic activity. Sodium fluorid, 1 per cent., was also used as a wet dressing over the abdomen, and injected along the fistulous tract. Paraffin of low melting point was frequently and freely painted over the skin as a protective coating. The discharge of bile and pancreatic fluids ceased after eight days. The patient left the hospital six days later, with wound and skin thoroughly healed.

Case 2.—A man, aged 74, operated on, April 2, 1917, gave a rather typical history of common duct stone, and the clinical diagnosis was "probably ball valve stone in papilla of Vater." He had lost 60 pounds. A small contracted gallbladder was found, and a stone was lodged in the papilla. Fully twenty minutes were spent in attempting to milk this upward or downward, and probing failed to push it down into the duodenum. Finally the stone was removed by the transduodenal route without great difficulty. The opening into the duodenum was closed with three rows of No. 1 chromic catgut. The gallbladder, duct, and area of duodenal incision were drained with rubber tubes (no gauze). Drainage was only as free as expected for six days, when, after loosening of the tubes to the duodenal area, the character of the drainage suddenly changed, becoming very profuse, causing rapid and extensive digestion of the skin of the abdomen in a few hours.

On the sixth day after operation, food and fluids were stopped by mouth; 10 per cent. glucose and sodium bicarbonate (2 drams to the pint) were given by rectum. Sodium bicarbonate was given in large doses by mouth during the next several weeks. Atropin was continued over several days until the man pleaded to have it stopped. Sodium fluorid, 1 grain by mouth, and as a 1 per cent. irrigating solution in the fistula, was used for four days, without apparent effect. The abdomen was frequently painted with paraffin for protection, with only partial success. The quantity and irritability of the discharge increased, and the dressings were changed every two hours. On two occasions the dressings were saturated with blood, owing probably to the digestive action of the secretions.

On the twelfth day we began continuous drop irrigation of the wound (40 drops to the minute) with soda solution, through a No. 14 catheter, carried down to the depths of the fistula near the common duct. This was continued until the patient's back became so sore through digestive action of the fluid running into the Kelly pad under him that we were forced to discontinue it, even though decided improvement was noted.

On the eighteenth day the patient's condition was very bad, but he was retaining the rectal nourishment splendidly, and this probably was his salvation. Belladonna and epinephrin were now given by mouth every two hours; the glucose and soda were continued by mouth and rectum, and large doses of liquid petrolatum were given by mouth to coat the entire fistulous tract. Several times daily the fistula was plugged to its depth with sterile 5 per cent. zinc oxid. Daily doses of castor oil were given to insure an open intestinal tract. Selected food was frequently given by mouth in small amounts, of such nature as to cause the least amount of stimulation to the gastro-intestinal secretions. This routine was continued, and finally on about the twenty-eighth day the fistula had gradually closed and the skin soon healed. During this time we had to combat a subacute nephritis. Nine months later this man is still perfectly well except for a postoperative hernia at the site of the drainage. He has had no return of stone symptoms, and has gained 58 pounds in weight.

707 Race Street.

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[4] Cheever, David: Boston Med. and Surg. Jour., 1915, **173**, 454.

# DETECTION OF PRETENDED LOSS OF HEARING

## WITH SPECIAL REFERENCE TO UNILATERAL DEAFNESS

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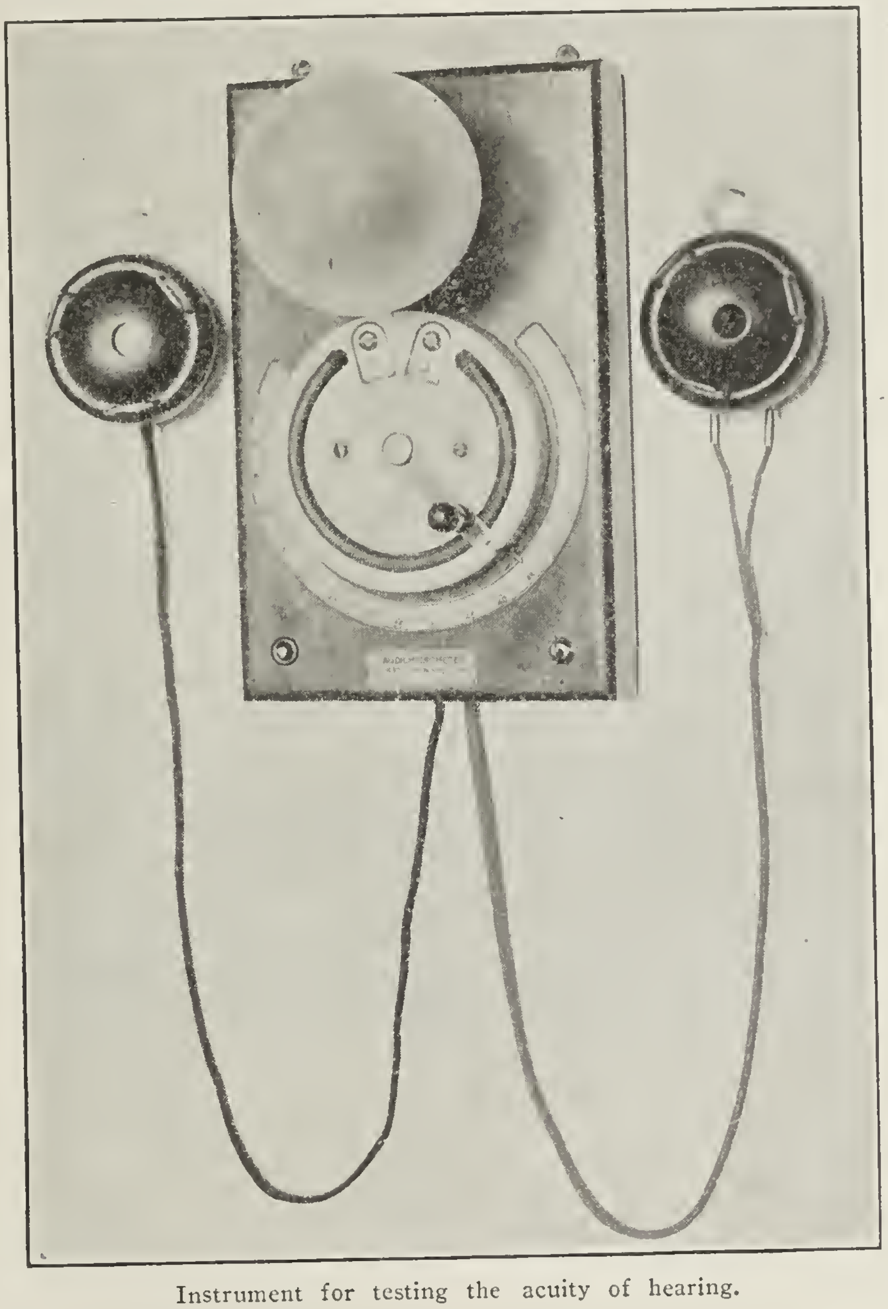
Aurists have long felt the need of a more accurate test for the acuity of hearing—a test that would be as definite as the ophthalmologist's test for vision. The present war with its prodigal use of high explosives has made the need more keenly felt than ever, and, especially as the damage done to the auditory apparatus is often only temporary, it becomes imperative to have an absolute test to detect those who falsely claim permanent injury purely for the purpose of avoiding further military duty. The necessity for such a test will be even more pressing at the close of the war, when loss of hearing will be either pretended or greatly exaggerated, in order that a pension may be secured.

That the French military specialists have already experienced considerable difficulty in this direction will be evidenced by the statements made by Foy.[1] It appears that the malingerer most difficult to detect is the one claiming complete loss of hearing in one ear. A moment's thought will show why this should be. Were only partial deafness claimed it would not be difficult to trap him, as he could not possibly be consistent in all his statements throughout an extended series of tests; but, with complete unilateral deafness as the claim, he simply and uniformly replies in the negative to all tests applied to the alleged defective ear.



Instrument for testing the acuity of hearing.

After considerable experimenting, I have devised a test which not only definitely determines the acuity of hearing in either ear, but also quickly detects the unilateral malingerer. Before I proceed further, however, it is necessary to describe the instrument used.

It is generally admitted that the acoumeter is the most satisfactory instrument now in use giving direct numerical readings representing the acuity of hearing. This is the instrument used by the French authorities in the tests described in the article referred to. Here a telephone receiver is used to produce the sound, the energy being supplied by the secondary of an induction coil operated by dry cells. As the secondary is withdrawn from the primary coil the sound diminishes, and at the distance of 1 meter it reaches a point at which its perception is taken as indicative of normal hearing. The intervening space is graduated, and forms the scale.

While the French physicians, by the exercise of considerable care and attention, make this device operate with reasonable uniformity and doubtless are securing good results, yet there are so many variable factors involved that it is highly improbable if any two machines under different operators would secure results of approximate uniformity. Thus, there is a continuous and gradual deterioration of the batteries; there is a tendency of the receivers to become more or less demagnetized; and the variable condition of the make-and-break contacts, and the frequency of vibration, also are factors that make uniform results difficult of attainment.

In the device that I use, batteries and make-and-break contacts are entirely dispensed with. The ordinary 110 volt alternating commercial lighting current is used. The variable current is produced by a potentiometer, and is variable from an absolute zero to maximum. No vibrating iron is used, and the maximum strength of current employed is dependent on no factor except the ratio of the electrical resistances employed. The sound producer is similar to a telephone receiver except in one very important respect — the core is of soft iron and is not magnetized. This results in eliminating the variability due to demagnetization and doubles the pitch, so that the ordinary 60 cycle current produces 240 vibrations per second—about equal to the average tone used in conversation.

The sound producer is provided with three lugs to hold it away from the ear, so that the sound will be transmitted solely by air conduction. By simply turning the indicator from 100 to zero, one can cause the sound to increase from the point at which it is just perceptible to one of normal hearing, the threshold of audition, or 100 per cent. acuity, to a degree of intensity at which failure to perceive it indicates that the subject has no practical hearing. In addition to the variable receiver, there is a supplementary one that always operates at maximum intensity, irrespective of the loudness of the other.

In the usual test for the acuity of hearing, only the variable receiver is used. As the subject holds this to the ear, the pointer is gradually moved from zero to the 100 point. As the intensity of the sound gradually decreases, he is told to indicate the point at which he is no longer able to perceive it. This point is noted, and the movement of the pointer continued still farther. The direction is then reversed and the subject is directed to indicate the point at which the sound is again heard. After one or two trials, the various readings will be found to harmonize quite closely unless one has a case of malingering, which may be readily detected by inconsistency of the readings. It is hardly necessary to remark that the electric control has a distinct advantage over the watch and whisper tests, as the malingerer is totally unable to guess what reply would be expected from one of defective hearing. The only precaution necessary is to place the instrument back of him. A small push button is provided which may be used to disconnect the receiver, in case the subject is uncertain whether he hears the vibrations or is confusing it with tinnitus.

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[1] Foy, Robert: La nature, Paris; reprinted in the Scientific American Supplement, June 16, 1917.

Let us now suppose that we are confronted by a subject who has suffered complete but only temporary loss of hearing in one ear due to an explosion, and now uniformly persists in refusing to respond to any test applied to that ear. We simply have him hold the constantly loud receiver over the alleged deaf ear, and the variable receiver over the other. Starting with the pointer at 100 (minimum sound), we gradually move it toward zero and direct the subject to state when he first hears the sound *in his good ear*. If he really suffers complete loss of hearing in one ear, as claimed, the presence of the loud receiver will not disturb him or interfere with the perception of sound by the other ear; in fact, it might just as well be disconnected. Under this presumption he would have no difficulty in clearly detecting the sound in the other ear, and we would soon have a proper index of its acuity. If, however, he is merely pretending and actually has a very fair degree of hearing in both ears, it would be absolutely impossible for him to identify any sound whatever in his good ear to which the variable receiver is applied until a point on the scale is reached that would normally indicate very defective or almost no hearing for the good ear.

The very nature of the test, it will be noted, facilitates the detection of fraud, because the better he can hear in the alleged defective ear, the less will he hear in the other—a condition just the opposite of what he might expect; and so when he makes his usual negative reply, he is for once telling the truth and trapping himself.

Without attempting to enter into the theoretical law of reciprocal auditory responses, it will suffice to state that under these conditions the sound appears to come in some mysterious way from a point at the center of the head; and if the two ears are approximately equal in acuity, there is absolutely no possibility of identifying the gradually increasing sound in the supposedly good ear until a point is reached on the scale away beyond the reading that would be obtained when the loud receiver is disconnected. Hence, in the case of our pretender, we have merely to repeat the test with the loud receiver disconnected; and a totally different and representative reading will be secured, thus proving the deceit.

In case the subject has partially recovered, but will not admit it, this fact may be readily ascertained by a comparison of the two acuity readings for the good ear—one reading to be taken with the loud receiver applied to the defective ear, and a second reading with the loud receiver removed or disconnected. It will readily be seen that the greater difference between the acuity of the two ears, the less difference will there be between the two readings of the good ear. In a case of complete unilateral deafness, this difference will be zero; while with a subject of normal hearing in both ears, the difference will be practically 100.

The inability of the brain to differentiate between the two sources of sound that I use, when one is of lesser intensity, is indeed remarkable in view of the independent action of the ears in other tests. This independence may be readily demonstrated by holding a watch to one ear, while a second watch is gradually moved away from the other ear. It will be found that the loud ticking in the one ear has little or no effect on the ability of the other ear to detect the very faint ticking of the distant watch. And yet in the instrument that I use, the ear to which the sound of lesser intensity is applied loses practically all power of independent perception. The reason for this doubtless lies in the fact that both receivers are not only of identical timber and of absolutely the same pitch, but also are always "in step;" that is, if one diaphragm is moving toward one ear, so also is the other diaphragm moving toward the other ear, and vice versa. This, of course, must necessarily be the case, as the two receivers are operated by the same alternating current, and perfect synchronism is, therefore, unavoidable.

In the article by Dr. Foy, a test for pretended unilateral deafness is given in which "two assistants read, in whispers, two different texts into separate funnels, each connected respectively with an ear of the patient by a rubber tube. The 'monodeaf' man will repeat what is read into his good ear; the simulator of unilateral deafness can repeat nothing; for hearing both texts will confuse him."

I have not been able satisfactorily to verify Dr. Foy's results. This test was made several times with subjects of normal hearing, and in every case it was found possible to avoid the confusion in sound by simply concentrating the attention on one ear. As a proposed improvement, I had constructed a phonograph sound box having two distinct diaphragms and needles, so disposed that one would travel across the record about a quarter of an inch in advance of the other. Two ear tubes were provided, and a speaking record used. In this arrangement, it will be evident, one ear was listening to totally different words from the other, and it was thought that as the unavoidable difference existing between two speakers would be eliminated and as a uniform pitch and rapidity of speech would be secured, the apparatus would be a great improvement on Dr. Foy's method. The results were totally disappointing, however, as persons with normal hearing in both ears apparently had no difficulty in deliberately listening with one ear to the almost total exclusion of the other. Experiments along this line were soon abandoned, as the results were as uniformly disappointing, as those employing the simple harmonic sound were surprisingly successful.

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**Three Important Sociologic Measures.**—For these three important measures—public employment service, extension of accident compensation, and the adoption of workmen's health insurance—there has already been ample preparation and agreement in time of peace. While earnestly sifting new proposals for the after-war reconstruction period, no time should be lost in putting these three well-tested measures into operation.—John B. Andrews, *The Survey.*

# THE DUST HAZARD IN CERTAIN INDUSTRIES *

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No health hazard in industry has attracted so much attention, and rightly so, as dust, and yet few exact studies on its nature and quantitative features have appeared. It is not enough to know only that dust has an influence on health, or even what the resultant pathologic conditions are; it must also be shown how these effects are brought about. In order to approach this problem intelligently, it is of prime importance to appreciate certain things about dust itself, and in this communication are presented briefly the results of investigations on the dusts of various industries. These show the number of particles per unit volume of air and their approximate size, the weight and relative mineral content, the influence of relative atmospheric humidity and of exhaust ventilation on these factors, and the amount that reaches the lungs of those exposed.

The dust samples have been collected directly from the air, at the respiration level, by means of the Palmer apparatus,[1] which is now accepted as a standard by the American Public Health Association, and the determinations have been made by the methods of Palmer, Coleman, and Ward,[2] as modified by Smyth.[3] The chief advantages of this apparatus are that it allows a very large volume of air to be sampled, and that it may be operated continuously over considerable periods of time, both these factors greatly augmenting its accuracy. Arens,[4] in 1894, collected the dust from 200 liters (quarts) of air for his studies; but our results, except where the dust was extremely thick, are based on samples from 200 cubic feet, forty minutes of continuous operation being required for this amount. This period of time is sufficient to allow for ordinary variations in dust production and in the direction and intensity of air currents.

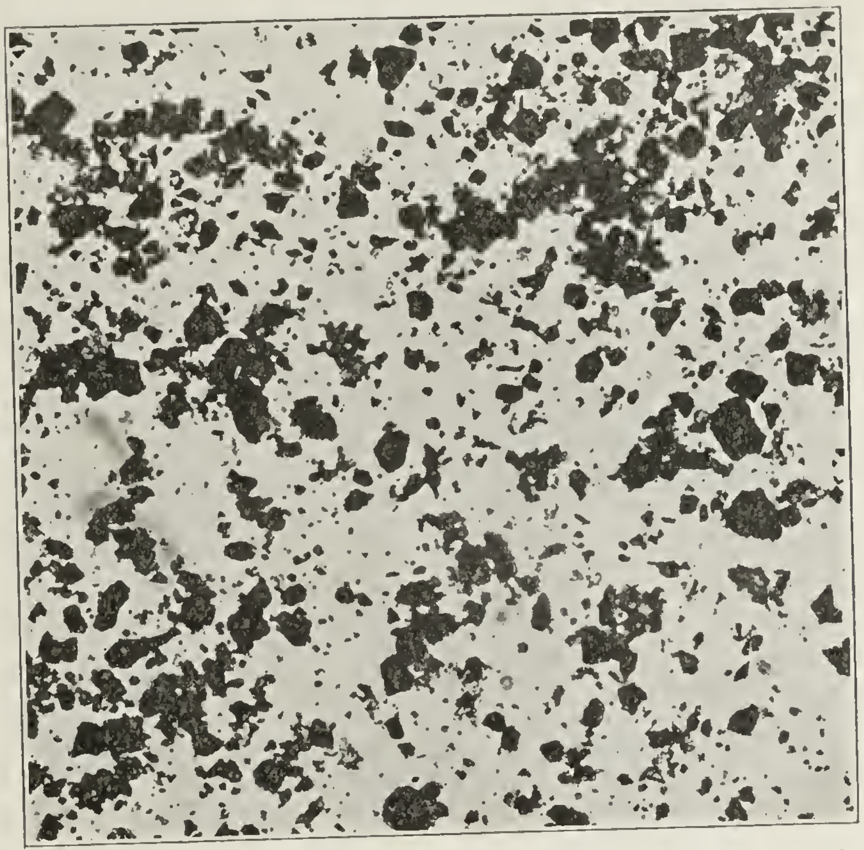

Fig. 1.—Dust collected from the air of the coal grinding room of a cement plant; × 100; appearance after settling in a Sedgwick-Rafter cell; obtained by passing 50 cubic feet of the air through 100 c.c. of distilled water.

### STANDARD DUST VALUES FOR PHILADELPHIA

In order to have, as standards, certain dust values with which our results in the industries might be compared, five tests were made outside such establishments, as follows: one each in the country and the city outdoors, one in a country home, and two in city laboratories. Table 1 gives the results of these tests, with averages, and these we have accepted as normal values for Philadelphia and its vicinity. Outdoor country air, the most dust-free examined, showed under 20,000 particles per cubic foot with 2.2 mg. of solids in each hundred cubic feet, and indoor country air under 25,000 particles with 5.4 mg. of solids. Outdoor city air contained about twice as many particles as the latter, with 7.8 mg. of solids, and the laboratory air averaged about six times as many particles with three times the weight. A striking difference is seen in the relative proportion of small and large particles when comparing city with country air, the latter containing relatively fewer of the smallest countable ones. The somewhat low percentage of inorganic material in the laboratory dust resulted partly from an abundance of coal particles which came from a near-by freight railroad and a large power plant stack.

TABLE 1.—RESULTS FROM THE EXAMINATION OF DUST IN COUNTRY AND CITY AIR

| Location | Particles | | | | Weight | |
|---|---|---|---|---|---|---|
| | Number per Cu. Ft. | Percentage Distribution According to Size* 1 | 2 | 3 | Per 100 Cu. Ft., Gm. | Per Cent. Inorganic |
| Country: | | | | | | |
| Outdoors.......... | 19,600 | 5 | 46 | 49 | 0.0022 | |
| Indoors........... | 24,400 | 4 | 55 | 41 | 0.0054 | |
| City: | | | | | | |
| Outdoors.......... | 48,400 | 2 | 27 | 71 | 0.0078 | |
| Laboratory....... | 123,800 | 2 | 25 | 73 | 0.0045 | 31 |
| Laboratory....... | 150,600 | 1 | 24 | 75 | 0.0242 | 36 |
| Average............... | 73,360 | 3 | 35 | 62 | 0.0088 | 34 |

* In this and the succeeding tables, Size 1 refers to the largest observed particles, averaging about 40 microns in diameter, Size 3 to the smallest ones, averaging about 1 micron, and Size 2 to the intermediates.

### INORGANIC DUSTS

*Portland Cement.*—In Table 2 are given the results of tests on eleven dust samples from three Portland cement plants situated in the Lehigh Valley of Eastern Pennsylvania. These are averaged as a whole and also by the presence or absence of exhaust ventilation, departments 33 c, 34 c, and 38 r having such ventilation by means of stacks over the conveyors. No other industry gave results so high in either count or weight, the average being almost 7 million particles per cubic foot and over 0.2 gm. of solids in 100 cubic feet. The number of particles in three tests was appalling, two running over 13 million and one over 15 million, and the lowest count in any of the cement departments was 1¼ million. The highest weights were 0.4928 and 0.4736 gm. The ratio of small to large particles was between the extremes of country and city air. A comparison of the number of particles with the weights in Departments 35 r, 36 r and 37 r shows that while the numbers increase the weights decrease. This is due to a difference in the specific gravity of the dusts and to differences in the sizes of the particles. The percentage of inorganic matter varied from 21 to 90, the dust from the coal grinding room showing the lowest. The averages for the departments with and without exhaust ventilation show clearly that such exhausts effect both a great reduction in the number of particles and in the weight, and also a slight reduction in the percentage of the smallest sized particles.

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* From the Clinic for Diseases of Occupation of the University Hospital and from the Laboratory of Hygiene, University of Pennsylvania.

* Read before the Section on Medicine of the College of Physicians of Philadelphia, Dec. 17, 1917.

[1] Palmer, G. T.: A New Sampling Apparatus for the Determination of Aerial Dust, Am. Jour. Pub. Health, 1916, **6**, 54.

[2] Palmer, G. T.; Coleman, L. V., and Ward, H. C.: A Study of Methods for Determining Air Dustiness, Am. Jour. Pub. Health, 1916, **6**, 1049.

[3] Smyth, H. F.: To be published.

[4] Arens, Carl: Quantitative Staubbestimmungen in der Luft nebst Beschreibung eines neuen Staubfängers, Arch. f. Hyg., 1894, **20**, 325.

TABLE 2.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE CEMENT INDUSTRY

| Index Number | Department | Particles | | | | Weight | |
|---|---|---|---|---|---|---|---|
| | | Number per Cu. Ft. | Percentage Distribution According to Size 1 | 2 | 3 | Per 100 Cu. Ft., Gm. | Per Cent. Inorganic |
| 22 w | Clinker........ | 13,560,000 | 3 | 39 | 58 | 0.4928 | 87 |
| 34 c | Clinker........ | 2,394,400 | 6 | 54 | 40 | 0.2256 | 88 |
| 38 r | Clinker........ | 1,872,000 | 5 | 20 | 75 | 0.0920 | 70 |
| 23 w | Rock.......... | 9,014,400 | 1 | 45 | 54 | 0.1332 | 90 |
| 33 c | Rock.......... | 1,291,200 | 5 | 51 | 44 | 0.0696 | 72 |
| 37 r | Rock.......... | 15,524,000 | 1 | 32 | 67 | 0.3016 | 85 |
| 24 w | Coal.......... | 4,042,400 | 3 | 46 | 51 | 0.1240 | 35 |
| 36 r | Coal.......... | 13,720,000 | 8 | 37 | 55 | 0.3332 | 21 |
| 25 w | Ball.......... | 3,244,800 | 1 | 41 | 58 | 0.0890 | 78 |
| 26 w | Kiln.......... | 1,641,600 | 3 | 46 | 51 | 0.0792 | 65 |
| 35 r | Packing....... | 8,395,200 | 2 | 40 | 59 | 0.4736 | 85 |
| | General average... | 6,790,900 | 3 | 37 | 60 | 0.2185 | 72 |
| | Average for 8 departments without exhausts.............. | 8,642,800 | 3 | 38 | 59 | 0.2533 | 71 |
| | Average for 3 departments with exhausts............. | 1,852,530 | 5 | 40 | 55 | 0.1291 | 81 |

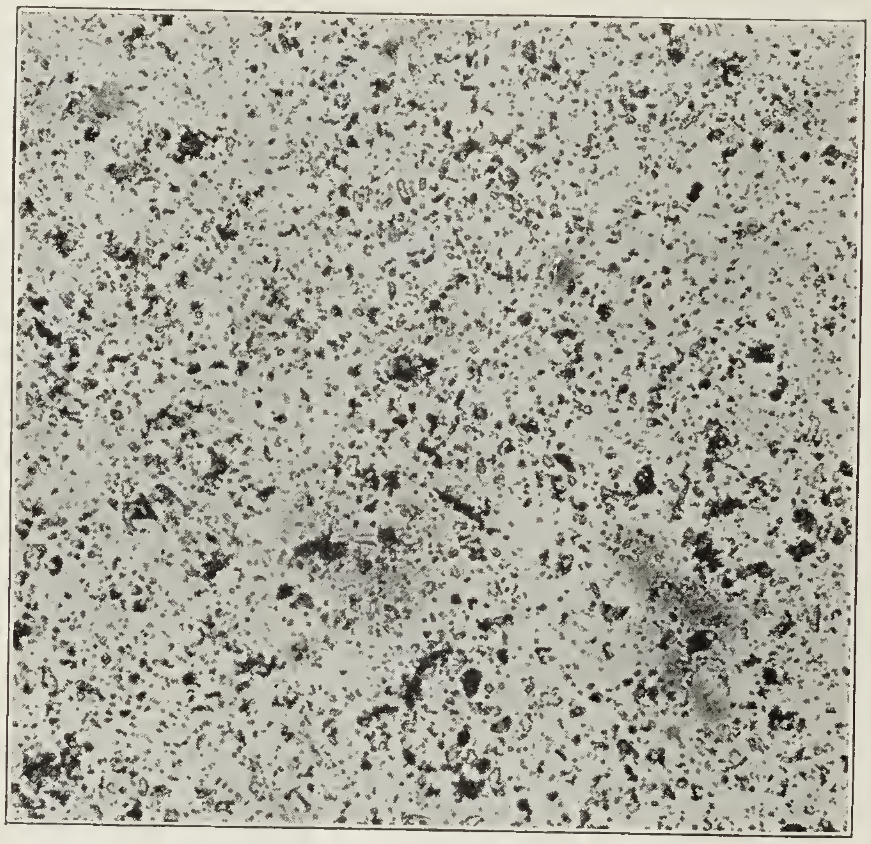

Fig. 2.—Dust collected from the air of the rock grinding room of a cement plant; × 100; appearance in Sedgwick-Rafter cell; amount of dust in 50 cubic feet of the air suspended in 100 c.c. of distilled water.

TABLE 3.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE FLINT INDUSTRY

| Index Number | Department | Particles | | | | Weight | |
|---|---|---|---|---|---|---|---|
| | | Number per Cu. Ft. | Percentage Distribution According to Size 1 | 2 | 3 | Per 100 Cu. Ft., Gm. | Per Cent. Inorganic |
| 54 e | Ball grinding... | 582,400 | 5 | 31 | 64 | 0.0384 | 67 |
| 55 e | Crushing....... | 937,600 | 3 | 26 | 71 | 0.0464 | 86 |
| 56 g | Ball grinding... | 1,120,100 | 4 | 36 | 66 | 0.0336 | 76 |
| | Average............ | 844,040 | 4 | 31 | 65 | 0.0459 | 76 |

*Flint.*—Three tests were made in two flint mills (Table 3). Unfortunately, the sampling in one mill (54 e and 55 e) was rather unsatisfactory because of a defective electric current, and the results should probably have been slightly higher than here recorded. In this plant the crushing, which was not protected, generated more dust than the ball grinding, and incidentally the man feeding the crusher was continually exposed. In the other flint establishment (56 g) the crushing mills were enclosed and supposedly protected by strong exhaust suction, but, as sometimes happens, the suction was not detectable, owing to loosened boards in the upper part of the enclosure. The ball grinding drums were enclosed at both mills, as they should be. This dust showed a high percentage of Size 3 particles.

TABLE 4.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE STEEL GRINDING INDUSTRY

| Index Number | Department | Particles | | | | Weight | |
|---|---|---|---|---|---|---|---|
| | | Number per Cu. Ft. | Percentage Distribution According to Size 1 | 2 | 3 | Per 100 Cu. Ft., Gm. | Per Cent. Inorganic |
| 63 b | Dry ball grinding | 1,066,200 | 6 | 34 | 60 | 0.0840 | 100 |
| 64 b | Oil grinding...... | 90,000 | 8 | 21 | 71 | 0.0125 | 92 |
| 47 d | Machine shop.... | 313,600 | 9 | 21 | 70 | 0.0304 | |
| | Average............. | 489,930 | 7 | 31 | 67 | 0.0433 | 96 |

*Steel Grinding.*—Samples of dust from the emery grinding of steel were taken in a machine shop of a textile mill and in a ball bearing factory, and the results are recorded in Table 4. The most striking fact is the great difference in the figures for the two departments of the ball bearing factory: in the dry grinding department (63 b), where the horizontal emery wheels throw countless particles in every direction and where incidentally the workers have no protection whatever, the figures are high, while in the oil grinding room (64 b), where the process is the same except that the balls run in oil, the count and weight of the dust is reduced to a twelfth and a seventh, respectively, of the former, these figures being practically those of our standard. This is a strik-

TABLE 5.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE ASBESTOS INDUSTRY, WITH AVERAGES SHOWING THE EFFECT OF EXHAUST HOODS

| Index Number | Department | Particles | | | | Weight | |
|---|---|---|---|---|---|---|---|
| | | Number per Cu. Ft. | Percentage Distribution According to Size 1 | 2 | 3 | Per 100 Cu. Ft., Gm. | Per Cent. Inorganic |
| 57 a | Weaving...... | 240,800 | 3 | 25 | 72 | 0.0277 | 31 |
| 58 a | Carding....... | 900,800 | 5 | 40 | 55 | 0.0416 | 87 |
| 66 k | Carding....... | 212,800 | 3 | 41 | 56 | 0.0128 | 82 |
| 65 k | Carding....... | 90,400 | 5 | 31 | 64 | 0.0148 | 81 |
| 59 a | Crushing...... | 1,163,200 | 4 | 36 | 60 | 0.0536 | 76 |
| 67 k | Crushing...... | 356,800 | 7 | 57 | 36 | 0.0456 | 81 |
| | Average........... | 494,100 | 4 | 39 | 57 | 0.0354 | 73 |
| | Average for departments without exhaust hoods....... | 768,300 | 4 | 34 | 62 | 0.0409 | 69 |
| | Average for departments with exhaust hoods....... | 220,000 | 5 | 43 | 52 | 0.0226 | 81 |

ing illustration of the value of wet processes. The dry ball grinding is the only department of the entire series showing dust composed entirely of mineral matter.

TABLE 6.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE POTTERY INDUSTRY

| Index Number | Department | Particles: Number per Cu. Ft. | Particles: Percentage Distribution According to Size 1 | 2 | 3 | Weight: Per 100 Cu. Ft., Gm. | Weight: Per Cent. Inorganic |
|---|---|---|---|---|---|---|---|
| 49 l | Glaze dipping.. | 152,800 | 8 | 41 | 51 | 0.0144 | 38 |
| 50 l | Jiggering....... | 189,600 | 4 | 33 | 63 | 0.0120 | 67 |
| 51 l | Kiln............ | 249,600 | 4 | 33 | 63 | 0.0200 | 64 |
| 52 m | Pressing........ | 163,200 | 4 | 28 | 68 | 0.0072 | 67 |
| 53 c | Pressing........ | 158,400 | 4 | 33 | 63 | 0.0084 | 71 |
| | Average............ | 182,720 | 5 | 34 | 61 | 0.0130 | 60 |

*Asbestos.*—Table 5 records the results of six tests in two asbestos fiber weaving mills, the second of which had almost completed the installation of an exhaust system for dust removal. The averages in these two mills show clearly the effect of such dust removal, not only in lessening the number of particles and the weight of the dust, but also in decreasing the percentage of the smallest sized particles.

Crushing is seen to be the dustiest process, and it is also the most difficult to guard properly. The crushing room that did not have a suction system (59 a), with over 1 million particles per cubic foot, ranked next to the cement departments in dustiness, and above any of the steel or flint departments, and the carding room in the same mill (58 a) was not far behind. The percentage of inorganic matter in this dust varied from 31 to 82.

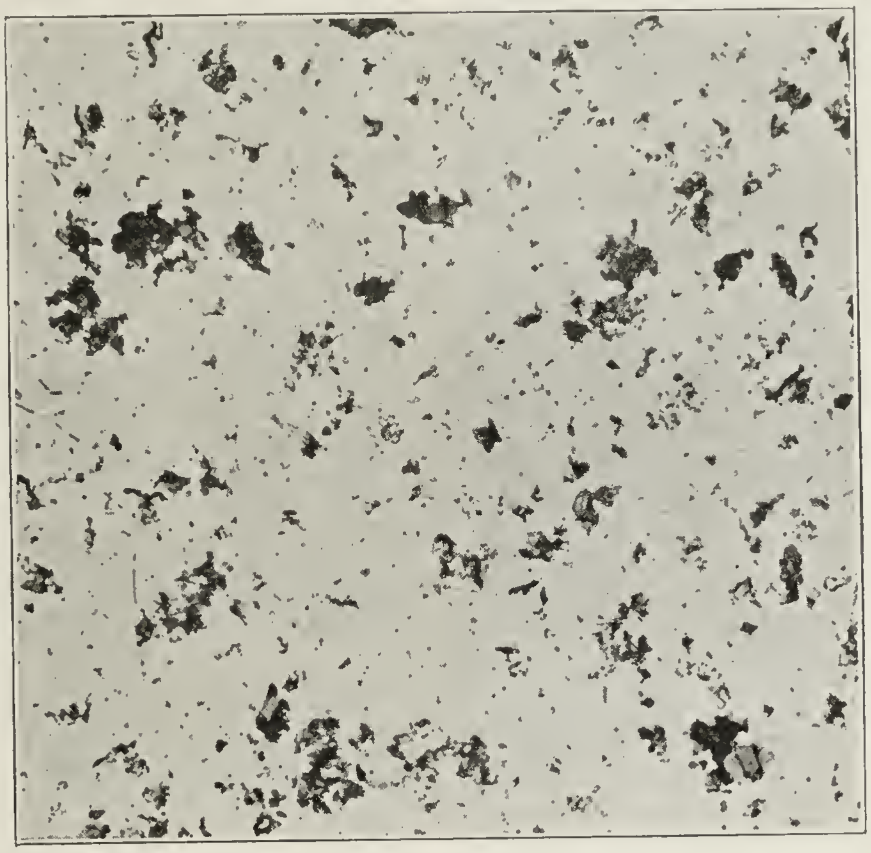

Fig. 3.—Dust collected from the air of a flint grinding mill; × 100; appearance in Sedgwick-Rafter cell; amount of dust in 200 cubic feet of the air suspended in 100 c.c. of distilled water.

*Potteries.*—Table 6 gives the results of five dust tests in three potteries located in Trenton, N. J. These are the lowest figures shown by any of the inorganic industries, the highest count being under 300,000. The latter (51 l) was in a kiln room where tableware was being packed in saggers with powdered flint, and this packing was done in especially constructed boxes with strong exhaust suction at the rear. With the exception of this one department, there was very little variation in the counts in this industry, though there was considerable difference in the weights. The relatively high weight, in proportion to the count, in the glaze dipping room was due to 8.6 per cent. of lead in this dust, a somewhat lower percentage than in the glaze itself. Calculations show that the workers here inhale at most under 2 mg. of lead a day. The percentage of smallest particles here was somewhat less than in the flint mill tests.

### ORGANIC DUSTS

*Plush, Blanket and Carpet.*—Thirteen tests were made in three divisions of a large textile mill making silk and mohair plush, woolen blankets, aeroplane wing cloth, and carpets (Table 7). The wool breaking room (33 d) in the carpet factory showed by far the worst organic dust conditions encountered, with 430,000 particles, little less than in the best flint mill test, and with 0.39 gm. of solids, exceeded only by the three highest tests in cement. It so happens also that this dust is peculiarly harmful, because as the raw, unwashed wool is fed to the breaker, much of the dirt from it is blown directly back into the face of the feeder. Another equally harmful dust tested in this mill, which gave a lower count and weight but a decidedly higher percentage of mineral matter, was that in the rag picking room (43 d), where filthy woolen rags of all descriptions are fed by hand into a shredding machine. The shredded material is blown into a supposedly closed room, but the door is left open, allowing the fine shreds and dust to escape into the main room; and furthermore, at intervals, the operative enters the enclosure and brings out the material by the double armful to bale on the open floor. In so doing he is exposed to much more dust than the results of the test, taken near his station when he is feeding the machine, would indicate. In general, plush mill dusts gave higher counts than carpet mill dusts, but one weaving room (29 d) gave a very low test (under 77,000 particles), little more than one third of the count in the other plush weaving room. Tests in the blanket mill gave remarkably low counts, owing to greater cleanliness and also to the use of wet processes, the bobbins being loaded with steamed thread. Thus again is seen the value of wet processes. All tests in these three mills showed more or less mineral matter in the so-called organic dust, from 17 per cent. in the wool breaking (33 d) to 68 per cent. in a plush weaving room (29 d). Some of the mineral matter in the dust from the weaving rooms is no doubt due to the wear and tear of the machinery.

TABLE 7.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE BLANKET, PLUSH AND CARPET INDUSTRY

| Index Number | Department | Particles: Number per Cu. Ft. | Particles: Percentage Distribution According to Size 1 | 2 | 3 | Weight: Per 100 Cu. Ft., Gm. | Weight: Per Cent. Inorganic |
|---|---|---|---|---|---|---|---|
| 29 d | Plush weaving... | 76,600 | 3 | 41 | 56 | 0.0148 | 68 |
| 30 d | Plush finishing... | 130,800 | 6 | 18 | 76 | 0.0180 | 31 |
| 31 d | Plush shearing... | 195,600 | 4 | 27 | 69 | 0.0252 | 67 |
| 32 d | Plush tiger....... | 150,400 | 6 | 34 | 58 | 0.0220 | 29 |
| 40 d | Plush weaving... | 208,000 | 12 | 11 | 77 | 0.0576 | 44 |
| 41 d | Blanket weaving. | 48,000 | 17 | 37 | 46 | 0.0272 | 41 |
| 42 d | Blanket napping. | 97,500 | 13 | 23 | 64 | 0.0160 | 55 |
| 33 d | Wool breaking... | 430,000 | 7 | 29 | 64 | 0.3904 | 17 |
| 43 d | Rag picking...... | 110,400 | 16 | 22 | 62 | 0.0226 | 45 |
| 44 d | Wool carding.... | 103,400 | 27 | 15 | 58 | 0.0240 | 33 |
| 45 d | Carpet finishing.. | 124,800 | 5 | 17 | 78 | 0.0116 | 62 |
| 46 d | Carpet weaving.. | 149,600 | 11 | 37 | 52 | 0.0112 | 60 |
| 48 d | Wool breaking... | 112,000 | 13 | 24 | 63 | 0.0144 | 22 |
| | Average............ | 148,950 | 11 | 24 | 65 | 0.0504 | 44 |

*Felt Hat.*—Only three tests in a hat factory were made, all in departments handling unfelted fur (Table 8). They show fair conditions, with no very high count, and the decreasing percentage of smallest particles shows the effect of brushing and blowing in cleaning the fur before forming. Lower counts in the brushing and forming departments are doubtless partly due to increased humidity. The highest count is seen in the most dangerous process, fur cutting (60 s), where the fur is full of dried "carrot" (mercury acid nitrate), this being put on to aid in the felting process, and the dust here is liable to cause mercurial poisoning.

TABLE 8.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE FELT HAT INDUSTRY

| Index Number | Department | Particles: Number per Cu. Ft. | Particles: Percentage Distribution According to Size 1 | 2 | 3 | Weight: Per 100 Cu. Ft., Gm. | Weight: Per Cent. Inorganic |
|---|---|---|---|---|---|---|---|
| 60 s | Fur cutting.... | 153,100 | 2 | 28 | 70 | 0.0160 | 30 |
| 61 s | Fur blowing.... | 133,600 | 8 | 32 | 60 | | |
| 62 s | Forming....... | 91,360 | 3 | 42 | 55 | 0.0176 | 48 |
| | Average for the 3 departments...... | 126,020 | 4 | 33 | 63 | 0.0168 | 39 |

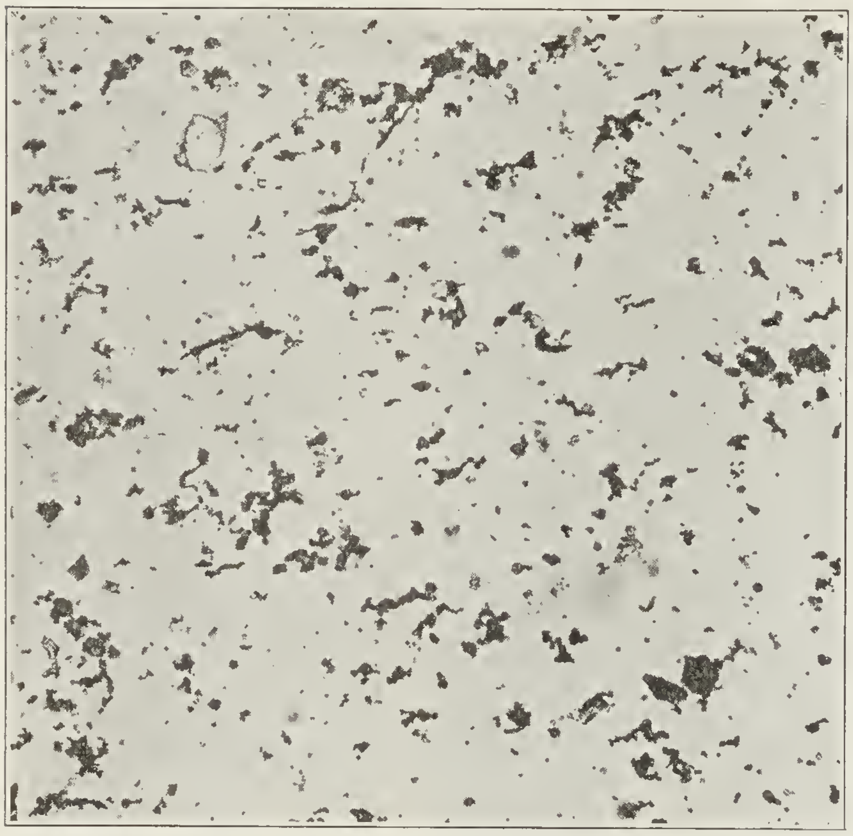

Fig. 4.—Dust from the air of the dry grinding department of a steel ball bearing plant; × 100; appearance in Sedgwick-Rafter cell; the dust of 200 cubic feet of the air suspended in 100 c.c. of distilled water.

TABLE 9.—AVERAGE RESULTS OF DUST EXAMINATIONS IN NINETEEN DEPARTMENTS OF SIX CIGAR FACTORIES

| Department | Number Studied | Particles: Number per Cu. Ft. | Particles: Percentage Distribution According to Size 1 | 2 | 3 | Weight: Per 100 Cu. Ft., Gm. | Weight: Per Cent. Inorganic |
|---|---|---|---|---|---|---|---|
| Banding....... | 3 | 25,000 | 8 | 46 | 46 | 0.0055 | 55 |
| Packing........ | 5 | 61,600 | 5 | 50 | 45 | 0.0036 | 45 |
| Stripping...... | 3 | 90,500 | 6 | 40 | 54 | 0.0088 | 30 |
| Hand cigar making...... | 2 | 90,200 | 8 | 49 | 43 | 0.0075 | |
| Casing......... | 1 | 164,200 | 2 | 55 | 43 | 0.0086 | 77 |
| Machine cigar making...... | 3 | 216,500 | 6 | 44 | 49 | 0.0069 | |
| Stock.......... | 2 | 235,000 | 7 | 48 | 45 | 0.0104 | 71 |
| Average.... | 19 | 102,600 | 6 | 47 | 47 | 0.0084 | 56 |

*Cigar.*—The results of our nineteen tests in cigar factories have been reported elsewhere;[5] hence only the averages in the different departments are given here (Table 9). While in general these tests show comparatively little dust, yet two counts of over 300,000 particles were made, and one test gave a weight of 0.017 gm. The somewhat high inorganic content of the dust is doubtless due to sand, which is invariably associated with tobacco, and to the wear of the machinery.

TABLE 10.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE SILK INDUSTRY

| Index Number | Department | Particles: Number per Cu. Ft. | Particles: Percentage Distribution According to Size 1 | 2 | 3 | Weight: Per 100 Cu. Ft., Gm. | Weight: Per Cent. Inorganic |
|---|---|---|---|---|---|---|---|
| 27 q | Weaving....... | 109,800 | 15 | 2 | 83 | 0.0040 | 60 |
| 28 q | Winding........ | 64,200 | 32 | 3 | 65 | 0.0050 | 40 |
| | Average for the 2 departments...... | 87,000 | 23 | 3 | 74 | 0.0045 | 50 |

*Silk.*—Two tests were made in a model silk factory, and Table 10 shows that these gave results averaging better than in any other industry, and exceeded only by country air and a few individual tests in cigar factories. This was due to extreme cleanliness and to artificially increased humidity. The inorganic content of this dust averaged 50 per cent.

TABLE 11.—SUMMARY OF AVERAGES OF DUST EXAMINATION RESULTS FOR THE SEVERAL INDUSTRIES, GROUPED ACCORDING TO THE INORGANIC OR ORGANIC NATURE OF THE DUST

| Industry | Number of Tests | Particles: Number per Cu. Ft. | Particles: Percentage Distribution According to Size 1 | 2 | 3 | Weight: Per 100 Cu. Ft., Gm. | Weight: Per Cent. Inorganic |
|---|---|---|---|---|---|---|---|
| Inorganic Group | | | | | | | |
| Cement.... | 11 (2) | 6,790,900 | 3 | 37 | 60 | 0.2185 | 72 |
| Flint....... | 3 (2) | 844,040 | 4 | 31 | 65 | 0.0459 | 76 |
| Steel....... | 3 (2) | 489,930 | 7 | 31 | 62 | 0.0433 | 96 |
| Asbestos... | 6 (2) | 494,100 | 4 | 39 | 57 | 0.0354 | 73 |
| Pottery.... | 5 (3) | 182,720 | 5 | 34 | 61 | 0.0130 | 60 |
| Average.. | 28 (11) | 1,777,970 | 4 | 37 | 59 | 0.0717 | 76 |
| Organic Group | | | | | | | |
| Blanket....<br>Plush......<br>Carpet..... | 13 (3) | 148,950 | 11 | 24 | 65 | 0.0504 | 27 |
| Hat........ | 3 (1) | 126,020 | 4 | 33 | 63 | 0.0168 | 39 |
| Cigar...... | 19 (6) | 102,600 | 6 | 47 | 47 | 0.0085 | 56 |
| Silk........ | 2 (1) | 87,000 | 3 | 21 | 76 | 0.0045 | 50 |
| Average.. | 37 (11) | 116,190 | 6 | 31 | 63 | 0.0201 | 42 |
| Standard | | | | | | | |
| Average.... | 5 (4) | 73,360 | 3 | 35 | 62 | 0.0088 | 34 |

## SUMMARY OF AVERAGES

Table 11 gives a general summary of the averages for the several industries, grouped according to the organic or inorganic nature of the raw material used. A remarkable uniformity in the percentage of different sized particles in all the tests is observed. It will be seen that the dustiness is much greater in the inorganic class, and that, although the percentage of inorganic material is naturally greater in this group, yet the so-called organic dusts show a mineral content averaging 42 per cent.

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[5] Smyth, H. F., and Miller, T. G.: A Hygienic Survey of Cigar Manufacturing in Philadelphia, Med. and Surg., 1917, **1**, 698.

### EFFECT OF HUMIDITY

In forty instances in which dust tests were made, relative humidity readings were taken at the same time with a sling psychrometer, and Table 12 shows that as the humidity increases the percentage of the larger particles decreases, the minute ones correspondingly increasing. Table 13 shows the effect of increases in humidity in individual industries, indicating, in general, a tendency to lessening of the total dust count. This is naturally more marked with the more hygroscopic dusts.

TABLE 12.—EFFECT OF HUMIDITY ON THE SIZE OF DUST PARTICLES

| Relative Humidity | Number of Tests | Percentage Distribution of Particles by Size 1 | 2 | 3 |
|---|---|---|---|---|
| From 35 to 39 | 4 | 7 | 36 | 57 |
| From 40 to 49 | 15 | 8 | 36 | 56 |
| From 50 to 59 | 11 | 6 | 34 | 60 |
| From 60 to 69 | 8 | 5 | 33 | 62 |
| As humidity increases |  | Decreases | Decreases | Increases |

TABLE 13.—EFFECT OF INCREASES IN HUMIDITY ON THE TOTAL DUST COUNT IN SEPARATE INDUSTRIES

| Industry | Number of Tests | Effect on Total Count |
|---|---|---|
| Plush | 5 | Irregular |
| Blanket | 2 | Decreased |
| Carpet | 4 | Irregular |
| Cigar | 9 | Decreased |
| Hat | 3 | Irregular |
| Pottery | 4 | Decreased |
| Asbestos | 6 | Decreased |

TABLE 14.—AVERAGE AND MAXIMUM WEIGHTS OF DUST IN THE VOLUME OF AIR INHALED BY A WORKER IN VARIOUS INDUSTRIES, WITH ESTIMATIONS OF THE AMOUNT REACHING THE LUNGS

| Industry | Tests | Weight of Dust in Air Inhaled by a Worker: Per Day of 8 to 10 Hours, Gm. | Per Year of 300 Days, Gm. | Estimated Amount Reaching the Lungs in a Year of 300 Days, Gm. | Estimated Number of Years Required for 1 Pound to Reach the Lungs |
|---|---|---|---|---|---|
| Portland cement | Average of 11 | 0.4559 | 146.77 | 45.59 | 10.9 |
|  | Maximum | 1.0644 | 310.32 | 106.44 | 4.7 |
| Carpet | Average of 6. | 0.1420 | 42.60 | 14.20 | 35.0 |
|  | Maximum | 0.7027 | 210.81 | 70.27 | 7.08 |
| Steel grinding | Average of 3. | 0,0861 | 25.83 | 8.61 | 57.0 |
|  | Maximum | 0.1599 | 47.97 | 15.99 | 31.0 |
| Flint grinding | Average of 3. | 0.0663 | 19.89 | 6.63 |  |
|  | Maximum | 0.0829 | 24.87 | 8.29 | 60.0 |
| Asbestos | Average of 6. | 0.0573 | 17.19 | 5.73 |  |
|  | Maximum | 0.1161 | 34.83 | 11.61 | 45.0 |
| Plush | Average of 5. | 0.0495 | 14.85 | 4.95 |  |
|  | Maximum | 0.1037 | 31.11 | 10.37 | 48.0 |
| Blanket | Average of 2. | 0.0389 | 11.67 | 3.89 |  |
|  | Maximum | 0.0490 | 14.70 | 4.90 |  |
| Felt hat | Average of 2. | 0.0242 | 7.26 | 2.42 |  |
|  | Maximum | 0.0253 | 5.06 | 2.53 |  |
| Pottery | Average of 5. | 0.0187 | 5.61 | 1.87 |  |
|  | Maximum | 0.0288 | 8.64 | 2.88 |  |
| Cigar | Average of 18 | 0.0147 | 4.41 | 1.47 |  |
|  | Maximum | 0.0291 | 8.73 | 2.91 |  |
| Silk | Average of 2. | 0.0081 | 2.43 | 0.81 |  |
|  | Maximum | 0.0090 | 2.70 | 0.90 |  |

### WEIGHT OF DUST INHALED AND REACHING THE LUNGS

From our data, calculations were made of the amount of dust in the air inhaled by the various workers in a day. These estimates were based on the assumption of 30 inches of tidal air per respiration, and of 18 respirations per minute, this giving approximately 18 cubic feet per hour. From these results, further estimations were made of the amount of dust contained in the air inhaled per working year of 300 days, and of the amount that would reach the lungs. Lehmann and his co-workers[6] found that from 35 to 42 per cent. of inhaled white lead dust reached the lungs, and so we figured on at least one third of the various inhaled dusts gaining entrance. Table 14 gives our calculations based on the average and the maximum tests in each industry, and in a few instances records the time that would be required for 1 pound of dust to reach the lungs. Table 15 gives corresponding results for city and country air. From the former table it will be seen that the average cement worker inhales almost a half gram of dust a day, and that over 45 gm. reach the lungs each year, less than eleven years being required for 1 pound to gain entrance. A worker in the dustiest room inhales over 100 gm. a year, and takes in 1 pound in less than five years. The average carpet mill worker inhales 0.142 gm. daily, but the feeder of the wool breaker takes in over 0.7 gm., and the latter would receive a pound in a little over seven years. The steel ball bearing grinder would take thirty-one years to secure a pound, and in none of the other of these industries would so much

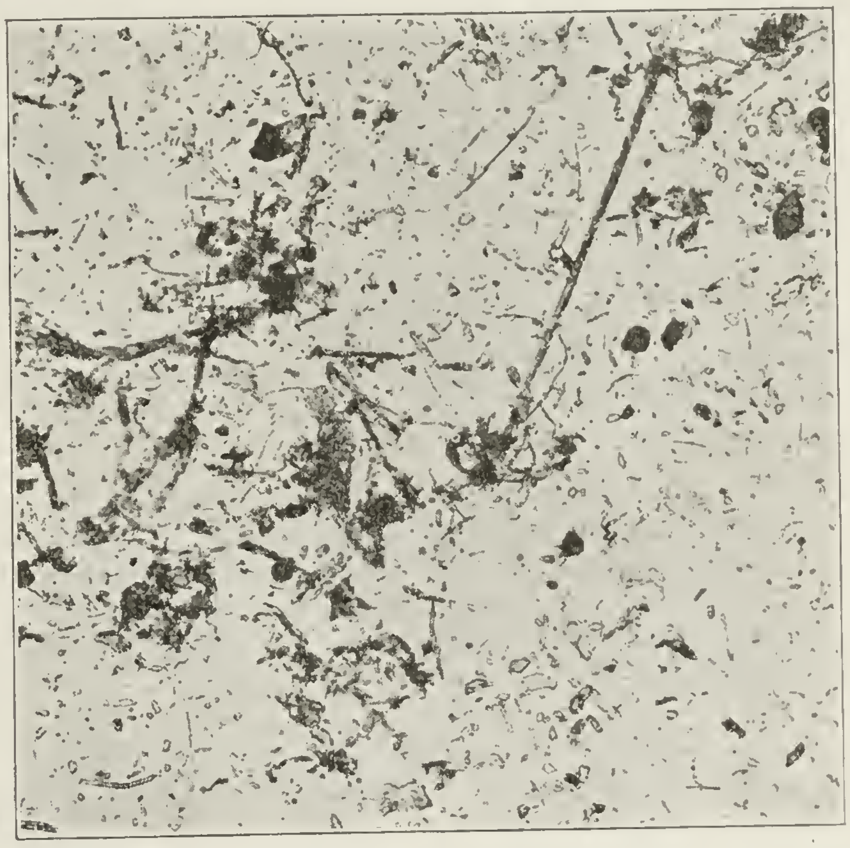

Fig. 5.—Dust collected from the air of an asbestos factory; × 100; appearance in Sedgwick-Rafter cell; the dust of 150 cubic feet of air suspended in 100 c.c. of distilled water.

TABLE 15.—AVERAGE AND MAXIMUM WEIGHTS OF DUST IN THE VOLUME OF AIR INHALED BY AN INDIVIDUAL OUTDOORS AND INDOORS IN PHILADELPHIA, WITH ESTIMATIONS OF THE AMOUNT REACHING THE LUNGS

| Location | Tests | Weight of Dust in Air Inhaled by an Individual: Per Day of 24 Hours, Gm. | Per Year of 365 Days Gm. | Estimated Amount Reaching the Lungs in a Year of 365 Days, Gm. | Estimated Number of Years Required for 1 Pound to Reach the Lungs |
|---|---|---|---|---|---|
| Indoors | Average of 3 | 0.0492 | 17.96 | 4.92 | 100.0 |
|  | Maximum | 0.1045 | 31.35 | 10.45 | 48.0 |
| Outdoors | Average of 2 | 0.0299 | 10.92 | 2.99 |  |
|  | Maximum | 0.0503 | 15.09 | 5.03 | 99.0 |

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6. Lehmann, K. B.; Saito, Y., and Gfrörer, Walter: Ueber die quantitative Absorption von Staub aus der Luft durch den Menschen, Arch. f. Hyg., 1911-1912, 57, 152.

be taken in during the average working life of an employee. These amounts would be much increased, however, in workers with any form of nasal obstruction, since Lehmann found that in mouth breathing 80 per cent. of inhaled dust reached the lungs. Arens[4] calculated that a cement worker would inhale 1.12 gm. of dust a day, a foundryman 0.14 gm., a wool worker 0.1 gm. and a schoolboy 0.0024 gm., these figures comparing fairly well with those here reported.

### VARIATIONS IN DUSTINESS

These tests cannot show all the variations that are likely to occur in dust production; but in any study of the dust problem this factor must not be overlooked entirely. Some of our impressions will therefore be recorded. In the dustiest industry included in our survey, cement manufacture, no appreciable variations were suspected except in the packing department. In the flint mills the production was constant in the crushing department, but in the ball grinding department it was greatly increased when the cylinders were charged or emptied; at no time, however, was the air even comparatively free from dust. In the asbestos mills, no appreciable variations were probable. In the pottery kiln room, dust was an appreciable factor only when saggers were being packed or emptied. Elsewhere in the potteries, conditions were more uniform. In the machine shop and the ball bearing grinding room, there were intervals of comparative quiet and of a decrease in dustiness around each machine. Much more variation in dust production occurred in the textile mills and other factories producing organic dusts.

### CONCLUSIONS

A study of dust samples taken directly from the air, at the respiration level, of sixty-five departments of twenty-two plants, representing five industries dealing with inorganic and four with organic materials, has given rise to the following conclusions:

1. For a complete understanding of the problem of dust in industry, there must be considered not only its weight, but also the number of the particles, their nature, whether organic or inorganic, and their percentage distribution according to size.
2. The order of the industries studied in regard to dustiness, as determined by weight, was (1) Portland cement; (2) plush, carpet and blanket; (3) flint grinding; (4) steel grinding; (5) asbestos; (6) felt hat; (7) pottery; (8) cigar, and (9) silk.
3. The order as determined by the count of particles was the same except that (1) the asbestos, (2) the plush, carpet and blanket, and (3) the felt hat industries were given lower positions; this was largely due to the presence of fibers in these dusts which it was impossible to include in our counts.
4. The so-called organic dusts were invariably composed of both organic and inorganic materials, and the latter ingredient may account for the harmful influences which have been attributed to certain of these dusts.
5. The organic dusts averaged less than the inorganic dusts both in weight and in count of particles.
6. The percentage distribution of the different sized particles was curiously similar in all the samples, and it may be assumed that approximately half of all dust particles, that are countable by the method here employed, are about 1 micron in greatest diameter, the others ranging up to about 40 microns.
7. Dust removal at the point of production not only greatly decreases air dustiness, but particularly removes the smaller particles.
8. The substitution of wet processes for dry ones effectively lessens air dustiness.
9. Air dustiness varies inversely with relative atmospheric humidity, as does also the percentage of the larger dust particles.

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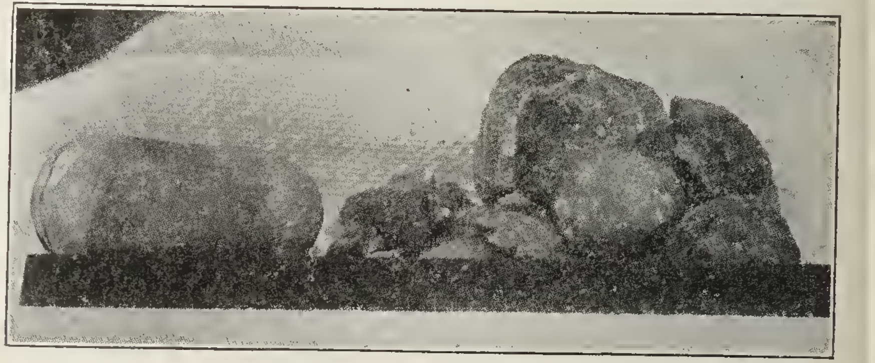
# Clinical Notes, Suggestions, and New Instruments

## AN UNUSUALLY LARGE VESICAL CALCULUS

H. M. McCandliss, M.D., and Nathaniel Bercovitz, M.D., Hoi How, Hainan, China

Oct. 30, 1917, a man aged 31, entered the hospital complaining of great pain on urination, with pain over the bladder. The patient had been in this condition for over ten years, gradually getting worse. When he came to the hospital, he could not stand erect on account of the pain.

The man was emaciated, and his face and body were covered with pit marks of old smallpox. A sound introduced into the urethra met at the neck of the bladder a solid, immovable body. This could be palpated 2 inches above the pubes. The urine showed an intense cystitis. An incision was made above the pubes almost to the urbilicus and the bladder, which was distended with boric acid solution and opened. A large irregular stone was disclosed which was found to be impacted. Efforts to dislodge it proved fruitless, and finally a hammer and chisel were used to break it into fragments.



Fragments of calculus.

An outer shell from three-fourths to seven-eighths inch in thickness was first broken through anteriorly and removed. The nucleus of the stone, 2 inches long, 1½ inches wide, and 1 inch thick, was then removed. The posterior portion of the shell was now dislodged and removed. A mass of small fragments and débris was removed, and the bladder thoroughy irrigated, although a considerable amount of "sand" was adherent to the walls of the bladder and the edges of the wound. A catheter was introduced, and a large rubber tube drain left in the suprapubic opening, the incision being closed in the usual manner.

After thorough drying, the fragments that were recovered weighed 385 gm. It was found impossible to reconstruct the stone, but the accompanying illustration of the fragments gives an idea of its size.

The postoperative history has been uneventful, and at the date of writing (November 21), the suprapubic opening is almost closed. How many stones heavier than this one have been reported?

American Presbyterian Hospital.

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**Great Nations.**—The greatness of a nation is to be judged by the number of the great men it has produced.—Keen.

## *Military Medicine and Surgery*

# SIMPLIFIED RULES FOR TUBERCULOSIS EXAMINATIONS

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WASHINGTON, D. C.

In my instruction at the Medical Officers Training Camp at Fort Benjamin Harrison, and more recently at the Army Medical School, emphasis has been placed on certain points which seem especially essential to the thorough examination of the lungs. While none of these points are original, they do not appear to be so widely appreciated as their importance warrants.

These essentials I have arranged in groups of three in the hope that this will make it easier to remember them.

Because of lack of time, examinations in the Army must be made rapidly; but if systematically done, they will also be thorough. Therefore (1) system, (2) rapidity and (3) thoroughness characterize the work, the motto being "A maximum amount of information in a minimum of time."

### ESSENTIAL POINTS

- Always compare corresponding areas in.....
  1. Inspection.
  2. Percussion.
  3. Auscultation.
- For inspection, subject must ................
  1. Sit erect.
  2. Relax shoulder muscles.
  3. Face the light.
- One should look for....
  1. Retractions (apical and over the hila).
  2. Diminished expansion.
  3. Lagging.
- Signifying, respectively..
  1. An old process.
  2. An extensive process or adhesions.
  3. Active disease.
- For percussion one should ..............
  1. Exert very firm pressure with finger placed parallel with the ribs.
  2. Employ a very light uniform stroke.
  3. Percuss from below upward.
- To study the breath sounds, the subject....
  1. Breathes very quietly (mouth open).
  2. Slightly more deeply.
  3. Slightly more rapidly.
- Be sure to............
  1. Note character of inspiration.
  2. Length and pitch of expiration.
  3. Study of the whispered voice.
- Remember that normally at the right apex.....
  1. Tactile fremitus is increased.
  2. Percussion note is less resonant.
  3. Expiration is somewhat prolonged and raised in pitch.
- Activity is indicated by râles best elicitated thus ................
  1. Expire forcibly.
  2. Cough.
  3. Inspire (moderately). (Save time by illustrating method.)
- The characteristic râles are subcrepitant.......
  1. Heard immediately after the cough at the beginning of inspiration.
  2. Usually persist through the whole of inspiration.
  3. With less active lesions, are heard only in the first part of inspiration; sometimes only during the cough.
- Of especial significance are râles that are.....
  1. In showers.
  2. Localized.
  3. Persistent.
- They should be sought for with particular diligence in the........
  1. Supraspinous fossae.
  2. Supraclavicular space ((*a*) inner, (*b*) middle, (*c*) outer portions).
  3. First interspace near sternum.
- Do not mistake for the râles of tuberculosis..
  1. The inconstant apical râles at the end of forced inspiration.
  2. Sternoclavical crackles. (Hold breath, rotate shoulder.)
  3. Sternal and muscle sounds.
- Do not consider tuberculosis the fine râles ("marginal sounds") heard over the lower lobes, especially in the anterior axillary line..
  1. They are crepitant.
  2. Begin in the middle of inspiration and attain their maximum at the end.
  3. Dissipated by deep breathing.
- Remember that..........
  1. Lesions of apexes are usually tuberculous.
  2. Lesions of base alone are usually not.
  3. The most common cause of bronchovesicular breathing is noisy nasal respiration.
- In military work.......
  1. Make diagnosis for physical signs rather than symptoms.
  2. Do not overlook the extensive but inactive lesions (retraction, dulness, breath changes, *no râles*).
  3. Do not overlook small active lesions (no retractions, dulness or breath changes, *but râles*).
- To minimize mistakes...
  1. Reexaminations.
  2. Sputum and roentgen-ray examinations.
  3. Temperature and pulse records.

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# FURTHER EXPERIENCES WITH DAKIN'S DICHLORAMIN-T IN THE TREATMENT OF WAR WOUNDS*

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AND
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Captain, M. R. C., U. S. Army
FRANCE

In a previous report[1] on the use of Dakin's dichloramin-T in the treatment of war wounds, the simplicity of the technic, the great saving of pain, and the economy of time and surgical material were pointed out. We now present the results of a more extended experience with this antiseptic. We shall limit our report to our own service, although the same method has been used to a greater or less extent on the other three surgical services of this hospital and in an adjoining hospital.

We shall present the total number of the severe cases treated, classified in a general way. We shall discuss only our surgical failures, leaving the reader who is familiar with the conditions under which we are working to judge. Let it be stated for the reader not familiar with these conditions that our material is in no sense whatever chosen. It does not reach us within the first twenty-four hours, and the more important cases have all been surgically treated elsewhere; we take the wounds as they come, some clean, some infected, some foul. Wounds clean when they come to us stay clean; the infected and the foul wounds clear up, with the failures detailed below. As we are working in a general hospital, the length of time required for complete healing cannot be given; the patients remain here only until they are in condition fit for evacuation.

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* From 16 (Philadelphia, U. S. A.) General Hospital, B. E. F.

[1] Sweet, J. E.: Brit. Med. Jour., 1917, 2, 249.

From July 7, 1917, until Oct. 25, 1917, we have treated in our own service, among other wounds, 680 cases of wounds of a severity sufficient to require evacuation to England. Of these, 30 were amputation stumps (not including amputations distal to wrist or ankle); 94 were compound fractures of the upper extremity, of which 40 were compound fractures of the humerus; 78 were compound fractures of the lower extremity, of which 27 were compound fractures of the femur; 31 were severe buttock wounds; 131 were severe wounds of the upper extremity, without fracture; 200 were severe wounds of the lower extremity, without fracture; 34 were severe flesh wounds of the back; 82 were severe miscellaneous wounds (head, face, neck, etc.).

From the standpoint of the theory of surgery, loss of life, or limb, or the endangering of life or limb by long continued sepsis and by secondary hemorrhage are failures.

We have lost twelve patients. Two died of anaerobic septicemia, and both were dangerously ill on admission. Two died from infected foreign bodies in the brain. One died of septic peritonitis six hours after admission. One died from bronchopneumonia twenty-four hours after admission. Two died of traumatic meningitis, from penetrating injuries of the lumbar portion of the spinal canal. One died of traumatic meningitis of the lower cord, from penetrating wound of the fourth lumbar, with epidemic cerebrospinal infection of the meninges of the brain. One died of septicemia, starting from a penetrating wound of the sacro-iliac joint, symptoms appearing twenty-four hours after admission. One died of pyemia, with abscesses in the lungs, starting from a compound comminuted fracture of the head and neck of the left femur. One died of edema of the lungs, with septicemia, membranous laryngitis, pharyngitis and tracheitis, probably a streptococcic throat infection that was independent of the wounds. These are condensed reports of the postmortem finding of the pathologist.

We have performed two amputations; in both instances patients were admitted with symptoms of simple gangrene due to the destruction of the vessels of the leg by shrapnel.

By long continued sepsis we mean the course so familiar to the older surgeons, with gradual undermining of the patient's general condition, loss of weight, loss of appetite, fever, diarrhea, bedsores, etc. We have had but one such case in this series; a wound of the knee joint, with history of the joint's having been cleaned out elsewhere, treated with bismuth iodoform paste, and the capsule and skin sutured. For about a week the patient did well; then infection began in the joint, and after a long and stormy period, combined with the opening of the joint and the removal of many fragments of bones, and three pieces of shrapnel from the neighborhood of the joint, the patient's temperature began to recede. Several patients on our service with empyema have shown long continued septic temperatures; but these hardly belong in this discussion, since they came to us with the infection developed, and were treated by drainage, not by dichloramin-T.

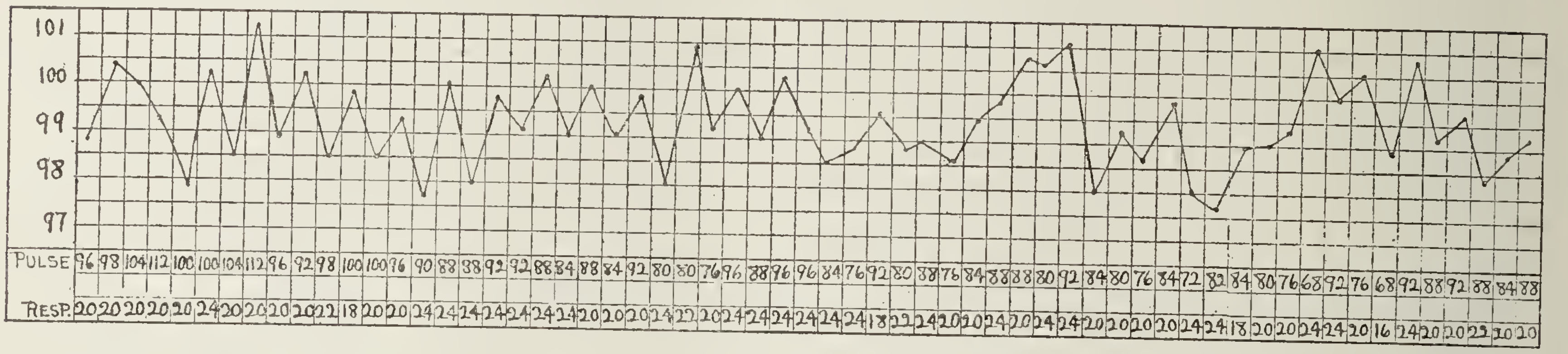

Chart 1.—Temperature, pulse and respiration chart for the first four weeks after admission of Private W. (2756), with a compound fracture of the femur involving the knee joint.

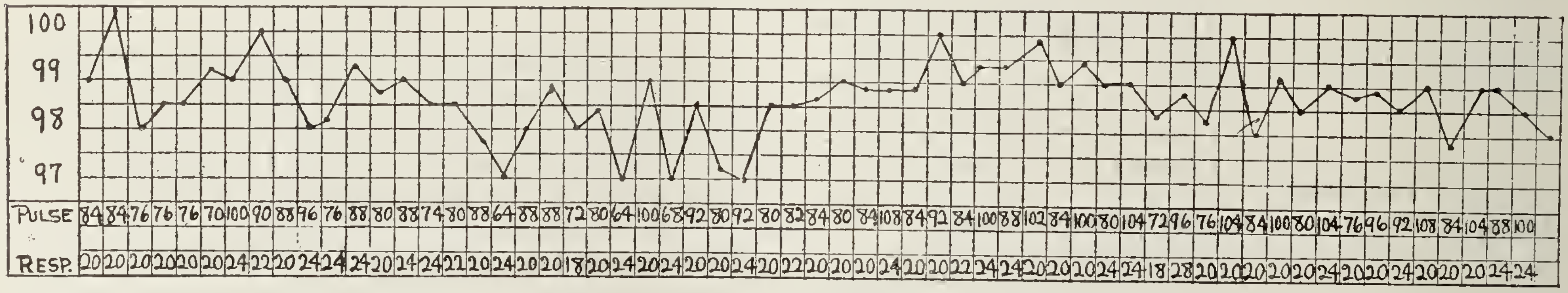

Chart 2.—Temperature, pulse and respiration chart for the first four weeks after admission of Private H. (29399), with a compound fracture of the femur.

We present the temperature charts for the first four weeks after admission of two compound fractures of the femur, the most severe cases we have had. Private W. was admitted dangerously ill, with a huge, foul wound of the lower thigh and extensive comminution of the lower third of the femur, the wound communicating through the suprapatellar pouch with the knee joint. Private H. was admitted in severe shock. Both were evacuated after eight weeks, with body union.

Secondary hemorrhages have occurred in the following cases:

1. A small wound of the temporal region, with severed temporal artery. The wound was concealed by the hair. It was not discovered for five days. Hemorrhage was trivial.
2. A compound fracture of the lower jaw. There were repeated hemorrhages until the dental surgeon could wire the jaw in place.
3. One of our two amputation stumps, necessitating ligation of the femoral.
4. A posterior tibial artery, torn by shrapnel, necessitating ligation just below the bifurcation.
5. A compound comminuted fracture of both bones of the left forearm. There were repeated hemorrhages until the patient's coincident septic pneumonia permitted a general anesthetic.

With the cooperation of Capt. E. B. Krumbhaar, M.R.C., U. S. Army, we have made bacteriologic studies of these and other wounds. We have practiced secondary closure in but few, since we believe that secondary closure represents a surgical problem that is not solved by the mere ability rapidly to sterilize a wound. We have made these studies in order to convince ourselves that the simple technic of dichloramin-T permits the sterilization of a wound as rapidly as can be accomplished by any other antiseptic, and that not only "clinical sterility," as represented by the counting of smears, but also bacteriologic sterility, as represented by negative cultures, can be attained by dichloramin-T.

We are not yet prepared, nevertheless, to subscribe to the dictum that secondary closure is always the best surgical practice.

One hundred and thirty-six examinations by smear or by culture or by both methods have been made of fifty-one wounds. Of these fifty-one wounds, thirteen were found to be sterile by culture on agar or egg plants; six were "clinically sterile," that is less than five organisms were to be found in twenty fields of a smear. Examination of twelve additional wounds by the smear method showed them to be "clinically sterile," but cultures made at the same time gave numerous colonies.

The length of time required for the sterilization of a wound will depend on the extent of the infection, and also, we believe, on the character of the microorganisms present; relatively clean wounds have been culturally sterile in eight days; foul, stinking wounds have required twenty-one days.

These results will be reported later in a discussion of the problem of the secondary closure of wounds.

# NATURE AND TREATMENT OF WOUND SHOCK AND ALLIED CONDITIONS

**[EDITORIAL NOTE.—The first three articles in the series of six articles on this subject, which represent the work of the Special Investigation Committee of the Medical Research Committee (Great Britain), appeared in The Journal last week, February 23, pages 520-535. The remaining three articles appear in this issue. The complete series is reprinted as a pamphlet and will be sent on receipt of ten cents in stamps.]**

## THE INITIATION OF WOUND SHOCK

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### Introduction

The name "wound shock" is suggested in order to avoid the confusion which arises, even among medical officers, if the word "shock" alone is used. The term "surgical shock" used in connection with the reaction of the body to wound injury is also to be deprecated.

Wound shock may supervene early on. That is, the man suddenly becomes pale, clammy and pulseless; and a low pressure may be found as soon as it is possible to make a reading, fifteen to twenty minutes after the man has been hit. To this group of symptoms with hypotension the name *primary wound shock* is given. When, on the other hand, as the result of a long carry in the cold or the onset of toxemia, or the presence of continuous slight hemorrhage, or combinations of these conditions, a man previously in good condition develops similar shock symptoms, a condition of *secondary wound shock* may be said to exist.

In order to understand more completely the later phases of fully developed wound shock, the necessity for making clinical studies of the earliest manifestations of the condition became more and more emphasized. Opportunities arose and facilities were granted by the army medical authorities for carrying out the requisite investigations. A series of posts were established along the route of evacuation from the firing line to the casualty clearing station. Suitable cases were chosen and examined, blood pressure readings taken, and notes made by medical officers interested in the work. A spring sphygmomanometer was used at each post. In a few instances the same observer followed the case for several miles, in order to watch the patient and check observations.

It was thus possible to collect a small series of cases and establish the exact time relations in the pressure curves of both primary and secondary wound shock.

Besides a study of the blood pressure, careful clinical notes were kept of all cases. In addition, a few hematocrit readings were made in the line and samples of venous blood taken for examination in the laboratory for acidosis.

A dynamometer was improvised from the spring blood pressure instrument in order to form an idea of the general muscular power and "tone" of the nervous system in these cases of hypotension.

Besides observations in actual wound cases, many pressure readings of officers and men in different parts of the line and under varying conditions were taken The facts observed during a tour of duty in the line in February, 1917, were confirmed and amplified.

### Physiology of the Fighting Soldier

A good deal of light is shed on the pathogenesis of wound shock by a consideration of the conditions of life of the soldier in the zone of fire. In the case of men living in the areas behind the trenches, where they are exposed to occasional shell fire, the conditions of food, drink, sleep, and shelter from the weather are practically normal. One finds an average systolic pressure of from 110 to 120 mm., with a diastolic of from 75 to 80 mm. and a pulse pressure of from 35 to 40 mm.

In the front line trenches, however, the conditions of existence are for the most part unfavorable. The soldier is subjected to long spells of hard physical labor, often accompanied by profuse sweating. Sleep is short, and generally interrupted. The food supply is sufficient, but water is very often available only as a limited ration. In the firing line and during battle all these factors become accentuated.

For a large part of the year, exposure to wet and cold must be taken into account. Thus the man, who may be hit at any time, is likely to be in a state of fatigue, with a tendency to concentration of plasma, sluggish peripheral circulation, and accumulation of waste products of muscular metabolism.

The urine of such men is dark, scanty, and loaded with phosphates.

Evidence has already been obtained which shows that in conditions of this kind at an exposed active sector of the line the average systolic pressure was a little above the normal, that is, from 120 to 130 mm. Pressures were found without exception to be raised at times of increased activity, with the following average results: systolic pressure, from 140 to 160 mm.; diastolic pressure, from 70 to 100 mm.; pulse pressure, from 60 to 70 mm. Communication of the details of these observations must at present be deferred.

It is not possible to make similar observations in the heat of battle, but there is no doubt that these physiologic conditions are all present, only in a much greater degree, affording important prewound factors in the initiation of wound shock.

## Classification of Wounds with Reference to the Incidence of Wound Shock.

From the point of view of the production of shock, the wounded may be divided into the three following classes:

A. Trivial wounds, which cause only slight damage to the tissues.

B. Moderately severe wounds, in which the anatomic disturbance disables the man, but is not sufficient immediately to endanger life.

C. Serious wounds which, from the nature of the injury, must of necessity prove mortal, or which will cause death unless the man is given surgical attention within a short time.

### CLASS A. TRIVIAL WOUNDS

In these a transient psychic disturbance may occur, and the man become pale and sweat. But in three cases of fainting after being wounded, the pressure, which was taken as soon as possible after the recovery from the faint, was found to be normal. In men who are more "highly strung" an excitement stage may follow a trivial wound. For example, a boy 18 years of age, with very slight multiple superficial shell wounds, exhibited a systolic pressure of 180 mm. In this group of cases the question of temperament plays a prominent part. Examination was made of a party of slightly wounded men, belonging to a county infantry battalion, as they came back into the firing trench from a raid. The average systolic pressure was 110 mm.; only one man had a reading as high as 130 mm.; he was talkative and excited.

Apropos of this question, the experimental work of Cannon[1] and his co-workers on the physiology of excitement is very interesting and eminently applicable to the soldier in battle. According to this author, a definite series of psychologic events results from the application of suitable psychic stimuli. The main factor is the outpouring of suprarenal secretion, which helps to transform the animal into a fighting mechanism. The circulation is better maintained by the raised blood pressure; the heart and skeletal muscles can do more work with their increased supply of blood sugar, and in the event of a wound being received the coagulation time of the blood is so diminished that clotting occurs more quickly and the bleeding is staunched.

In the excitement cases the pressure subsides rapidly with quiet and rest. In the case of the boy of 18, it had fallen to 160 and 90 in thirty minutes and 126 and 80 in the next hour.

### CLASS B. MODERATELY SEVERE WOUNDS

In this group are included those wounds which cause a certain degree of damage to the tissues, but either a vital organ is not involved at all, or, if such is involved, the damage is slight, as in a small perforating wound of the abdomen, and danger to life does not develop for some hours. In these cases primary wound shock does not as a rule occur. If the patient is examined within a few minutes where he fell, he presents no sign of general systemic disturbance, and the blood pressure remains within normal limits. After the lapse of a short time, however, and as a result of the operation of certain factors which are to a great extent avoidable, the symptoms of shock with hypotension appear, and the patient then shows secondary wound shock (Chart 1).

For example, a man (*a*) was hit by a shrapnel ball which fractured his femur. He was passing along the trench just outside the aid post at the time, and was treated by the medical officer at once. His pulse was 72 and pressure 120 and 80. Again, by a curious chance, a shell hit a house in which was a party of men (*b*), four of whom sustained compound fractures of the femur, without developing immediate shock. Another case (*c*) was observed in an outpost in the front line, when a bomb arrived which killed one man on the spot and wounded his chum. The foot of this man was partially shattered and his shoulders and neck sprinkled by little fragments. His blood pressure, which, as it happened, had been found to be 110 and 70 a short time before, remained unaltered.

One other example (*d*) of this class of case may be quoted, which possibly is exceptional, but which is nevertheless of interest. A strong, burly lance-corporal, a boxer of good reputation, was hit by a shell which carried away his left leg halfway between the knee and the ankle and also shattered his right foot. When seen, soon after, his pulse was 96 and systolic pressure 115 mm. Clinically, one would say none of the usual symptoms of shock were present. As the pain was considerable, he was at once given a hypodermic injection of morphin, ⅓ grain, by the medical officer.

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[1] Cannon: Bodily Changes in Pain, Hunger, Fear and Rage, New York, 1915.

The immediate after history of these wounded men is instructive.

The man (*a*), with a compound fracture of the femur, who was hit outside the aid post, was warm at the time. He was put on a stretcher at once, well wrapped up, and sent down to the next post on the line of evacuation. On arrival here his pulse was 72 and pressure still normal. Since he was quite comfortable in his splint, he was kept several hours before being sent to the casualty clearing station, and developed no signs of shock.[2]

The four men (*b*), hit in the same house, were splinted at once and placed on a motor ambulance, which was driven at a walking pace to a casualty clearing station within half a mile. No shock developed, and all did well.

In the example of the man (*c*) hit by a bomb at the outpost, secondary wound shock developed. He arrived cold and pulseless at the aid post. Before he was hit he was cold, fatigued and thirsty; and during the carry of an hour and a half, exposed to the chill wind preceding dawn, he lost more heat. Fear, too, was probably superimposed as a factor in this case, since on the journey down the stretcher party was exposed to occasional shells and bursts of machine gun fire. A sound man feels moderately secure in the trenches because he can take cover; but a man who is already hit and is being carried along on a stretcher, shoulder high, feels helpless. At the next stage this man was still pulseless. Very soon after being admitted to the casualty clearing station, however, he was warmed; his pulse returned, and he did well without the exhibition of any antishock methods of treatment.

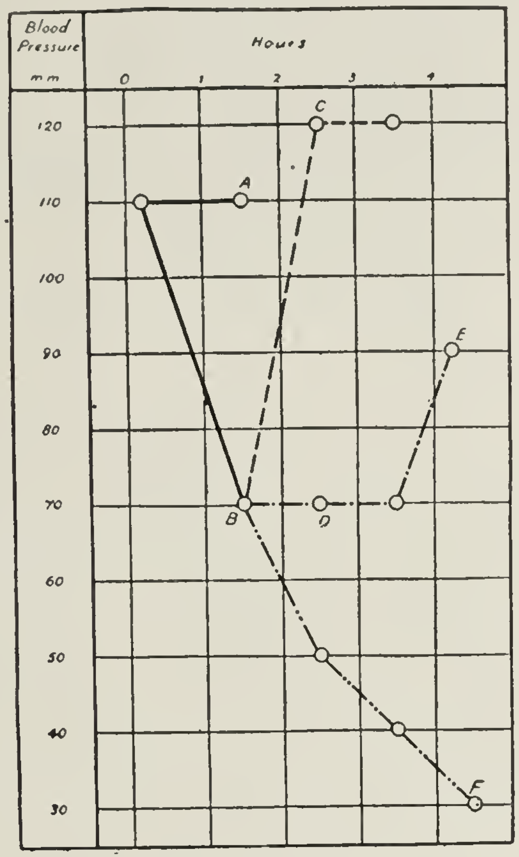

Chart 1.—Secondary shock curve; diagrammatic: In many wound cases the pressure will remain level (*A*). In others, as a result of hemorrhage or exposure to cold, there is a drop of pressure with the establishment of a secondary shock (*B*). If the patient is at this stage well cared for and the wound not too severe, the pressure will rise during the next stage of the journey (*C*) or remain stationary (*D*), improving after admission to the casualty clearing station (*E*). In the absence of favorable circumstances, the pressure goes steadily down and the case terminates fatally, usually in from twelve to twenty-four hours (*F*).

The boxer (*d*), with his leg blown off, also developed secondary wound shock. He did not manifest any lowering of tension on the journey from the trenches to the advanced dressing station, but on arrival at the casualty clearing station, about five hours after his being wounded, toxemia was beginning to develop, and the pressure had dropped from 114 and 70 to 88 and 62 mm.

Before leaving the second group of cases, another example of marked wound shock, but with quick recovery, may be mentioned. A young soldier (*e*) in a wiring party sustained two simple bullet wounds of the fleshy part of the thigh. It was a cold night. After being carried two hours, with no hemorrhage, he was found to be cold, thirsty and pale, with a pressure of 70 and 50 mm., and a small thready pulse of 68. He was given a hot drink and, after being warmed and well wrapped up, was sent off. At the next post his arterial pressure had risen to 120 and 80 mm., and remained at that level on arrival at the casualty clearing station.

### CLASS C. SERIOUS WOUNDS

In the third group a serious surgical condition has resulted from the wounding. The wound shock comes on early, and apparently in proportion to the gravity of the lesion[3] (Chart 2).

In primary wound shock, very definite clinical symptoms may be observed. For example, the driver of an ambulance car was hit in the abdomen by a shell fragment as he arrived at the dressing station on a warm, sunny morning. He fell down, and within a few minutes, as his wound was being dressed, drew the attention of the medical officer to his profuse sweating. He was wrapped up in blankets, hot bottles were applied, and he was sent off. After thirty minutes' ride over a rough road, scarred by shell holes, he was found to be responsive to questions. He complained of pain, and presented cold, clammy extremities, with the sweating still marked. He was pale, with a pulse of 96 and a pressure of 100 and 70. On arrival at the casualty clearing station, about forty-five minutes later, the pressure had further dropped to

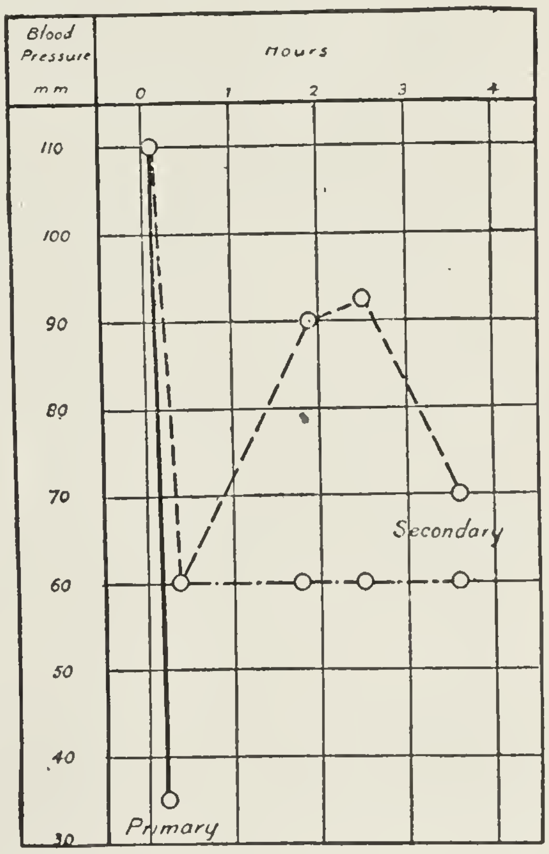

Chart 2.—Primary wound shock curves; diagrammatic: Following the receipt of a severe anatomic injury, where death must ensue or where life can be saved only by prompt surgical interference, instant shock appears accompanied by hypotension. This may be fatal in a short time. If all precautions are taken in the careful transit of the patient, the pressure may rise *en route* or remain level without further drop. After the lapse of a few hours the condition of primary wound shock merges into that of secondary wound shock unless recovery has first occurred.

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[2] There is little doubt that since the universal introduction of the Thomas splint for fractures of the femur, which has proved increased comfort to the patient and immobilization of the fragments of the bone, the incidence of secondary shock has been greatly diminished. Such patients used to arrive at the casualty clearing station with well established shock showing systolic pressures of 80 or 90 mm. or less. Similar cases now arrive with systolic and diastolic pressures of 130 and 90, 120 and 80, or even 160 and 100 in one case.

[3] The only predetermining factor of any importance in the amount of shock which may result is the temperamental stability of the patient. This point is illustrated in some of the following cases.

82 and 70 and the pulse had risen to 100. Operation was performed in time to stop further hemorrhage. Ten rents in the bowel were repaired, and after intravenous infusion he eventually made a good recovery.

A few other examples of severe injuries with early wound shock may be quoted, in which circulatory disturbance predominated. In these cases, whenever the systolic pressure was found below from 60 to 70 mm., it was always a distressing symptom.

Case 1.—A man on a working party was seen about forty minutes after being hit by a shell burst. He had sustained penetrating wounds of the chest, buttocks, legs and thigh, with fracture of the femur. He was cold, with a clammy skin; pulse 80, and blood pressure 60 and 50 mm. He complained loudly of thirst and pain. His sensation was normal, and as the antitoxin needle was inserted he cried out. Respiration was from 20 to 24, with no unusual characteristics. Morphin, ¼ grain, hypodermically, stopped the pain in a few minutes; and after a few hours' warming he was sent on with a pulse of 90 and pressure of 98 and 70.

Case 2.—A young officer, of a nervous, irritable disposition, was hit in the dorsal region of the spine by a sniper just after dawn. Two hours later his blood pressure was 75 and 50, pulse 84, and all the signs of wound shock were present.

Case 3.—A large, powerfully built gunner was seen within half an hour after being hit, one hot, sunny morning. The shell fragments had fractured his lower jaw and left femur. He was cold, sweating, pulseless and thirsty. The systolic pressure was about 30 mm. There was considerable hemorrhage. He was treated in the routine way and sent down. He improved for a time at the casualty clearing station, but eventually died of gas gangrene.

Case 4.—Another man, hit by a shell while on a working party on a cold, wet, muddy night, was brought to the advanced dressing station within fifty minutes. He was found to have multiple severe wounds, including compound fractures of both a femur and a humerus, with laceration of the muscles. When examined, the wounds looked like dead tissues. There was no bleeding, and practically no capillary oozing. His systolic pressure was 40 mm. Mentally he was quite bright and responsive, so that the medical officer in charge of the case remarked on the patient's "wonderful fitness." The man, however, was dead within the hour.

Case 5.—Another man had a severe wound of the buttock, penetrating the abdomen. He was seen a short time before death, about two hours after he was hit. He was pulseless at the wrist, with a blood pressure of about 30 mm., and was so restless that he had to be held on the stretcher by two orderlies.

Case 6.—A thin, lightly built sergeant of anxious, worrying disposition was hit as he lay asleep at the foot of his dugout, by a shell which shattered both his feet. His company commander, a medical man, was fetched within two minutes and found him unconscious and pulseless. Both feet were pulped, but not bleeding. He died about an hour later.

The "grip," as recorded by the improvised dynamometer in those cases of profound hypotension in which it was possible to make this test of muscular power, was in all cases practically the same as for a normal man.

## Conclusions

1. The psychology and physiology of the average healthy "veteran" soldier, living in the fighting zone under "peace" conditions are, for practical purposes, normal.

2. In battle and at points of activity, the conditions of excitement, cold, thirst, fatigue and possibly loss of sleep become important prewound factors in the initiation of wound shock.

3. Wounds may be classified into three groups with regard to the incidence of shock.

*Trivial wounds,* such as slight scalp injuries or small lesions of subcutaneous tissues only, give rise to neither primary nor secondary wound shock. Transient psychic disturbances of either depression or excitement may result, accompanied by a normal or raised blood pressure.

In *moderately severe wounds,* such as uncomplicated compound fracture of the femur, a slight penetrating wound of the abdomen or a lacerating wound of muscle without urgent hemorrhage, as a rule, primary wound shock is absent, that is, if the patient is seen within a few minutes. If circumstances permit of sufficient care being taken, probably no untoward symptoms will arise, and secondary wound shock may be averted (Cases *a* and *b*).

As the factors of cold, toxemia, pain, anxiety or lack of water are allowed to come into play, however, there develops, after a lapse of several hours, secondary wound shock (Cases *c, d,* and *e*).

Into the category of *serious wounds* will fall a large group of cases in which the wound must of necessity prove mortal. Symptoms result immediately and hypotension is found from the earliest moments (Cases 1 to 6). This is primary wound shock. Such shock is likely to be produced to a greater degree in men possessing temperamental instability. After a few hours, unless recovery has first occurred, the condition of primary wound shock merges into that of secondary wound shock, owing to the operation of the same conditions, cold, pain, anxiety. In the slighter cases, recovery from primary symptoms is rapid (Case 1); but then exposure and the factors enumerated in B may come into play, and secondary wound shock become established.

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**Social Insurance Legislation in 1917.**—From the *American Labor Legislation Review,* September, 1917, is abstracted the following information concerning social insurance and allied topics as acted on in the state legislatures during 1917. Workmen's compensation laws were enacted in Delaware, Idaho, New Mexico, South Dakota and Utah, and in twenty-six states amendments to existing laws were made. The tendency has been to extend the scope of the laws, to shorten the period at which compensation begins, and to increase the provision for medical care. Thirty-seven states and the territories of Alaska, Hawaii and Porto Rico now have compensation laws, and in addition legislation has been enacted in Congress for the benefit of government employees, along with the important provision for compensation and insurance for soldiers, sailors and civilian seamen and compensation for longshoremen. Other forms of social insurance were the subject of increased interest during the year. In California, after two years' investigation, the legislature has submitted to the people a constitutional amendment providing for a system of health insurance. Massachusetts, Pennsylvania and Illinois have continued or created commissions to study health insurance, and Pennsylvania has a separate commission to study old age pensions. New Hampshire created a committee to study workmen's compensation and health insurance together, Wisconsin covers social insurance generally, Connecticut is studying health and old age insurance, and Oregon and Idaho enacted legislation to regulate hospital funds. Arizona enacted a minimum wage law for women in private employment, being the twelfth state to pass such a law. Montana and Nevada established an eight hour limit for women, and Alaska passed a universal eight hour law. Congress empowered the President to suspend the eight hour law on government war work provided time and a half were paid. A few other states relaxed somewhat the laws relating to hours of labor.

# A CONSIDERATION OF THE NATURE OF WOUND SHOCK

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## Introduction

The previous papers of this series have consisted mainly of records of observed phenomena in cases of shock, with little discussion of their origin or significance. These observations, however, have suggestive values and are pertinent to theoretical aspects of the shock problem. A consideration of the bearings of our results on previous views of the nature of shock may bring out some new points and may be useful in directing further investigation into fruitful channels.

## The Bearing of Present Work on Previous Theories of Shock

### A. THE ACAPNIA THEORY

The thesis advanced by Yandell Henderson that shock is due to a reduction of the carbon dioxid of the blood (acapnia) has received much attention. In support of his view, Henderson[1] produced low blood pressure in animals by vigorous artificial respiration, and he assumed that the lowered carbon dioxid content of the blood thus induced was the prime factor in establishing the shocklike state. In all probability, however, the effect was due, not to reduction of carbon dioxid, but to mechanical obstruction to return of blood to the heart and to consequent failure of the circulation. Only by such extreme inflation of the lungs as would hinder the passage of venous blood through the veins of the chest were Janeway and Ewing[2] able to obtain the results described by Henderson, and they succeeded equally well when the normal carbon dioxid content of the blood was maintained.

Further doubt is thrown on Henderson's views by observations on the character of the breathing in wounded men suffering pain. Deep and vigorous ventilation of the lungs is required to produce a marked diminution of the carbon dioxid content of the blood. Cowell made a special point of looking for that type of respiration in recently wounded men, but did not see it. And in a man brought under my observation at the clearing station a few moments after he had been hit in the wrist by a bomb splinter, which was giving him much pain, explosive respirations, preceded by holding the breath, were going on at the rate of 12 per minute. From the evidence in hand it appears that painful wounds are not directly associated with a hyperpnea that would produce acapnia.

Recently Henderson, Prince and Haggard[3] have reported finding in animals experimentally shocked a condition of acidosis; and since the blood in this state has a reduced capacity for carbon dioxid, he has given the "acapnia" theory a new interpretation—the carbon dioxid is low because of the acidosis. The observations previously reported[4] confirm in human cases the evidence secured experimentally. Shock is accompanied by acidosis, and the ability of the blood to take up carbon dioxid is correspondingly reduced.

Henderson has raised the question, however, as to whether the alkali of the blood controls the carbon dioxid content, or the carbon dioxid content controls the alkali. Apparently reluctant to abandon his acapnia theory, he suggests that in shock, excessive breathing may greatly lower the carbon dioxid of the blood, and that as a protective compensation acidosis is developed to prevent the fatal apnea that might ensue from lack of stimulating H-ions. Again it is proper to emphasize the observation that such hyperpnea as would result in marked reduction of the circulating carbon dioxid is absent from wounded men. To be sure, the chlorin content of the plasma increases[5] as carbon dioxid leaves the blood, but as any one may easily demonstrate to himself, this is not a process of sufficient magnitude to prevent apnea after vigorous hyperpnea. Furthermore, in shock, acidosis, in the sense of a lessened alkali reserve, occurs before any noteworthy effect on respiration is manifest. These considerations render highly questionable Henderson's suggestion of a primary acapnia.

Henderson[3] and also Porter[6] have advocated rebreathing expired air as a means of improving the circulation in shock. Henderson's object is to maintain the carbon dioxid content of the blood in spite of an alkali deficit, with the idea that alkali may thus be mobilized and the circulatory apparatus benefited. Porter's object is to increase the amplitude of the movements of the diaphragm so that the sufferer who has bled "into his own abdominal veins" may pump the blood from this reservoir into the heart. The certain effect of the increase of the carbon dioxid in the blood is to increase the H-ion concentration. That this stimulates not only the respiratory center but also the vasomotor center was shown by Mathison.[7] The ability of the vasomotor center to respond to stimulation, even in profound shock, was proved by Porter[8] in 1908. That the increased arterial pressure obtainable by increasing the H-ions of the blood would be only temporary was to be expected. As one of Porter's cases shows, the raised pressure promptly fell to the former shock level as soon as the carbon dioxid administration stopped. The respiratory mechanism, of course, at once gets rid of the excess of carbon dioxid, the H-ion concentration falls, and the stimulus which raised the pressure is thereby reduced. There are possibilities of harm in this procedure, however, that should not be overlooked. As Milroy[9] has recently demonstrated, when the alkali reserve is reduced, exposure of the plasma to a given concentration of carbon dioxid increases the H-ion content to a much greater degree than is the case when the plasma is normal. Increase of the H-ion concentration interferes with cellular oxidation. If the patient rebreathes his expired air, the oxidative processes are further interfered with through diminished oxygen supply. Thus, nonvolatile acids may arise which fix the alkali and lead to a more permanent increase of the H-ion concentration of the blood. The state of acidosis which already exists in the shocked man may, therefore, be distinctly aggravated by the procedures advocated by Henderson and by Porter. In this connection the testimony of Marshall, who as an expert anesthetist in a casualty clearing station has had large experience, is pertinent. He has declared that the most important consideration in anesthetizing patients suffering from hemorrhage or shock is to avoid anything in the nature of asphyxia; indeed, that if such a patient becomes cyanosed, he loses ground that can hardly be recovered. This warning is in accord with the contention that any action increasing acidosis is to be avoided.

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[1] Henderson, Yandell: Am. Jour. Physiol., a series of papers, 1908-1910.

[2] Janeway and Ewing: Ann. Surg., 1914, **59**, 158.

[3] Henderson, Yandell; Prince, A. L., and Haggard, H. W.: Observations on Surgical Shock, The Journal A. M. A., Sept. 22, 1917, p. 965.

[4] Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection, The Journal A. M. A., Feb. 23, 1918, p. 531.

[5] Hamburger: Osmostischer Druck und Ionenlehre, Wiesbaden, 1902., I, p. 264. See also Austin and Jonas: Am. Jour. Med. Sc., 1917, cliii, p. 86.

[6] Porter: Boston Med. and Surg. Jour., 1917, **176**, 699; **177**, 326.

[7] Mathison: Jour. Physiol., 1910, **41**, 430.

[8] Porter: Am. Jour. Physiol., 1908, **20**, 404.

[9] Milroy: Jour. Physiol., 1917, **51**, 279.

### B. THE IDEA OF SUPRARENAL EXHAUSTION

Since removal of the suprarenal glands results in lowered arterial pressure, and since secretion or injection of the extract of the suprarenal medulla increases the pressure, the idea has been advanced that in shock there is suprarenal exhaustion and consequent hypotension.[10] If the distinction which should be drawn between the effects on blood pressure of the medullary and cortical portions of these glands is for the moment disregarded, it may be pointed out that, according to Short,[11] who used a very delicate test, the epinephrin content of the glands in fatal cases of shock is not notably reduced. Furthermore, Mann[12] has reported that total excision of the suprarenals does not reproduce the phenomena of shock.

There is experimental testimony that painful stimuli and asphyxia increase both the secretion of epinephrin and the percentage of sugar in the blood, and that the sugar percentage does not rise if the suprarenal glands are not cooperative.[13] Persons suffering from wound shock have been severely stimulated, and the low blood pressure which characterizes their condition produces a state which is equivalent to partial asphyxia. Bedford and Jackson[14] and later Bedford reported finding the epinephrin content of the blood increased if the blood pressure is low. The high percentage of sugar found in our series of shock cases likewise indicates that the suprarenal glands are, if anything, overactive rather than exhausted.

### C. THE NERVE EXHAUSTION THEORY

When observers noted that arterial tension is low in shock, the first suggestion offered was that relaxation of the arterioles had occurred, and in consequence there was no support for the head of pressure which the heart might otherwise develop. This view, long ago expressed by Mitchell, Keen and Morehouse, has been elaborated by Crile[15] in extensive investigations on the blood pressure and on the nerve cells in shocked animals. It is his belief that the most vital effect of shock is "the impairment of the vasomotor mechanism." The concept has been gradually developed that shock consists essentially of exhaustion of cells in the brain, the liver, and the suprarenal glands. Evidence that the suprarenals are not exhausted has been presented above. The theory of a primary exhaustion of nerve cells requires examination. It may be considered, first with regard to the vasomotor center, and then with regard to cerebral and motor functionings.

A lowering of arterial pressure is not proof that the vasomotor center is inactive or exhausted, for arterial pressure may be low in consequence of hemorrhage, that is, when only a small volume of blood is delivered to the heart for each contraction. Furthermore, even when an animal is in extreme shock, Porter[16] and his collaborators found that both pressor and depressor reflexes still occur. The occurrence of depressor effects proves that some tonic activity of the vasomotor center is still present, for otherwise its action could not be depressed; and the pressor responses show that the center is still capable of increased action when stimulated. These observations by Porter have been confirmed by Seelig and Lyon[17] and by Mann.[18]

Since the vasomotor center is not exhausted, the question arises as to its actual condition in shock. Recent experimental evidence points to its effective control of peripheral and visceral arterioles in the shocked state. Seelig and Lyon[19] found that cutting the nerve of a leg in a shocked animal caused an increased flow of blood from the femoral vein. Guthrie, in confirming this work, observed that whereas the increase of flow in a normal animal was 22 per cent., in a shocked animal it was 76 per cent. Later, Seelig and Joseph[20] noted that if in a shocked rabbit the blood pressure was suddenly raised by clamping the aorta, the blood greatly distended the arteries of one ear whose nerves had previously been cut, but failed to distend the arteries of the other ear whose nerves were still connected with the vasomotor center. In other words, the center was still holding the vessels in effective contraction. Similar observations have been made by Mann[21] on internal organs. And a number of investigators have reported that in an animal with low blood pressure the rate of perfusion flow is less with a given pressure than in a normal animal, and that severance of the nerves to the organ or increase of the blood flow to the vasomotor center increases the rate.[22]

Moreover, the studies of Pike, Guthrie and Stewart[23] have revealed the fact that the vasomotor center is more capable of withstanding the adverse influences of anemia than any other of the vital bulbar centers—the respiratory, the cardio-inhibitory or the swallowing mechanisms. Its capacity to function is the last to disappear in total anemia, and the first to reappear when the blood flow is restored. Obviously, the vasomotor center should be regarded as an agent whose functions are extremely stable and whose capabilities for continued service are its most outstanding feature. Only endangering circumstances, such as lessened blood supply, are required in order to make it become, for a time at least, more than usually active.

In this connection it is interesting to observe that not infrequently in cases of profound shock, when a pulse cannot be felt at the wrist, it can be felt easily if the palpating fingers are moved up the arm where the arteries are larger, or applied over the carotid. Fraser has repeatedly noted while operating on shocked men such strong contraction of outlying arteries that no bleeding occurred when the vessels were cut.

The evidence from functional disturbance that parts of the nervous system other than the centers controlling the circulation are *exhausted,* in any strict sense of that term, is meager. Even when the blood pressure has been much reduced, the intelligence remains clear, the patient may be restless rather than somnolent, and often exhibits surprising muscular power. Cowell reports no reduction of the strength of grip in shock; and he observed a wounded man, pulseless, with a systolic pressure about 30 mm., who was so vigorous in his movements that two orderlies were required to hold him on the stretcher.

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[10] Corbett, J. F.: The Suprarenal Gland in Shock, The Journal A. M. A., July 31, 1915, p. 380.

[11] Short: Lancet, London, 1914, **1**, 131.

[12] Mann, F. C.: Shock During General Anesthesia, The Journal A. M. A., Aug. 4, 1917, p. 371.

[13] Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, 1915, pp. 69-77.

[14] Bedford and Jackson: Proc. Soc. Exper. Biol. and Med., 1916, **13**, 85-87. Bedford: Am. Jour. Physiol., 1917, **43**, 235.

[15] Crile: Volumes on Surgical Shock; Blood Pressure in Surgery; Anoci-Association.

[16] Porter: Am. Jour. Physiol., 1907, **20**, 399.

[17] Seelig and Lyon: Surg., Gynec. and Obst., 1910, **11**, 146.

[18] Mann: Bull. Johns Hopkins Hosp., 1914, p. 208.

[19] Seelig, M. G., and Lyon, E. P.: The Condition of the Peripheral Blood Vessels in Shock, The Journal A. M. A., Jan. 2, 1909, p. 45.

[20] Seelig and Joseph: Proc. Soc. Exper. Biol. and Med., 1914, **12**, 49.

[21] Mann: Bull. Johns Hopkins Hosp., 1914, p. 209.

[22] Morrison and Hooker: Am. Jour. Physiol., 1915, **37**, 93. Pilcher and Sollmann: Ibid., 1914, **35**, 59, 70. Bayliss: Proc. Roy. Soc., London, 1916, **89**, 391.

[23] Pike, Guthrie and Stewart: Jour. Exper. Med., 1908, **10**, 499.

The evidence for exhaustion which has been advanced by Crile[24] and his co-workers is mainly histologic, and is based on examination of nerve cells taken from shocked animals. It is improbable that these changes are due directly to afferent impulses, for Forbes and Miller,[25] by use of the string galvanometer as an indicator, found that anesthesia blocks the passage of impulses to the brain. The suggestion is reasonable that any cell alterations that may occur in shock are the resultant of the low blood pressure rather than its cause. Indeed; Dolley has admitted that hemorrhage produces the same alterations in the cells that are seen in shock. Crile's testimony that, if the blood pressure is kept up by transfusion into the shocked animal much more severe trauma is required to alter the cells than when shock takes its natural course, is further testimony to the same interpretation. It should not be forgotten, however, that histologic evidence regarding the state of nerve cells is subject to grave mischances both in technic and in interpretation. And other observers who have examined nerve cells from shocked animals declare that the changes are within the limits of normal variations.[26]

Differences in the appearance of nerve cells from separate parts of the nervous system might be regarded as indicating a definitely directed agent, such as nerve impulses, rather than a general agent, such as low blood pressure, at work to induce changes. The differences are explicable, however, on the ground that nerve cells are differentially sensitive to anemia, and by exposure to an inadequate circulation they would be differentially affected.[27]

The interpretation of cell changes as the result rather than the cause of shock points to a clear distinction which should be drawn between early and late indications of asthenia in shocked men. Though the vasomotor centers may for a time be normally active or even hyperactive, and the neuromuscular mechanisms may be ready for service, continuance of low blood pressure and the development of an acidosis which interferes with internal respiration will surely have deleterious influences, and ultimately will destroy the hardiest and most resistant structures. It is when these adverse conditions have brought to the point of exhaustion organs which are of vital importance that death occurs.

## The Cardiac Factor

The foregoing discussion of the exhaustion theory has emphasized the evidence that the low pressure of a shocked man is not due to relaxation of the arteries through paralysis or inactivity of the vasomotor center. The other important factor in maintaining the arterial head of pressure is the heart. As has been often observed, the heart characteristically beats rapidly in shock and after hemorrhage.[4] The suggestion has been offered that the rapid beat is due to paralysis of the cardio-inhibitory center, but Mann[28] found that in the shocked animal the center is responsive to reflex stimulation and also to increase of intracranial tension. The nervous check on the heart, therefore, is not impaired. Indeed, the rapid cardiac beat with hypotension is precisely what is to be expected according to the reciprocal relation which commonly prevails between heart rate and arterial pressure.

That the heart muscle is not defective in shock has been shown experimentally. Raising the arterial pressure to a high level by epinephrin does not overwhelm the heart; when properly supplied with blood, it meets the situation and contracts with vigor. Low arterial pressure, however, if prolonged, may incapacitate the heart, for Markwald and Starling[29] have found that when the systolic pressure falls below 80 mm. of mercury, the cardiac contraction begins to weaken. And Patterson[30] has shown that when the H-ion concentration of the blood increases (by increased carbonic acid), the heart relaxes more and more and beats less energetically. The low blood pressure and the acidosis of shock, therefore, may in time impair the efficiency of the organ, though no primary defect be present.

## The Problem of the "Lost Blood" in Shock

If the vasomotor center is efficiently at work, and if the heart is capable of assuming any reasonable burden placed on it, why is there a low arterial pressure in shock? The answer to this question lies in the diminished volume of blood which is in active circulation. Henderson, especially, has laid stress on the necessity of a sufficient supply of blood being delivered to the heart, if arterial pressure is to be kept at its normal level. In the absence of this supply, as, for example, after hemorrhage, the arterial pressure falls to a low level and can be raised only by introducing blood or other viscous fluid into the vessels.

A further question now arises, one of the critical questions in the mystery of shock, "Where is the lost blood in the shocked individual?" There are no indications that it is in the heart or lungs; it must be, therefore, in systemic arteries or capillaries or veins.

### IN THE ARTERIES?

The absence of the lost blood from the arteries is sufficiently proved by the facts already discussed. With an efficient vasomotor center and a capable heart, an adequate amount of blood in the arteries would be accompanied by high arterial pressure. That the pressure is low, as already stated, signifies that the heart is not supplied with enough blood to fill the arterial system.

### IN THE VEINS?

The view commonly held in the past has been that in shock, blood is stagnant in the large venous reservoirs of the chest and abdomen, and especially in the capacious splanchnic area. "In shock," it is said, "the sufferer bleeds into his own abdominal veins." It appears that this view is based largely on evidence from experiments which has been rather uncritically accepted. The most certain way to produce shock in a lower animal is by exposure and manipulation of the intestine. Under these circumstances the mesenteric veins stand out prominently, blood gathers in the intestinal walls, and becomes more concentrated there, and the structures that have been freely handled appear as if inflamed.[31] In other words, blood obviously stagnates in abdominal vessels. Such a condition is not seen in natural shock. According to Keith,[32] the venous cistern, formed by the big veins of the chest and abdomen, has a capacity of 400 or 550 c.c. Mann[33] has found that the amount of blood that can be obtained by bleeding and by emptying the heart of normal animals is 76 per cent., leaving 24 per cent. "in the tissues." When animals are shocked by exposure of the intestine the amount left in the tissue rises to 39 per cent., a difference of 15 per cent. If the blood mass of a man of 70 kg. is taken as 3,500 c.c., the amount thus "lost" would be 525 c.c. If this blood were in the veins of the abdomen, systemic or splanchnic, their capacity would have to be greatly enlarged, and their distention would be clearly visible.

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[24] Crile: Anoci-Association, Philadelphia, 1913, passim. Dolley: Jour. Med. Research, 1909, p. 95; 1910, p. 331.

[25] Forbes and Miller: Am. Jour. Physiol., 1916, **40**, 503-513.

[26] Allen: Proc. Soc. Exper. Biol. and Med., 1915, **12**, 76. Kocher, R. A.: The Effect of Activity on the Histologic Structure of Nerve Cells, The Journal A. M. A., July 22, 1916, p. 278.

[27] For discussion see Cannon and Burket: Am. Jour. Physiol., 1913, **32**, 347.

[28] Mann: Bull. Johns Hopkins Hosp., 1914, p. 210.

[29] Markwald and Starling: Jour. Physiol., 1913, **47**, 275.

[30] Patterson: Proc. Roy. Soc., London, 1915, B, **88**, 394.

Surgeons of extensive experience at casualty clearing stations in the present war, who have performed many hundreds of abdominal operations on patients in all degrees of wound shock, have testified that on opening the abdomen they have not found any primary splanchnic congestion.[34] The method employed to produce shock in lower animals, which has repeatedly called attention to the abdomen and its peculiar circulation, has given rise to misleading inferences as to what occurs in natural shock brought on by wounding other regions than the abdomen.

If the lost blood were in the systemic veins, furthermore, it should be possible promptly to remedy the condition of a shocked individual by placing his body in a slanting head-down position, bandaging the limbs, and compressing the abdomen. Such measures have been thoroughly tried in treating shock, and though perhaps in some cases helpful, they do not give results which indicate that the blood which is out of circulation is stagnant in the large venous channels.

The fact should be remembered that veins are to a considerable extent subject to vasoconstrictor impulses; and if conditions are such as to continue the activity or to induce an overactivity of the vasoconstrictor center, the veins as well as the arteries might be contracted. Venomotor nerves have not been demonstrated for all parts of the body, however, and if there are veins free from nervous control, other influences causing relaxation might prevail. Only slight dilation, perhaps too little to be conspicuous, would be needed to increase considerably the venous capacity. But there are no observations that the veins are even slightly dilated in shock.

### IN THE CAPILLARIES?

If in wound shock the lost blood is not in the arteries and probably not to a great amount in the veins, it must be mainly stagnant in the capillaries. Observations reported in a previous paper[35] have shown that in shock a striking discrepancy exists between the corpuscular content of the capillaries and the veins. There is a concentration of the blood and a stagnation of the corpuscles in the capillaries which can be demonstrated in such widely separated parts as the ears, the fingers and the toes. The discrepancy is, to be sure, more marked in superficial areas than in deeper regions; but even in the latter a noteworthy difference is found.

The question immediately occurs, Is the capillary capacity sufficient to contain the lost blood in shock? Unfortunately, the data for estimating the capillary capacity are not definitely established, and it is impossible to state with any assurance what amount of blood these vessels may contain. Ranke inferred from determinations made on freshly killed rabbits that approximately one fourth of the blood is in the heart, lungs and great blood vessels, one fourth in the liver, one fourth in the resting muscles, and one fourth in the remaining organs.[36] The large proportion of the blood, about 75 per cent., which is outside the heart, lungs and large veins and arteries, seems to indicate an abundant capacity in the small vessels lying within the tissues. On the other hand, an estimation of the capacity of the capillaries, based on the inverse ratio between the rate of flow and the cross-section, yields a rather small volume for capillary contents. The most favorable ratio of the rate of flow in the aorta and in the capillaries, stated by Tigerstedt,[37] is 2,000:1. The cross-section of the aorta of an adult man is about 4.4 sq.cm.; that of the total capillary bed, on this basis, would be (4.4× 2,000) 8,800 sq.cm. The average length of a capillary is given as 0.05 cm. The total capacity of the capillary system, therefore, would be only about 440 c.c. This calculation does not take into consideration, however, the fact that capillaries are not all full of blood. Heubner[38] observed after injecting sodium gold chlorid the sudden appearance of new capillaries in the frog's web, so that a coarse mesh was quickly changed to a fine one. And Worm-Müller[39] was convinced that the only way to account for the ability of the circulatory system to accommodate itself to injection of large amounts of blood was to assume a utilization of capillaries not ordinarily filled. He cited the difference of appearance of the intestine when at rest and when digesting, the phenomenon of blushing and the redness of the inflamed skin as illustrating the idea that the capillary net may contain much more blood than it usually contains. The *distensibility* of the capillaries also should be considered, for Roy and Brown[40] noted that chloroform could double the diameter of capillaries (thus quadrupling their capacity). Still another consideration which is pertinent to the conditions in shock is the *concentration* of the capillary blood, as shown in a previous paper,[35] which means a retention mainly of corpuscles in the capillaries. All these facts appear to warrant the conclusion that the capillary capacity is sufficient to contain the lost blood in shock, and that the chances of its doing so are greater the more concentrated the lost blood becomes.

The observations previously reported[35] indicated that the capillary blood may be concentrated to such an extent that a cubic millimeter contains 8 million instead of 5 or 6 million corpuscles. An equal concentration does not occur in all parts of the body. The observations of Cohnstein and Zuntz,[41] however, suggest that when blood pressure is lowered (by cutting the spinal cord) a capillary stagnation occurs to such an extent as to pack the vessels closely, while the venous blood quickly falls in corpuscular content (a drop of about a million corpuscles per cubic millimeter in ten minutes). Lowering of blood pressure by spinal section will in itself, on this evidence, induce a stasis which can be clearly seen under the microscope, and is observable in both surface and internal capillaries.[42]

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[31] Morrison and Hooker: Am. Jour. Physiol., 1915, **27**, 93. Mann: Surg., Gynec. and Obst., 1915, **65**, 380.

[32] Keith: Jour. Anat. and Physiol., 1908, **62**, 1.

[33] Mann: Surg., Gynec. and Obst., 1915, **55**, 380.

[34] Statement by Wallace, Fraser and Drummond: Lancet, London, 1917, **2**, 727.

[35] Cannon, W. B.; Fraser, John, and Hooper, A. N.: Some Alterations in the Distribution and Character of the Blood in Shock and Hemorrhage, The Journal A. M. A., Feb. 23, 1918, p. 526.

[36] Vierordt: Anatomische, Physiologische und Physikalische Daten und Tabellen, Jena, 1893.

[37] Tigerstedt: Physiologie des Kreislaufes, Leipzig, 1893, p. 423.

[38] Heubner: Arch. f. Exper. Path. u. Pharmakol., 1907, **56**, 375.

[39] Worm-Müller: Ber. ü. d. Verhandl. a. k. Sachs. Ges. d. Wissensch., 1873, **25**, 650.

[40] Roy and Brown: Jour. Physiol., 1879, **2**, 375.

### The Viscosity Factor

There are other conditions besides a low blood pressure that are favorable to capillary stagnation of the corpuscles. These are concerned with alterations in viscosity. The viscosity of the blood is complex, consisting, as it does, of the internal friction of the plasma, the friction of the corpuscles with the plasma and with each other, and the frictional contacts of the corpuscles with the vessel walls, especially in the capillaries.

A prime factor affecting the viscosity of blood is the number of corpuscles per unit volume. The polycythemia of cholera, for example, may cause the viscosity of the blood to rise from 4.8 to over 20.[43] Cohnheim[44] attributed the low blood pressure in cholera to a failure of the blood to return to the heart, owing to the enormous increase of frictional resistance that is caused by concentration. The concentration of the corpuscles in the capillaries would, in itself, render the friction greater, and increase the resistance to an onward movement.

Another agent affecting the blood's viscosity to a notable degree is temperature. The increase of internal friction is related directly to a fall of temperature. Denning and Watson[45] found that viscosity of blood was increased 3 per cent. with a fall of 1 degree Centigrade, and that the temperature factor was more effective the larger the number of corpuscles present. Even in normal persons, application of cold increases the red count in the cooled capillary areas. Cowell's observations on recently wounded men have shown that a prompt and striking reaction to the injury is profuse sweating.[46] One of the most effective modes of lowering body temperature is through evaporation of sweat; indeed, it is the only way of losing heat when the surrounding temperature is equal to or exceeds that of the body. Normally, as the surrounding temperature falls, sweating ceases and heat is lost by radiation and conduction. In the shocked man exposed to cold all three processes are going on; and the clothing, wet with sweat or rain, permits the loss by conduction to be much augmented. Thus the surface is liable to be speedily cooled, and soon the whole body is affected. It is common for the body temperature (buccal) to be below 95 F., and readings as low as 87 and 88 have been noted in shocked men. Of course, the skin and extremities are much colder.[47] According to Cowell's observations shivering is rarely seen under these conditions. The heat loss, therefore, is not compensated for by heat production.

The increase of viscosity due to cold is not to be regarded as the only factor leading to capillary stagnation; it is probably not sufficient by itself to have that effect. Possibly cold affects capillary walls in a way leading to greater friction. Hough and Ballantyne[48] have reported a rise of capillary pressure in cooled parts of the body, together with lessened conspicuousness of the veins, and they suggest that contraction of muscles in the venules may check the outflow from cooled capillary areas. However loss of heat may operate, the evidence is clear that it results in concentration of blood in capillary areas; and this factor, added to the effect of low blood pressure, would favor segregation of the corpuscles in the capillaries. Significant in this connection is the commonly observed greater incidence of shock in cold weather, and especially when the cold is accompanied by rain, so that clothing is wet through. Likewise significant is the fact that as a wounded man becomes chilled his blood pressure falls, and as he is warmed his blood pressure may rise again.[46]

In addition to concentration of corpuscles and lowered temperature as conditions increasing the viscosity of the blood, there is the influence of an increase of H-ions. I have already[4] dealt with the existence of acidosis in cases of shock. Since there is evidence that acidosis has other effects than merely on the corpuscles, its influence will be considered in some detail.

### The Effects of Acidosis on the Circulation

In all probability, the lowering of the alkali reserve in cases of shock and hemorrhage is due to a fixed union of the alkali with acids, which, unlike carbonic acid, do not pass off in the lungs. The production of such acids is known to occur when oxidation is interfered with. A low blood pressure with slow circulation, cold, and corpuscular stagnation would all cooperate to check the normal oxidative processes of the body, and to increase the production of intermediary acid metabolites. Emphasis should be kept on the fact that these metabolites would be more concentrated in the tissues, and in the perivascular fluids than they would be in the blood, for they must diffuse from their source in the cells into the circulating stream. Thus, though the alkali reserve in the blood may not be reduced to a degree which would indicate a considerable increase in the H-ion concentration, the H-ion concentration in stagnant capillary regions must be still higher. And if the reserve in the blood is greatly reduced and the H-ion concentration is much raised, still greater concentration must exist in the tissues. In addition, if the tissue fluids are cooled, they will be still more acid; for, as L. J. Henderson[49] has pointed out, the alkalinity of the body fluids decreases as the temperature falls. The acids thus developed in the tissues and affecting first the capillaries and small veins, with their corpuscular contents, might have effects on the circulation which would augment the action of low pressure, concentration and cold as considered above.

1. There is evidence that acid or change in the blood in the direction of acidity may have depressive effects on the *blood pressure*. Thus Hooker[50] observed that carbonic acid in minimal effective amounts always

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[41] Cohnstein and Zuntz: Arch. f. d. ges. Physiol., 1888, **42**, 326.

[42] These observers did not consider possible dilution of the blood by tissue fluids, and they transferred the observations on capillary stagnation in the frog to explain the conditions they found in the rabbit. The importance of the results, in relation to the nature of shock, warrants a careful repetition of the experiments under more critical conditions.

[43] Bence: Ztschr. f. klin. Med., 1906, **58**, 203.

[44] Cohnheim: Lectures in Pathology, London, 1889, **1**, 466.

[45] Denning and Watson: Proc. Roy. Soc., 1906, **78**, 318.

[46] Cowell, E. M.: The Initiation of Wound Shock, The Journal A. M. A., this issue, p. 607.

[47] Weil: München. med. Wchnschr., Sept. 11, 1917.

[48] Hough and Ballantyne: Jour. Boston Soc. Med. Sc., 1899, **3**, 330.

[49] Henderson, L. J.: Am. Jour. Physiol., 1908, **21**, 441.

[50] Hooker: Am. Jour. Physiol., 1912, **31**, 58.

causes relaxation of vascular muscle. And Gaskell,[51] and also Bayliss,[52] proved that other acid, for example, lactic, which results from inadequate oxidation, has the same effect as carbonic acid. According to Severini's[53] studies, both microscopic and physiologic, the capillaries also are dilated by carbonic acid. Barcroft[54] has measured the increase of acid in blood coming away from the submaxillary gland after it had been stimulated to secretion by epinephrin, and accounts for the greater flow of blood through the gland, when thus made active, by the local dilator effects of the acid metabolites. As acid develops in tissues poorly supplied with oxygen, the blood vessels locally affected by these acids might reasonably be expected, on the basis of the foregoing evidence, to undergo relaxation.

An antagonistic factor is found, however, in the action of H-ions on the vasomotor centers. Oxygen lack, increase of carbonic acid in the blood, or injection of weak organic acids, all of which increase the H-ion content, stimulate the vasomoter center and cause a rise of blood pressure.[55] Thus, in acidosis with increased H-ions in the blood, vessels under nervous control would be subjected to impulses which would cause them to contract. This evidence harmonizes with that presented earlier, that in shock the arterioles are in constriction. Probably most veins are likewise involved in the subjection to nervous discharges. The capillaries, however, would be affected by the local increase of H-ions, and being dilated would be capable of holding an extra amount of blood. Some veins, likewise, might be relaxed. Thus capacity for the lost blood would be provided in the small vessels of the tissues rather than in the large venous trunks.

2. Increase of the carbonic acid of the blood affects *cardiac contraction*. As previously noted, Patterson[30] has shown that when the H-ions are increased by this means, cardiac muscle relaxes to a greater extent during diastole and contracts less forcibly in systole, so that the output is diminished. This condition again would tend to result in further impairment of the circulation.

3. Increase of carbonic acid increases *the viscosity of the blood*. Bence[43] reports that by breathing an atmosphere rich in carbon dioxid, the viscosity of the blood may be increased by from 25 to 52 per cent., and according to Ferrai's[56] experiments, asphyxiated blood has a viscosity approximately double that of oxygenated blood, the increase rising as the carbonic acid content rises. This factor would cooperate with low arterial pressure, concentration of corpuscles, and cold, as agencies operating to produce stagnation of corpuscles in capillaries.

4. Hamburger[57] has noted that the *size of corpuscles* is increased by the action of carbonic and other acids. The change need be only a slight one to produce demonstrable results, as, for example, when the arterial blood becomes venous. If the arterial blood contains an excess of H-ions, it would deliver to the systemic capillaries enlarged corpuscles. Corpuscles stagnant in regions ill supplied with circulating blood, where acid metabolites are most concentrated, would be especially subject to enlargement. In some of our hematocrit readings we found that the capillary corpuscular volume was greater compared with the venous corpuscular volume than it should have been according to the ratio of corpuscular and venous counts. The discrepancy was greatest in severe acidosis. The larger corpuscles might find obstruction to their progress where smaller corpuscles would not, and in any case might raise the viscosity of the blood.

All these effects of increasing the H-ions of the blood—relaxation of vessel walls (especially the capillaries), weakening of cardiac contraction and increase of blood viscosity—would be favorable to a continuance of low blood pressure. It seems probable, therefore, that when acidosis is once established, it would tend to continue the disturbances of the circulation which have been produced by other conditions.

## Vicious Circles in Shock

In relation to the observations and inferences discussed above, it is of interest to consider some of their interrelations. In all probability a number of vicious circles would be started which, if not interrupted, would lead to an aggravation of the already existent abnormal state, and which would account for the progressive nature of fatal shock. The following possibilities may have suggestive value:

1. The retarded blood flow in cooled capillaries would result in a lessened supply of heat to the regions of stasis; the parts would thus become still cooler; the cooling would increase still further the viscosity of the blood, and thereby the blood flow in the capillaries would be still further retarded.

2. Increase in the *number* of corpuscles per cubic millimeter increases the viscosity; thus the more the blood concentrates in some of the capillaries the more friction would there be in driving the corpuscles through them, and consequently a still greater accumulation in these capillaries might be expected.

3. As more blood accumulates in capillary areas, less is returned to the heart; the arterial pressure in consequence continues to fall, the force driving the blood through the capillaries is thereby progressively lessened, and the tendency for blood to gather in the capillaries where the passages are narrowest and the friction greatest is continuously augmented.

4. As the blood pressure falls, the "head" normally in the arteries is largely lost and becomes insufficient to maintain the circulation equally in all parts of the body; the blood would be forced through capillaries in which resistance is slight rather than through those in which it is increased; the blood flow in cooled, clogged capillaries, as those of the limbs, would thus tend to be gradually diminished, with resultant greater stasis.

5. An increased H-ion content of the blood lessens the rate and the amount of union of oxygen with hemoglobin,[58] and a lowered temperature (in cooled tissues) lessens the rate of dissociation of the oxygen; a diminished oxygen supply would interfere with cellular oxidation, and thus increase the amount of fixed acid in the blood; this in turn would check the oxidative processes in the cells and interfere with heat production; in consequence, through cooling and greater acidosis, the abnormal state would be made worse.

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[51] Gaskell: Jour. Physiol., 1880, **3**, 66.

[52] Bayliss: Jour. Physiol., 1901, **26**, xxxii.

[53] Severini: Ricerche sulla Innervazione dei Vasi Sanguini, Perugia, 1878, p. 96; La Contractilita dei Vasi Capillari, Perugia, 1881.

[54] Barcroft: The Respiratory Function of the Blood, Cambridge, 1914, p. 154.

[55] Mathison: Jour. Physiol., 1910, **42**, 283.

[56] Ferrai: Arch. di fisiol., 1904, **1**, 385.

[57] Hamburger: Osmotischer Druck und Ionenlehre, Wiesbaden, 1902, **1**, 296.

[58] Barcroft: The Respiratory Function of the Blood, Cambridge, 1914, pp. 27 and 53.

6. As arterial pressure falls and acid accumulates in the blood, the kidneys, because of the low pressure, become less and less active; fixed acid consequently accumulates still further in the blood, and the disturbing condition is thus augmented.

Doubtless there are still other ways by which the abnormal factors may interact so as gradually to lessen the chances of recovery for the shocked individual. All these deranging processes, however, require appreciable time for their operation. It is important, therefore, that the treatment of shock be prompt, and directed toward preventing an increase of the unfavorable conditions.

### Shock as "Exemia"

The view developed in the foregoing discussion that in shock the circulatory difficulty is due to loss of blood from circulation, though not from the body, is one which has been growing in recent years, as experimental data have accumulated. The general condition was first reasoned out by Malcolm,[59] and later the idea was greatly elaborated by Henderson,[60] both of whom supposed that the lost blood was gathered in the veins. Still later, Mann[33] expressed the same idea, declaring that in shock there is a loss of circulatory fluid at a point beyond vasomotor control. And more recently the idea has been generalized for various shocklike states, traumatic and toxic, and the suggestion offered that capillary concentration might occur.[61] In all these states the essential feature appears to be a draining or holding back of blood from normal currency.

This view of "shock" is so different from that which probably gave reason for the original use of the term—a sudden collapse due to a severe wound—that a more descriptive name seems needed. The general employment of the word "shock" for a variety of meanings, as, for example, emotional shock, shell shock, concussion shock, besides traumatic or surgical and toxic shock, points likewise to the need of a new designation. The word *exemia* was employed by Hippocrates and signifies "drained of blood." As the discussion presented above has indicated, such is the condition in the shocked man who has not bled—his blood pressure is low because essential parts of the circulatory system have been drained of blood. The term *exemia* may properly be used to describe this condition.

### A Concept of the Development of Shock or Exemia

Although an addition to the already numerous theories of shock seems uncalled for, the facts presented in the present series of papers may be worthy of an attempt at correlation in a general statement. These facts may be listed as follows: There are primary wound shock with rapid lowering of arterial pressure, and secondary wound shock with toxemia and hemorrhage, and later lowering of the pressure. Sweating occurs, leading to loss of fluid and loss of heat from the body. The blood becomes stagnant and concentrated in the capillaries, and as the blood pressure falls there is loss of the alkali reserve of the blood (acidosis) roughly corresponding to the drop in pressure. After the discussion in the foregoing pages, how may these facts be set together consistently?

Primary wound shock—dusky pallor; rapid, thready, low tension pulse; hypotension; sweating; thirst, and restlessness—may come on so soon after injury as to be accounted for only as the result of nervous action. The organization of the individual (for example, a "high strung" temperament), fear and fatigue probably provide favorable conditions for the nervous response. Cowell's observation of fainting after slight wounds may perhaps be regarded as a transient state which in true shock is more persistent. Sweating and exposure lead to rapid loss of heat from the body; previous sweating, wetness of the clothing, and low external temperature favor the process. Inactivity of the wounded man and absence of shivering lessen heat protection. Thus the body becomes cold, especially the surface and extremities. In consequence of the low blood pressure, aided by the chilled tissues, there is a stagnation of corpuscles in the capillaries. The onward flow here checked undergoes concentration, so that the capillary red count is high. Prolonged lack of fluid and sweating may favor the stagnation and further concentration of the blood. The low arterial pressure can continue a flow through easy channels, but is insufficient to maintain the normal flow where resistance is high. Thus cooled regions receive less heat from the interior of the body and tend to become cooler, and thus in turn more blood accumulates. By accumulation in capillaries the return of blood to the heart is lessened until a persistent low blood pressure becomes established. The blood lost from currency produces a state equivalent to hemorrhage. Any true hemorrhage therefore exaggerates the existent shock (exemia).

When a wound has not caused a primary fall of blood pressure, but has rendered the control of the circulation unstable, unfavorable conditions, such as cold, hemorrhage and toxemia, will bring about the same sequence of events that is seen in primary shock.

As the low blood pressure continues, the alkali reserve of the blood is reduced (acidosis). Previous starvation and fatigue would favor the development of acidosis. This state, by locally relaxing vessels which are not under nervous control, by weakening cardiac contraction, and by increasing the viscosity of the blood, tends to make worse the dangerous condition which has been established. And, as pointed out in an earlier paper, the individual with acidosis is sensitized so that operation, because still further increasing the acidosis and still further lowering blood pressure, becomes hazardous.

This conception of the events that take place in a wounded man who passes into shock gives a reasonable account of the primary effect of wounds, the influence of cold in continuing the low blood pressure or inducing it when the circulatory apparatus is unstable, the influence of warmth in restoring him in part to a fit condition, and the slowness of a full recovery. It leaves unsettled the occasion for the primary fall of pressure, though the suggestion is offered that it may be of reflex character, similar to fainting. The conception offers a hopeful outlook for the care of the shocked man, because two of the most potent factors making his chances unfavorable, cold and acidosis, can be controlled.

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[59] Malcolm: Tr. Med. Soc., London, 1909, **32**, 274.

[60] Henderson: Am. Jour. Physiol., 1910, **27**, 152.

[61] Medical Research Committee, London: Memorandum upon Surgical Shock, Brit. Med. Jour., March 24, 1917. Janeway and Jackson: Proc. Soc. Exper. Biol. and Med., 1915, **12**, 193.

# THE PREVENTIVE TREATMENT OF WOUND SHOCK

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## Introduction

Whatever the nature of the bodily changes which underlie the state of shock, it is evident that the circulatory functions are in a precarious condition, and that the heart, nervous system and other organs are suffering from an insufficient blood supply. Everything should be done to promote the factors favorable to restoration of a normal and stable blood flow, and anything unfavorable to such restoration should be scrupulously avoided. There are certain practices, such as the prompt arrest of hemorrhage, the lessening of sepsis by appropriate dressings, and the reduction of pain by suitable splints, by the judicious use of morphin, and by careful transport, that are generally recognized as important measures in the care of a wounded man who is shocked or liable to shock. Besides these there are other precautions which are suggested by observations reported in the foregoing papers.

In previous papers of this series, evidence has been afforded, among others, on the following points:

1. Cooling of a person in shock is attended by a further lowering of an already low blood pressure or by continuance of the pressure at a low level.

2. Surgical operation performed on a person in shock is accompanied by a rapid and large increase of an acidosis which is already present, and by a correspondingly sudden and extensive fall in an existent low arterial pressure.

These two sets of changes are both harmful, and may turn the slender chances of a shocked man definitely away from safety and into disaster. The dangers of both cooling and surgical operation, however, can be dealt with in ways which will lead to their avoidance. The protection of the wounded man against conditions which would develop or increase shock offers, we believe, the greatest hope for his recovery.

In the following account are presented suggestions, based on preceding papers,[1] for the prevention and early treatment of wound shock and for the preparation of the shocked man for surgical operation.

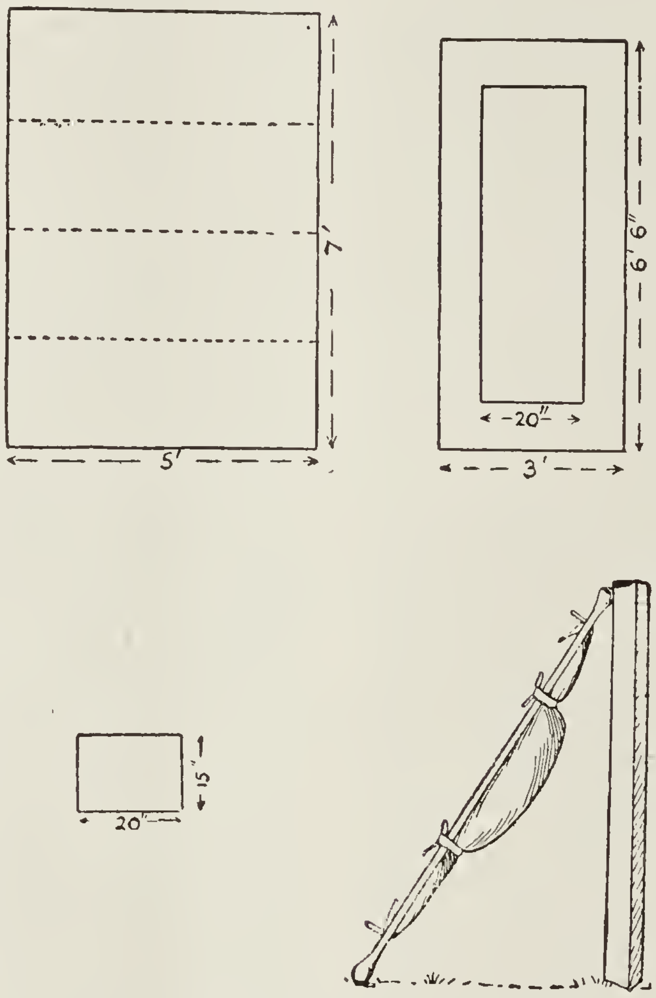

Fig. 1.—Method of carrying a dry blanket.

## The Prevention and Early Treatment of Wound Shock

The reader will recall that of the three classes of wounds, Class B, those of moderate severity, may, through the effects of cold, hemorrhage and toxemia, develop into secondary wound shock; and that Class C, those of such severity as to endanger life unless early surgical treatment is given, show primary wound shock. Without proper care the case of secondary shock may be unnecessarily fatal, and with care the patient with primary shock may be tided over a critical period and brought to a casualty clearing station in a still operable condition.

The actual carry along the line of evacuation will vary greatly, according to the military situation and to uncontrollable circumstances, such as the weather, for example. The average wounded man on the Western front passes through the hands of several relays of bearers and at least three or four medical officers before he reaches a clearing station. Stretcher carrying along narrow trenches in the dark is laborious and slow work, even under good weather conditions. Bad weather doubles or quadruples the time required for the first stages of the journey.

If a man is hit in the front line trenches he may be at least one or two hours' journey away from the regimental aid post. And a man in a working party, a little farther back, may be as far away from the advanced dressing station. The observations recorded in the article on the initiation of wound shock have shown that it is in this stage of the journey that secondary wound shock develops, and that one of the chief factors in its initiation is loss of body heat.

To send blankets to all parts of the line is impossible, but by the adoption of a waterproof sheet-blanket "packet" system a stretcher prepared for use is provided with means for preventing excessive loss of body heat. Reference to Figure 1 will make clear this simple method of carrying a dry blanket. This method has already been put into practice in a large part of the line.

All regimental stretchers at advanced bearer posts in the front line, and stretchers carried by working parties, should be equipped with this packet. The regimental bearers should be insistently instructed by their medical officer as to the importance of doing everything to prevent wound shock. The wounded man should be guarded as much as possible against loss of heat. Efficient first-aid should be given rapidly without unduly exposing the patient to the cold for a prolonged period. A hot drink should be given at the earliest moment. Then, having been carefully wrapped up, the patient should be carried down with all speed to the regimental aid post. A well trained, intelligent orderly might be entrusted to give a tablet of morphin (one-fourth grain) by mouth in cases of severe pain.

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[1] Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection, The Journal A. M. A., Feb. 23, 1918, p. 531. Cowell, E. M.: The Initiation of Wound Shock, this issue, p. 607.

note of this treatment should be made in the usual ay.

At the *regimental aid post* it is wise to consider the eneral condition of the patient first and his wound econd. A dry stretcher with three blankets should lways be in readiness for a possible case at any time f the day or night. In the properly equipped aid ost there will be a constant source of heat, such as an be supplied by any good type of small closed stove r a small open brazier with a flue to carry off coke umes. Space will be limited; but an open stretcher, ogether with three blankets folded lengthwise three imes, may be kept supported horizontally against the vall of the dugout behind the stove. A dry stretcher nd a supply of warm blankets will thus always be at and. A tin of water may be kept standing on the fire o provide for hot drinks and for filling hot-water ottles.

As soon as a patient arrives he should be given a ew ounces of hot drink, and his wet boots and uttees removed, along with any other clothing which nay cover wounds. Meanwhile the dry stretcher is repared by arranging the first two blankets so that our folds will come underneath the patient (Fig. 2). The blankets are covered temporarily with a waterproof sheet to prevent soiling while wounds are being lressed. The man is now transferred to this prepared tretcher, which is supported on trestles nd stands well over he stove. The third r free fold of each f the lower two blankets hangs down n either side and elps to form an enclosed warming hamber. If there s no constant source f heat, a hot air hamber may be nade in a few minutes by use of a Primus or Beatrice tove.[2]

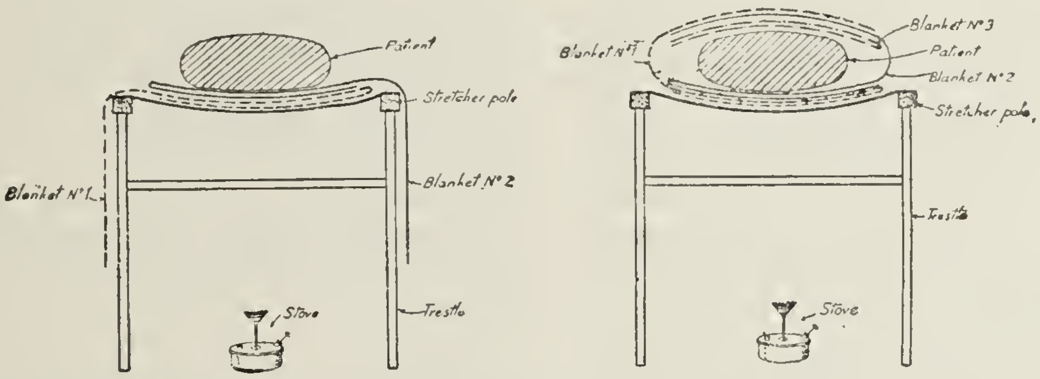

Fig. 2.—Method of folding three blankets to give four folds above and below the patient; also the formation of a hot air chamber.

The patient is now becoming warmed, while the nedical officer is attending to the surgical cleansing of the wounds and neighboring parts, and is applying proper dressings and splints. As soon as the dressings are finished, well guarded hot water bottles are placed in each axilla and a third across the loins or between the legs; and the third blanket, which is doubled lengthwise, is laid over the patient. The two warmed blankets which have been hanging to form the sides of the hot air chamber are lifted, carried over the patient, and tucked in. He now has four folds of blanket over him as well as underneath.

Finally, just before the patient is sent off, he is given a hot drink of sweetened tea in which a dram of sodium bicarbonate is dissolved.

At the *advanced dressing station* the warming process with the Primus stove may be repeated, but usually without changing the stretcher and blankets. Meanwhile, any necessary treatment is carried out. Before the patient is sent on, a hot sweetened alkaline drink is administered as described above, and a fresh set of hot water bottles is put in place.

The next stage of the journey is usually undertaken by means of some mechanical transport, such as a narrow gage railway or a motor ambulance. The cars are at present warmed, so that there is a lessened chance of loss of body heat on the final stages of the journey.

At the *clearing station,* application of warmth should be emphasized as the most important part of the treatment in all serious cases. While the patient is being undressed and made ready for operation, he should be put over the same hot air chamber as has already been described. Electric warming apparatus, to be set over the patient, is at hand to apply as soon as he is ready, but it will not permit handling and treatment as will the heating from below.

While operating, again, every care must be taken to prevent loss of heat, even in summer. An electrically heated operating table is invaluable.

### Modifications of Treatment in Battle Conditions

The outlines of early treatment, sketched in the preceding paragraphs, apply to such conditions on the Western front as are "normal" for the greater part of the year. In battle, the early exposure to cold will not be so important in most cases. But, as a result of previous fatigue and loss of body fluid by sweating and hemorrhage, together with the establishment of infection and the onset of toxemia, secondary wound shock develops. Whereas the appearance and degree of primary wound shock depend on the degree of damage done to a vital organ, secondary wound shock is proportionate to the length of time the pernicious factors are allowed to work—in other words, to the period during which the wounded man is "lying out."

In the rush of dealing with large numbers, it will be impossible in the line to attend to all the details described above. Large drafts of hot sweet tea made alkaline with sodium bicarbonate can, however, be easily provided, and should be given whenever the shocked patient complains of thirst at the dressing station or at any other suitable point on the way down to the clearing station.

### Protection Against the Effects of Surgical Operation

Evidence presented in an earlier paper showed that the acidosis which prevails in cases of low blood pressure is associated with such sensitization of the body that surgical operation may result in a serious increase of the acidosis and a perilous sinking of the blood pressure. The question as to the causal relation between low pressure and acidosis has been discussed, and it appears that the two conditions may interact, each contributing to the development of the other. Under these circumstances, advantage would be gained by protection against each of the conditions—first, against the development of the sensitizing acidosis, and, secondly, against the increase of acidosis and the further fall of blood pressure which occur at operation.

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[2] A Primus stove of ordnance pattern will burn a gallon of paraffin in twenty-four hours if operating continuously.

### PREOPERATIVE PROPHYLAXIS

In the acidosis of diabetes, Asiatic cholera, nephritis and other pathologic states, the urine can be rendered alkaline by administration of sodium bicarbonate by mouth, as has been shown by Sellards,[3] Palmer and Henderson,[4] and other observers. The change in the reaction of the urine implies an abundance of available alkali in the blood. The possibility of fortifying the body against a reduction of the alkaline reserves in surgical cases was demonstrated by Caldwell and Cleveland.[5] They gave sodium bicarbonate by mouth and found that the normal reserves can be so increased as to avoid wholly the drop in carbon dioxid capacity that occurs in the period preparatory to operation, and also to reduce by half the rate of drop that takes place during operation. The degree to which available alkali can be provided by giving sodium bicarbonate by mouth in cases of shock and gas infection is shown in the following case:

German *Unteroffizier* H.—Admitted, August 15, with wounds of both buttocks, but in good condition. The next day the pressure was low (78 and 56), and the carbon dioxid capacity 48 per cent. Alkaline drink had been started and was continued at two-hour intervals. On the second day the wounds were evidently extensively infected with gas, but the blood pressure was 102 and 66, and the blood had a carbon dioxid capacity of 61 per cent. In spite of operation, the infection spread and death resulted.

The results obtained in the foregoing case confirm the results obtained by others in showing that by administration of sodium bicarbonate the alkaline reserves of the body can be greatly increased even in unfavorable circumstances. Since acidosis develops in shock and involves a definite risk when operation is undertaken, its avoidance should be sought. The recommendation is offered that wounded men be provided with a warm drink containing a dram, or 4 grains, of sodium bicarbonate at suitable relay posts on their way from the front to casualty clearing stations, as indicated in the first section of this paper.

### OPERATIVE PROPHYLAXIS

When a wounded man, badly shocked, is brought to a clearing station, he commonly must be operated on in spite of a low blood pressure and its attendant acidosis. The lapse of time when a man is in this condition gives opportunity for the extension of infective processes which gravely menace his chances. The surgeon has to choose, therefore, between an operation when the risk is serious, and a delay during which toxemia may develop to a menacing degree.

The low blood pressure of shock has been met hitherto by the injection of normal or hypertonic salt solution, or by combinations of salt solutions and gum. There is no doubt that in some cases such injections have had definitely beneficial effects. As shown in the previous papers, part of the pathology of shock is due to a loss of fluid from the circulation and consequent concentration of the blood. The injection of salt solution adds fluid to the body and improves the circulation, so that the concentration is soon abolished,[6] and the viscosity of the stagnant blood lessened. In such cases, however, the degree of acidosis had not been determined, and injection of physiologic sodium chlorid solution or Ringer's solution makes no provision against such critical turns as have been encountered during operation or shortly thereafter in consequence of increased acidosis.[7] Not only does ordinary salt solution fail to combat acidosis, it actually *increases* an already existent acidosis. Milroy[8] has recently shown that hemorrhage results in a loss of reserve alkali, and that then injection of sodium chlorid solution alone causes a *greater* H-ion concentration of the blood exposed to a given pressure of carbon dioxid than was present before the injection.

What is wanted is a fluid that will have the advantages already demonstrated for salt solutions — thinning of concentrated blood, lessening of viscosity and increase of blood flow with restoration of arterial pressure — together with antagonism to the state of acidosis. Such a fluid is found in sodium bicarbonate solution. Howell[9] observed years ago that alkaline injections (sodium bicarbonate) into a vein or into the rectum raised a systolic pressure of 60 or 70 mm. permanently to the normal level, and caused a marked increase in the force of the heart beats. If the pressure was lower (from 20 to 30 mm.) it was raised to 60 or 70 mm. Also the effects were relatively permanent, lasting one or more hours. These observations were confirmed by Dawson.[10] Either intravenous or intrarectal injections of sodium bicarbonate can restore the alkali reserve and abolish an existent acidosis.[11]

Injection of a fluid that will increase blood pressure has dangers in itself. Hemorrhage in a case of shock may not have occurred to a marked degree because blood pressure has been too low and the flow too scant to overcome the obstacle offered by a clot. If the pressure is raised before the surgeon is ready to check any bleeding that may take place, blood that is sorely needed may be lost. Fortunately, the injection may be made at the start of operation, just after the patient has been prepared and when the surgeon is ready to stop any hemorrhage, and it may continue as the operation proceeds.

The fluid that was injected in the cases recorded below was a 4 per cent. solution of sodium bicarbonate. Since 1.5 per cent. sodium bicarbonate is approximately isotonic with the blood plasma, the 4 per cent. solution is rather strongly hypertonic. It had previously been employed, however, in treating cases of diabetic coma,[12] and if introduced slowly (at the rate of an ounce a minute), it causes no noteworthy alteration of the blood. The fluid should, of course, be delivered to the body at approximately body temperature — it may be a few degrees warmer, but should not be colder, than that. If the solution is passed through a tube of considerable length before it enters the vein, it should have a temperature maintained between 110 and 115 F.

The boiling of sodium bicarbonate in solution changes it to sodium carbonate. Since the bicarbonate should be injected, it should not be boiled. The solution should be made just before it is to be used, by the addition to warm sterile water the proper amount of the sterile salt.[13]

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[3] Sellards: Philippine Jour. Sc., 1910, **5**, 313; Bull. Johns Hopkins Hosp., 1912, **23**, 289.

[4] Palmer, W. W., and Henderson, L. J.: Clinical Studies on Acid Base Equilibrium and the Nature of Acidosis, Arch. Int. Med., August, 1913, p. 153.

[5] Caldwell and Cleveland: Surg., Gynec. and Obst., 1917, **25**, 22.

[6] Cannon, W. B.; Fraser, John, and Hooper, A. N.: Some Alterations in the Distribution and Character of the Blood in Shock and Hemorrhage, The Journal A. M. A., Feb. 23, 1918, p. 526. Cases 65 A and 60 A.

[7] Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection, The Journal A. M. A., Feb. 23, 1918, p. 531.

[8] Milroy: Jour. Physiol., 1917, **51**, 277-279.

[9] Howell: Am. Jour. Physiol., 1900, **4**, 14.

[10] Dawson: Am. Jour. Physiol., 1904, **10**, 35.

[11] Milroy: Jour. Physiol., 1917, **51**, 278-281.

[12] Peabody: Am. Jour. Med. Sc., 1916, **151**, 198.

To inject the solution it is usually not necessary to lay bare a vein and introduce a cannula. If a small rubber tube is drawn around the upper arm as a tourniquet and held by a looped twist (not so tightly as to obstruct the arterial flow, which, it will be noted, has a low pressure), the veins in the elbow will in most cases become sufficiently prominent to permit a hollow needle to be introduced into one of them. The lumen of the needle should be large enough to permit a pint of the bicarbonate solution to pass in fifteen or twenty minutes when the head of pressure is only 2 or 3 feet. A glass reservoir marked in ounces permits a judgment as to the proper rate of flow. As soon as the needle enters the vein, an outflow of blood through the lumen gives evidence. When the blood thus appears, the tourniquet should be pulled loose, the rubber tubing full of the solution should be connected with the needle, and the flow allowed to start. In some few cases the veins are so obscure as to make this procedure difficult or impossible; in that case the needle or a small cannula must be inserted into the bared vessel.

The following cases illustrate results which have been obtained when the solution of sodium bicarbonate has been injected in the manner described above:

Private R. M., wounded 9:30 p. m., September 24, sustaining a compound fracture of the left tibia and fibula, and a wound of the hand, was admitted, 11:30, September 25, with severe gas infection of the leg; temperature 96; blood pressure, 96 and 50. Operation was begun at 12:40; the carbon dioxid capacity, 40 per cent. One pint of sodium bicarbonate solution was injected. Operation ended at 1:25; blood pressure, 100 and 60; carbon dioxid capacity, 63 per cent. The pressure was lower in the afternoon (4:30), 74 and 46, but the next morning it was 112 and 66, and it did not again fall below normal limits.

Private J. B. was admitted, September 24, with a gunshot wound of the head (three deep laccrations), contusion of left eye, fracture of both bones of the left leg, and the left foot blown off. Unconscious from cerebral injury. Blood pressure at 11:35, 54 and 20. Operation begun at 11:47; carbon dioxid capacity, 42 per cent. One pint of sodium bicarbonate solution was injected. Operation ended 12:22; blood pressure 112 and 40; carbon dioxid capacity, 58 per cent. The patient lived until the evening of the next day, and died without regaining consciousness.

Private F. B. was admitted, September 9, with one foot mangled and wounds of the right thigh and right shoulder. Wounded at 3:30 a. m.; at 11:30 a. m., just after admission, temperature 98.4, pulse 144, blood pressure 75 and 46; sweating, thirsty, face and lips pale. Operation begun at 2 p. m.; pulse 144, blood pressure 72 and 42, carbon dioxid capacity, 36 per cent. One pint of sodium bicarbonate was injected. Operation ended at 2:40; pulse 120, blood pressure 104 and 50. At 11:30 the pulse was 110, but as the patient was asleep the pressure was not taken. The next day (9 a. m.), pulse 98, blood pressure 128 and 70. Gas infection required removal of leg in the afternoon. The patient stood the operation well, and made a smooth recovery.

Private H. H. was admitted, October 3, with the left foot blown off; he had lost much blood. The pulse was thready and rapid. Operation was started at 5:10; systolic pressure 62; diastolic pressure unreadable; carbon dioxid capacity, 42 per cent. One pint of sodium bicarbonate solution was injected. Operation ended at 5:40; blood pressure 62 and 40; pulse slow and easily palpable. The next morning (9:30), pulse 96, blood pressure 104 and 72. The patient recovered.

Private F. W. was admitted, September 26, with a compound fracture of the left thigh and a wound of the left hand. Wounded 11 p. m., September 25. At 4 a. m., September 26, just after admission, temperature was 96.6, pulse 132, blood pressure 98 and 70. Operation was begun at 4:50; carbon dioxid capacity, 34 per cent. Pressure fell to 82 and 50, pulse 160. One pint of sodium bicarbonate solution was injected. At 5:35, blood pressure was 110 and 85, carbon dioxid capacity, 68 per cent. At 9:15 a. m., blood pressure 124 and 90, and at 4:30 p. m., pulse 120, blood pressure 128 and 98. A smooth recovery followed.

Sometimes a patient apparently in a condition fit for operation becomes badly shocked as the operation proceeds. The following case illustrates the use of the bicarbonate solution in such circumstances:

Private D. was wounded by shrapnel at 10:30 a. m., September 19. He complained of sweating within less than five minutes of being hit. Seen by Cowell at 11 p. m.; pulse 96, blood pressure 104 and 70; cold, pallid, sweating. Admitted to the clearing station at 11:45; blood pressure 82 and 70, pulse 96, temperature 96. At operation ten large tears of the small intestine were found, and much blood in the abdominal cavity. At the end of operation the blood pressure was unreadable. One pint of sodium bicarbonate solution was injected; blood pressure rose to 85 and 60. In the evening the pressure was 86 and 60. The following morning it was 82 and 60, and the patient was in excellent condition. That evening the pressure was 102 and 80. On the next morning, September 21, the pressure was 112 and 90. The recovery was uneventful.

The foregoing cases show that an alkaline injection at the start of anesthesia prevents the dangerous depressive effects which the anesthetic and operative procedures have in cases of shock with acidosis. The operation ends, not with an increase of the existent acidosis, but with the acidosis overcome and a normal alkaline reserve provided. And the blood pressure, instead of being perilously lowered, is actually raised during the critical period. The blood pressure may fall to some extent later, but the improved state of the patient during operation is unmistakable, and the subsequent course of shock cases in which operation has been performed with the precautions described above has been highly gratifying.

In concluding this series of papers, we take pleasure in expressing our thanks to Col. Cuthbert Wallace, C. M. G., A. M. S., and to Col. T. R. Elliott for facilitating arrangements to carry on the work and for counsel; to Lieut.-Col. Winder, R. A. M. C., for cooperative interest; and to the Medical Research Committee and the American Red Cross in France for instruments used in the investigations.

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**Work for Health in Bureau of Mines.**—During the year ending June 30, 1916, according to the Year Book of the Bureau of Mines for that year, 62,693 miners visited the mine rescue cars and stations, 43,060 attended lectures and safety demonstrations, 285 received mine rescue training, 5,598 were given both first aid and mine rescue training. The total number trained was 9,493, which is an increase of 494 over the previous year. The work has been popular and many requests have been received for instruction by the bureau. The casualty insurance companies have recognized the value of the bureau's first aid and mine rescue training by reducing their rates for any mine that has a certain number of men trained by the bureau.

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[13] An ideal injection fluid for shock cases would be a solution with colloid added, as Bayliss (Proc. Roy. Soc., 1916, **89**, 380) has suggested, for example, one containing sodium bicarbonate in proper amount and 6 per cent. gum acacia. (See further Bayliss: Injections to Replace Blood, Memorandum 1, of Reports of the Special Investigation Committee on Surgical Shock and Allied Conditions, Nov. 25, 1917.) Unfortunately, the gum contains calcium, which precipitates as calcium carbonate as sodium bicarbonate is added. If this precipitate is filtered out, the solution has the advantages of being both alkaline and viscous. The Medical Research Committee is preparing to provide in bottles sterile solutions of 6 per cent. gum, to which 2 per cent. sodium bicarbonate has been added, and the deposit filtered out.

## *Special Article*

# GASTRO-INTESTINAL EPIDEMIC AT PEORIA, ILLINOIS

(*By Our Special Investigator*)

During the week beginning February 18, the city of Peoria, Ill., was visited by an epidemic of intestinal trouble affecting a large number of people. This number was variously estimated at 3,000, 10,000 and 20,000. Certain it is that nearly every family was attacked, and sometimes every member of the household suffered. Cases began to develop on the 18th, Monday, the epidemic reached its height on Wednesday and Thursday, and then gradually subsided—a comparatively few cases appearing as late as Monday, February 25.

The most universal symptom was an acute diarrhea, appearing with no warning. This was accompanied in many cases by vomiting, some fever, abdominal tenderness, puffing of the arms, hands and cheeks, and backache. Fainting was reported in some instances. Attacks were as a rule brief, patients entirely recovering in from twenty-four to forty-eight hours. Only one death was reported, that of a baby who had previously had malnutrition troubles, but who actually died from a gastro-intestinal attack. An investigation into the probable source of the epidemic was undertaken by your correspondent, February 24 and 25.

Peoria is a city of from 75,000 to 80,000 inhabitants. Many of the surrounding towns are closely connected with Peoria in both a business and a social way, and were involved to some extent in this epidemic. Serving as the distributing center for food over a considerable district, the city is in close touch with the large food concerns of Chicago. The milk supply comes from fifty or more small dairy farms in the vicinity, is not pasteurized, and is not under a very strict supervision of the health authorities at the present time.

The water comes from a series of wells sunk near the Illinois River. The main well is 60 feet deep and 34 feet in diameter, and at the present writing is about 100 feet from the river. Five other wells are nearby, the cupola tops of some of them being surrounded by water. The other wells are farther up the river and about a quarter of a mile inland. These are newer wells, are 90 feet deep and 7 feet in diameter, and your correspondent was informed that the present supply was being drawn from the main well together with the latter wells, used alternately. The pumping station is near the main well. Water is pumped for the most part directly into the mains. A reservoir of 18,000,000 gallons' capacity serves to control the pressure and as a reserve supply in case of fire or other emergency which might tax the capacity of the pumps. The water company is privately owned, has about 13,800 services, 56 per cent. of which is metered, and supplies a population estimated at 96,000, including outlying districts as well as the city proper. Some manufacturing plants have their own well water supplies, but are connected also with the city mains. It was stated that the valves separating the two supplies were periodically examined by the water company and had always been found in good condition. The wells yield plenty of water, as high as 20,000 million gallons a day having been pumped in the summer of 1913, although the average daily pumpage during 1917 was only 8,156,000 gallons. This corresponds to an average daily consumption per capita of 85 gallons.

The quality of Peoria water has always been regarded as excellent. In fact, such reliance has been placed on it that no regular bacterial examinations are made either by the water company or the City Health Department. An examination, made Sept. 29, 1917, by the Illinois State Water Survey, revealed a gelatin count of five bacteria per cubic centimeter, an agar count of two bacteria per cubic centimeter and the following presumptive tests for colon bacilli: Four samples of 10 c.c. each, three negative and one positive; two samples of 1 c.c. each, both negative; two samples of 0.1 c.c. each, both negative. Examinations that have been made in connection with the course in bacteriology at the Bradley Polytechnic Institute indicate that the water has usually contained from ten to fifty bacteria per cubic centimeter, with no gas formers in 1 c.c. samples.

It is significant that during the summer of 1910 a diarrheal epidemic occurred in Peoria which was not, however, so extensive as the present one. Your correspondent is informed that bacterial counts of the city water made at that time gave very high results, including the presence of gas-forming organisms, and that the condition of the water returned to normal coincident with the subsiding of the epidemic. No thorough investigation of the water supply appears to have been made at that time.

As is well known, the weather conditions this winter have been extraordinary. The mean temperature during January of 10 at Peoria was the lowest for that month recorded in the history of the weather bureau, that is, since 1856, and February came in with 9 inches of a snowfall of 16.9 inches still left on the ground. The thaw started on the 6th of February, and the thermometer remained above freezing until the 13th. By this time most of the snow had disappeared and the river started to rise, reaching almost a flood stage on the 18th. This epidemic followed closely on the thaw with its resulting high water.

By a study of the epidemiologic characteristics, some of the possible sources of infection can well be excluded. The most pronounced features are the widespread distribution, the sudden onset and brief period covered. These factors could be involved only where the infecting agent was widely disseminated, appeared in large amount, and quite rapidly disappeared. On this basis any one food with the exception of milk can be at once excluded, since there is nothing which every one buys and uses in quantity at exactly the same time. In this instance the milk supply also can be eliminated for, as stated above, this comes from a large number of small dairies, and the possibility of their all being infected at one and the same time is remote.

Gastro-intestinal disturbances of this nature due to bacterial infection are not known to be transmitted through the air.

The water situation should therefore be studied with some care. Officials of the water company stated that as far as they knew nothing unusual had occurred in the operation of the water supply system during the past two weeks. Since, however, no regular examinations are being made, there seems to be no assurance of continuous purity of the water.

Some evidence has appeared as to the character of the water during the epidemic from the work of Prof. W. H. Packard, head of the department of biology of the Bradley Polytechnic Institute, who, on his own initative, examined samples of city water drawn from the tap at his house into sterile containers. The first sample was taken Thursday, February 21, and gave a count of 1,530 bacteria per cubic centimeter on agar at 37 C. after twenty-four hours. Lactose-fermenting organisms were obtained in two 1 c.c. and in two 5 c.c. samples. Professor Packard again made tests on samples of water collected Saturday, and this time obtained 142 bacteria for his count with no acid colonies; and no gas formers were found in 5 or 1 c.c. samples after twenty-four hours.

Your correspondent was informed that in the week of February 11, an engineer employed at the water company's pumping station had died after an operation. It seems fair to assume that this necessitated some change in employees at the pumping station.

The epidemiologic evidence, together with that obtained from Professor Packard showing an unusually large number of bacteria in the water coincident with the height of the epidemic, and a decrease in bacteria corresponding to a decline of the number of cases, points to the city water as the source of the infection. Sudden outbreaks of water-borne diseases coincident with temporary pollution of the water supply have often been recorded. An example of this was reported in 1912 from Rockford, Ill., where 10,000 cases of enteritis followed contamination of the water supply.[1]

Cases of intestinal disturbance similar to those in Peoria were reported during the epidemic, from surrounding towns. Five cases in Pekin, Ill., and four in Chillicothe, Ill., were followed up, and all were found to have connection with the city, most of the patients working in Peoria, and the others having been there for shopping or other purposes just prior to being taken ill. Two cases in Peoria were reported to have no connection with the use of water; but no rigid investigation was made to determine this point.

The water supply, therefore, appears to have been the responsible agent. The possibility of contamination of some wells now surrounded by Illinois River water, although not admitted to have been drawn on for supply, and the possibility of change in staff at the pumping station, add to the weight of evidence already mentioned. The actual method of this contamination can probably be best ascertained by an investigation by the officials of the water company, who have knowledge of the course of events preceding the epidemic.

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[1] Jour. Inf. Dis., 1912, **11**, 21-43.

# New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

**TYPHOID VACCINE** (See N. N. R., 1917, p. 312).
Eli Lilly & Company, Indianapolis.

*Typhoid Vaccine, Prophylactic.*—Marketed in packages of one 5-Cc. and one 20-Cc. vial, each Cc. containing 500 million killed B. typhosus: also in packages of one 5-Cc. and one 20-Cc. vial, each Cc. containing 1,000 million killed B. typhosus; in packages of three 1-Cc. vials, one containing 500 million and two each containing 1,000 million killed B. typhosus; in packages of three 1-Cc. syringes, one containing 500 million and two each containing 1,000 million killed B. typhosus. Also marketed in hospital-size packages of ten complete immunizations in thirty 1-Cc. vials.

*Typhoid Vaccine, Therapeutic.*—Marketed in packages of two 1-Cc. vials, one 5-Cc. vial and one 1-Cc. syringe, each Cc. containing 100 million killed B. typhosus; in packages of two 1-Cc. vials, four 1-Cc. vials, one 5-Cc. vial, one 20-Cc. vial and one 1-Cc. syringe, each Cc. containing 250 million killed B. typhosus; in packages of two 1-Cc. vials, one 5-Cc. vial and one 1-Cc. syringe, each Cc. containing 500 million killed B. typhosus; in packages of two 1-Cc. vials, one 1-Cc. syringe, each containing 1,000 million killed typhosus; in packages of four 1-Cc. vials, containing respectively 100, 250, 500, and 1,000 million killed B. typhosus; and in packages of four 1-Cc. syringes, containing respectively 100, 250, 500, and 1,000 killed B. typhosus.

*Typhoid Mixed Vaccine (Typho-Bacterin Mixed).*—Marketed in packages of three 1-Cc. vials, one containing 250 million each killed alpha and beta B. paratyphosus and 500 million killed B. typhosus and two containing 500 million each killed alpha and beta B. paratyphosus and 1,000 million killed B. typhosus; in packages of three 1-Cc. syringes, one containing 250 million each killed alpha and beta B. paratyphosus and 500 million killed B. typhosus and two containing 500 million each killed alpha and beta B. paratyphosus and 1,000 million killed B. typhosus; in packages of one 5-Cc. vial, each Cc. containing 500 million each killed alpha and beta B. paratyphosus and 1,000 million killed B. typhosus; and in one 20-Cc. vial, each Cc. containing 500 million each killed alpha and beta B. paratyphosus and 1,000 million killed B. typhosus. Also marketed in hospital-size packages of ten complete immunizations in thirty 1-Cc. vials.

**BULGARIAN BACILLUS TABLETS-MULFORD.**—Tablets containing a practically pure culture of *Bacillus bulgaricus.*

*Actions and Uses.*—See the general article on Lactic Acid-Producing Organisms and Preparations (New and Nonofficial Remedies, 1917, p. 163).

*Dosage.*—For adults and children, 1 or 2 tablets after meals and at bed time. For infants, 1 or 2 tablets with each feeding. The tablets are marketed in vials of 50 tablets. An expiration date is stamped on the label.

Manufactured by the H. K. Mulford Co., Philadelphia. No U. S. patent or trademark.

A culture of Bacillus bulgaricus grown on whey is mixed with starch, sugar and milk sugar, dried and compressed into tablets.

**Henley's View of Lister.**—The sonnet of Henley the poet, who was Lister's first patient in the first weeks of his Edinburgh professorship, gave a picture of Lister that no other pen could attempt to equal. It was entitled "The Chief," the name by which Lister was fondly known.

> "His brow spreads large and placid, and his eye
> Is deep and bright with steady looks that still.
> Soft lines of tranquil thought his face fulfill—
> His face at once benign and proud and shy.
> If envy scout, if ignorance deny
> His faultless patience, his unyielding will,
> Beautiful gentleness and splendid skill,
> Innumerable gratitudes reply.
> His wise, rare smile is sweet with certainties,
> And seems in all his patients to compel
> Such love and faith as failures cannot quell.
> We hold him for another Heracles,
> Battling with custom, prejudice, disease,
> At once the son of Zeus with Death and Hell."

Wrench, G. T.: Lord Lister, His Life and Work.

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SATURDAY, MARCH 2, 1918

## THE INHERITANCE OF ACQUIRED CHARACTERS

"When I reply to an inquirer that my own work is largely concerned with studies of heredity," an American biologist recently wrote, "I am likely to be met with the response: 'Oh, yes! — Mendel's law.' To the nonscientific reader this last expression commonly means little, except in so far as it is held to imply something thoroughly up to date. In the rather unintelligible jargon which reaches his ears from the noisy forum of 'genetics,' these are doubtless words which occur most frequently. He very naturally carries away the impression that heredity is mendelism, and mendelism, heredity." [1]

The mendelian theory of inheritance assumes that most, if not all, of the characters of an organism can be resolved into "units," which are as a rule inherited independently of one another. The characteristics of the parents may blend in the bodies of the offspring; but in the germ cells segregation of these characters invariably occurs so that they may become visible again in the next generation. Thus there is no true "blended inheritance." The unit factors of the germ plasma are regarded as not subject to the ordinary phenomena of variability shown by the visible body of the organism. Physical or chemical stimuli may act on the germ plasm and bring about changes which may become permanent in heredity; but the mendelian hypothesis does not admit changes in the germ plasm as the result of influences from the surrounding body of such a nature that the acquirement of the latter may be passed on to succeeding generations.

It will be noted from this hasty generalization that the mendelian theory has no place for the inheritance of acquired characters, that long controverted belief which agitated the physicians of a few decades ago. To the mendelian convert the inheritance of acquired characters is an impossibility. It violates the traditions of the "continuity of the germ plasm" for which Weismann was responsible. Sumner,[1] however, has directed attention to recent experiments by the American zoologist Guyer, which seem to give a better standing to some of the unaccepted manifestations of inheritance. Guyer demonstrated the production of specific antibodies in the blood of the domestic fowl, following the injection of an extract of the lens of the eye of *Peromyscus,* the ordinary field mouse. When blood serum from such a fowl was injected into the abdominal cavity of a pregnant female field mouse, the young were born either with partially liquefied or partially opaque lenses.

This is a remarkable phenomenon, and the progress of Guyer's investigations will be watched with great interest by all students of heredity. He has already extended them, with comparable results. If antibodies of the sort just described prove to be capable of affecting the germ cells in such specific ways, we shall have a mechanism, as Sumner expresses it, analogous to that by which the transmission of somatic modifications may be conceived to occur. Perhaps, then, the question of the inheritance of acquired characters is not entirely a dead issue, after all, even if it cannot be upheld in the precise formulation of the days when one freely discussed the distinction between congenital and acquired characters with which the physician was often expected to deal.

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[1] Sumner, F. B.: Modern Conceptions of Heredity and Genetic Studies at the Scripps Institution, Bull. Scripps Inst., 1917, No. 3.

## THE CONTROL OF MENINGITIS IN ARMY CAMPS

Early in 1917, according to Thomsen and Wulff,[1] a number of cases of meningitis occurred in the Copenhagen district which differed from the classic type of epidemic meningitis in that the disease was severe, causing forty-one deaths out of forty-two patients. The exanthem was constant and pronounced. Twenty-six of the patients were soldiers or sailors, and direct connection with the military could be traced in all but eight of the civilian cases. All of the factors indicated a meningococcus sepsis rather than the ordinary cerebrospinal type of meningitis. The authors conclude that in the majority of cases meningitis must be regarded as a metastatic complication of a primary infection in the blood, that the meningococci vary in virulence at different periods, that the virulence is enhanced by repeated passage from one nasopharynx to another, and that the greatest number and severity of cases occur during the cold seasons when people are housed most closely and are subject to catarrhal affections, coughs and colds.

The views of these Danish investigators are especially interesting in the light of certain reports on meningitis recently published in this country relating to the occurrence of the disease among our soldiers and sailors. We refer particularly to the papers by

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[1] Thomsen, O., and Wulff, F.: Meningococcus Infection and Meningitis, Hospitalstidende, 1917, **60**, 1192; abstr., The Journal A. M. A., Feb. 16, 1918, p. 498.

Herrick[2] and Medlar[3] from two Army camps, and a discussion by Surgeon Mink[4] on meningitis as it occurred in the Great Lakes Naval Training Station near Chicago. In the epidemic described by Herrick in which 140 cases were observed, he found that the disease was not primarily a meningitis but a meningococcus sepsis, marked particularly by the exanthem and a severe general reaction. In the epidemic described by the Danish investigators, as well as in that described by Herrick, the spinal fluid was clear and limpid with a normal cell count. While it was inevitably found sterile in the cases reported from Copenhagen, thorough centrifugation and repeated examinations usually revealed meningococci in the Camp Jackson cases. Medlar's experience was similar to that of Herrick, and also confirms the work of the Danish investigators to the effect that an epidemic of sore throat was synchronous with an increase in the number of carriers of meningitis and with the number of meningitis cases. In the months of November and December, from 3 to 6 per cent. of carriers were found at Camp McClellan, and during the month of January, with the coming of more severe weather and an increase in the cases of "colds" and sore throat, the number of carriers rose from 12 to 20 per cent.

The results reported by the investigators mentioned are particularly interesting in connection with the suggestion of Surgeon Mink that to combat meningitis by the removal and segregation of all carriers is not practicable. Mink regards meningitis, as it occurs in Army and Navy camps and barracks, as essentially a disease of the young recruit, directly dependent on the transfer of the individual from a sheltered life to the exposed and strenuous life of the soldier or sailor. At the Great Lakes Naval Training Station, in which he made his observations, the first case of meningitis in the Second Regiment appeared four days following a regimental outbreak of coughs and "colds" in which practically the entire regiment was crippled by bronchitis, coryza or influenza. With the subsiding of this epidemic of coughs, the meningitis began to subside. During the epidemic of meningitis at the Great Lakes Naval Training Station, he relates, it was found that in some barracks which contained 8 or 9 per cent. of carriers, meningitis developed quite extensively, whereas in other barracks which contained 25 or 30 per cent. of carriers, no meningitis developed. In the instances in which a large percentage of carriers were found, the carriers were removed; in other instances the carriers were left in the barracks. New cases failed to develop in both instances. The final conclusions of Mink are, that meningitis in epidemic form among sailors is primarily dependent, not on the presence of carriers among them, but rather on (*a*) exposure to severe weather conditions (*b*) the spread of "colds," pharyngitis and influenza, and (*c*) crowding in barracks. The spread of the disease therefore is to be checked by prophylaxis against these factors rather than by the detection and segregation of carriers. He believes that an unusual amount of attention is given to meningitis because it is regarded as serious and dangerous, not because it affects a large number of men. Even in the most severe epidemics among recruits, a relatively small number develop the disease. "In an army of 25,000," he says, "to fight a disease that affects only a small proportion and kills or disables a still smaller proportion by segregating all carriers, is uneconomical and against military efficiency."

To summarize: it appears that meningitis, as it has occurred in the Army camps or Navy barracks mentioned, was conspicuously related to the spread of the common diseases of the respiratory tract which, in turn, is directly related to the crowding of men in barracks and exposure to the elements. At the same time it must be recognized that the incidence of the disease was to some extent dependent on the presence of carriers among the men. As a certain number of carriers appears always to be present, the contention of Surgeon Mink that epidemic meningitis should be controlled without relation to the presence of carriers is worthy of consideration. Is it possible that the military situation is such as to interfere with the control of meningitis by absolute and thorough control of carriers?

## THE VASOMOTOR MECHANISM IN SHOCK

In the light of the rapidly accumulating data on the manifestations of shock, the diversity of experimental conditions in which shock can be produced, and the seemingly unrelated phenomena that have been observed in connection with shock, it would be little short of editorial rashness to venture even a tentative conclusion as to the real underlying etiologic factors. The problems of shock are at present being investigated by the Committee on Physiology of the National Research Council in this country, and by a special committee on shock and allied conditions, working in England. Some of the preliminary results have already been reported in The Journal.[1] Probably the more refined analysis of the conditions, so familiar to the surgeon, in which a patient develops alarming symptoms during or soon after an operation will ultimately necessitate a more discriminate use of the term

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[2] Herrick, W. W.: Epidemic of Meningitis at Camp Jackson, The Journal A. M. A., Jan. 26, 1918, p. 227.

[3] Medlar, E. M.: Epidemic Cerebrospinal Meningitis at Camp McClellan, The Journal A. M. A., Feb. 16, 1918, p. 458.

[4] Mink, O. J.: Points in the Epidemiology of Meningitis; abstr., The Journal A. M. A., Feb. 23, 1916, p. 463.

[1] Henderson, Yandell; Prince, A. L., and Haggard, H. W.: Observations on Surgical Shock, The Journal A. M. A., Sept. 22, 1917, p. 965. Guthrie, C. C.: Experimental Shock, The Journal A. M. A., Oct. 27, 1917, p. 1394. Erlanger, Joseph; Gesell, Robert; Gasser, H. S., and Elliott, B. L.: An Experimental Study of Surgical Shock, ibid., Dec. 22, 1917, p. 2089.

"shock"; perhaps it will permit the reference of a few common manifestations, such as the low arterial blood pressure, to a diversity of causal agencies.

Meanwhile every effort must be made to preserve an "open mind" in the consideration of a topic of such profound importance as surgical or traumatic shock. However attractively any single and seemingly lucid interpretation may be presented, the clinician must be warned against the pitfalls of restricted vision and undue enthusiasm. Fat embolism cannot account for all of the cases; acidosis may as well be an accompaniment as the instigating agent in shock; the retention of the blood in the splanchnic area will not explain away the mysteries of many manifestations; perhaps we may still say that shock includes something of these features, and something more.

Warnings against the overready acceptance of any "theory" of shock are timely, because an urgent situation always predisposes the clinician to grasp at the most available resource to combat his difficulties; and so long as the uncritical mind is concentrating its interests and directing its efforts in a predetermined channel, it is liable to overlook any except the most immediate possibilities of relief that are presented. Thus far neither saline infusions nor epinephrin administration nor various other once indicated devices for combating some evident manifestation of shock have succeeded, by themselves, in bringing a permanent relief in the majority of the cases tested. The mechanism of the blood depletion that seems to occur in shock and the location of the displaced blood remain to be disclosed.

An illustration of the unwisdom of drawing final conclusions respecting the conditions attending shock has been afforded by the experimental studies of the staff of the Department of Physiology at the Washington University Medical School at St. Louis.[2] Earlier in the debate as to the causes of shock, much stress was placed on the probability of a fatigue of the vasomotor center, with a consequent failure of the circulation to respond in the normally effective manner when blood pressure for some reason was lowered. Subsequently it seemed to be demonstrated by Porter and others that the vasomotor center cannot be fatigued by excessive stimulation, and that accordingly a failure to maintain pressure is not attributable to this factor of the circulation complex. Such conclusions, to which we have repeatedly subscribed, tended to shift attention to peripheral factors in shock. The St. Louis physiologists are frank in the statement, however, that the tone of the vasomotor center falls below normal, very shortly after shock develops, as a result either of fatigue or of deficient blood supply to the center, both consequent, they believe, on the low blood pressure. They admit that failure of the vasomotor center is surely not the main cause of shock; but they contend that a center which holds the vessels merely to their normal caliber at a time when arterial pressure is subnormal is not in normal condition. A normal center, they add, would under such circumstances hold the arteries to less than their normal size. There is evidence also that in shock the respiratory center is sluggish, and is "working very close to the limit of viability."

Erlanger and his colleagues[2] venture the belief that laboratory shock is not very different from shock as seen in war surgery. Having issued a warning against the dangers of overhasty theorizing, we feel free to quote the latest hypothesis of these American investigators. They suggest that the causative factor of shock may be a reduced circulation — to which many of the phenomena point[3]— brought about possibly through the action of pain stimuli, and of a certain amount of hemorrhage, on the vasoconstrictor mechanism.

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## INCREASED RANK AND AUTHORITY FOR MEDICAL OFFICERS

The time has come to make a final effort to impress on Congress the importance of an early and favorable consideration of the Owen and Dyer bills. It is not necessary to recapitulate the fundamental arguments that call for congressional approval of this legislation. However, we must here emphasize that the success of this measure is desired primarily in the interest of the sanitary and health conditions of the Army.

The sanitary service of troops is not an imposition or a necessary evil, as Colonel Ford[4] has pointed out in the introduction to his work on military hygiene and sanitation, but an effort to assist the commander in preserving the health, and thus the number and morale of his troops. It is an essential and integral part of the military organization. If the sanitary service is to operate to its full efficiency, its advice must be consulted and its orders must be obeyed. "Discipline is essential for the proper enforcement of orders affecting health," says Colonel Ford. "The sanitary adviser can do nothing if his recommendations are not enforced by the commanding officer. Under similar circumstances the morbidity of those commands whose discipline is lax, is invariably higher than is that of those whose discipline is strict. . . . In the last analysis, however, responsibility for the health of the command rests upon its commanding officer."

Although it is true that the health of the troops under the administration of our Army today is an indication of the judgment and experience of the commanding officer, the fact remains that if epidemics arise, if there occurs an increased morbidity and mortality among the troops, if anything even remotely affecting the good health of the troops receives publicity, the Medical Department is called to account. The public does not criticize the commanding general or the War Department as a whole; it is the Medical Department which receives the blame and which must appear before the bar of public opinion to justify its work and its ability. Every one knows that the primary purpose of the Army is military efficiency, and that important as are hygiene and sanitation, they must sometimes be ignored. As Ford says, "Military exigencies must dominate before an engagement, during it and perhaps after it." But when troops are in camp undergoing training over long periods of time, as are our troops at present, the medical and sanitary officer should not be in the position of a mere adviser of little rank whose recommendations may be considered by a line officer as the latter's judgment or disposition may indicate. The medical officer should be given rank sufficient to command the wholesome respect and consideration of line officers, and with this rank should be authority to enforce an important order without bias against his future Army life.

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[2] Erlanger, Gesell, Gasser and Elliott (Footnote 1).

[3] Mann, F. C.: Bull. Johns Hopkins Hosp., 1914, 25, 205.

[4] Ford, J. H., Colonel M. C., U. S. Army: Elements of Field Hygiene and Sanitation, Philadelphia, P. Blakiston's Son & Co., 1917.

## *Current Comment*

### WAR EDEMA

A Norwegian medical journal[1] gives abstracts of certain articles in German medical weeklies,[2] in which is again described a disease concerning which very little is known outside of Germany. The German articles are said not to give any definite indications as to how extensive the disease has been, but there seems to have been no lack of material. The condition was observed first in prison camps; later it appeared in the civilian population, as a rule in the form of outbreaks like an epidemic. Heavy laborers, especially men over 40, were attacked mostly, presumably because most of the young men were away and lived under different conditions. As the name indicates, the outstanding feature is edema, which as a rule develops rapidly, often after exertion, and sometimes assumes very large proportions. The edema is said to involve principally the lower extremities, less often the upper, the face, and the serous cavities. Often there is pain in the affected extremities. This condition may last for months with remissions and intermissions unless permanent relief is secured by change of diet and rest. Rest in bed and change of diet so that at least 100 gm. of fat are eaten each day result in the prompt disappearance of the edema; there is then marked diuresis, and the patient may seem to dry up, becoming as thin as a skeleton, the muscles in the parts that were edematous having shrunken greatly. There is, of course, great weakness in connection with the edema. The urine is normal except for increase in acetone, ammonia, amino acids, uric acid and creatinin. The blood is watery and shows evidence of extensive breaking down of proteins. Provided change of diet in the direction indicated and rest can be obtained, the prognosis seems to be good. Apparently all the writers believe that the cause of this to us unfamiliar morbid picture must be sought in the diet: excess of carbohydrates and deficiency of fats, together with large amounts of water, as the food may be mostly in the form of soups, appear to be regarded as the most important factors. In an article,[3] published nearly two years ago, on "edema disease," Jürgens rejected the idea held at first that this edema was of infectious origin, and ascribed it exclusively to dietetic deficiencies. A similar war deficiency edema has been described by Landa[4] as having been prevalent in and around the City of Mexico in 1915. It lies near at hand to speculate as to what some of the essential ultimate factors may be (deficiency of fat-soluble vitamins?); but we have not enough detailed information to form reliable foundations for speculative superstructures.

### SAVING DAYLIGHT

The suggestion that the clock be advanced one hour, or even two hours, during the summer months was made some time prior to the great war, but no action was taken in any country. This is not to be wondered at, as the chief beneficiaries of the plan would be the unorganized public. Since the war has put a premium on the efficiency of the masses and has also put a premium on oil and coal and the power derived from these products, most of the European nations have adopted the plan of advancing the clock one hour. A bill looking toward the same result was introduced at Washington last year, and was passed by the Senate in June. It still awaits action in the House; this, too, in spite of the vivid lesson we have had during the past few weeks on the need of conserving coal. The daylight saving plan has, from a health standpoint, everything in its favor and nothing against it.

### LEGISLATION FOR COMMUTATION OF QUARTERS FOR COMMISSIONED OFFICERS IN THE FIELD

For some time an effort has been made to obtain for officers on field duty with troops the commutation for quarters, light and heat that is now given to officers stationed where public quarters are not available. A bill has been introduced into the House of Representatives and into the Senate to procure this commutation for officers with dependents while on duty with troops. The bill was referred to the Military Committee and promptly returned to the Senate with a favorable report consisting of an explanation by the Secretary of War of the necessity for immediate action. The bill provides that quarters and commutation thereof to all commissioned officers of the Army on duty in the field, or on actual duty outside the United States, who maintain a residence for wife, child or dependent parent, shall be furnished at the place where the residence is maintained, without regard to personal quarters furnished to the officers elsewhere. The number of rooms prescribed in the act of March 2, 1917, is to govern, and in case quarters are not available, every commissioned officer is to be paid commutation thereof at the rate authorized by law in cases in which public quarters are not available. The Secretary of War calls attention to the fact that officers serving with troops are actually undergoing privation incident to personal service, particularly abroad. The matter has been considered especially by the *Defense Bulletin*, published by the Army League of the United States, and by the *Infantry Journal*, which presents the following table:

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[1] Norsk Mag. f. Lægevidensk., 1918, **79**, 117.

[2] Maase and Zondek: Berl. klin. Wchnschr., 1917, No. 36; Deutsch. med. Wchnschr., 1917, No. 16. Knack and Neumann: Ibid., 1917, No. 29.

[3] Jürgens: Berl. klin. Wchnschr., 1916, **53**, No. 9; abstr., The Journal, April 15, 1916, p. 1278.

[4] Landa: Gac. méd., Mexico, 1917, **11**, 67; abstr., The Journal A. M. A., Feb. 9, 1918, p. 424.

Table showing the difference in average monthly pay (including commutation of quarters, heat, and light) of officers on duty at Washington and others of like grade on duty with troops at Camp Meade, a few miles distant.

| Grade | Monthly Pay at Washington | Monthly Pay at Camp Meade | Monthly Premium for Privilege of Serving with Troops | Percentage of Reduction in Pay for Service with Troops |
|---|---|---|---|---|
| Second Lieutenant . | $173.66 | $141.67 | $ 31.99 | 18 |
| First Lieutenant ... | 212.79 | 166.67 | 46.12 | 22 |
| Captain ........... | 259.74 | 200.00 | 59.74 | 23 |
| Major ............ | 323.27 | 250.00 | 73.27 | 23 |
| Lieut.-Colonel ..... | 378.83 | 291.67 | 87.16 | 24 |
| Colonel ........... | 444.14 | 333.33 | 110.81 | 25 |

This is a problem which affects every medical officer, and certainly justice demands that the bill receive favorable consideration.

### PETITION CONGRESS

No arguments should be necessary to convince civilian physicians of the necessity for the success of some such legislation as that provided by the Owen and Dyer bills for increased rank and authority of medical officers. It should be remembered, however, that Congress, which usually is busy in time of peace, is even more pressed with work in time of war, and however anxious the individual congressman and senator may be to inform himself completely on each measure before casting a vote, the demands on his time are such that frequently this is impossible. There has arisen, therefore, the method of influencing Congress by a direct appeal from the citizens of the country to their representatives. In view of this fact, the American Medical Association last week sent to every county society in the country an appeal to take up this matter individually and collectively, and to petition the senators representing their state and the congressman representing their county to support this measure. An organized appeal of this character, backed by the request of the physicians of the country and supported in turn by the citizens with whom physicians may have influence, will cause Congress to give these appeals the special consideration which they merit.

**Educate the Mothers.**—Efforts directed toward the prevention of infant mortality show more apparent results than any other form of infant or child welfare work. In practically every instance in which a community has undertaken to save the lives of its babies it has been successful. The chief means has been the education of the mother. Wherever that has been successfully accomplished the infant death rate has fallen.—C. V. Chapin, M.D.

## *Medical Mobilization and the War*

### IMPORTANT CHANGES IN REGULATIONS ON PHYSICAL EXAMINATIONS FOR SELECTIVE SERVICE

The Provost Marshal, General Crowder, requests the publication of the following telegram received after part of this issue of The Journal had gone to press:

Upon recommendations of many governors the Surgeon-General of the Army amends the regulations governing physical examinations of registrants as follows:

Referring to Changes No. 3, of January 2, Eighth, Section 182, the following paragraph on page 1 shall be stricken out.

**All other registrants must be referred by the Local Board to the Medical Advisory Board for further examination and classification."**

In lieu thereof insert the following:

**"Local Boards may accept registrants for special and limited military service but must refer all doubtful and remediable cases to the Medical Advisory Board."**

Referring to page 3 of Changes, Number 3, Section 184, strike out the first paragraph of said Section 184 beginning

**"Remember that Local Boards"**

And ending

**"Recommendation of the Medical Advisory Board."**

Insert in lieu thereof the following:

**"Local Boards can accept or reject for general military service and may also accept for special or limited military service but must refer all doubtful or remediable cases not falling within said three classes to the Medical Advisory Board."**

Referring to Manual of Instructions for Medical Advisory Boards, Form 64, now being distributed, make the same changes in the first paragraph, top of page 9, and paragraph of Section 184 at middle of page 13.

Referring to new Section 128½, printed in Manual of Instructions for Medical Advisory Boards, beginning at page 3 thereof and ending on page 6 thereof, add to the end of said Section 128½ at page 6 of new manual the following paragraph:

**"Local Boards may accept a registrant as physically qualified for special or limited military service in a named occupation or capacity without reference to the Medical Advisory Board."**

Please communicate these changes to all local, district and Medical Advisory Boards with instructions they are effective immediately on receipt by boards and that if cases of registrants probably qualified for special or limited military service have already been referred to the Medical Advisory Board, the same may be recalled at the discretion of the Local Board unless already decided by the Medical Advisory Board, in which latter event the result of the examination shall stand unaffected.

Any and all provisions relating to physical examinations contained in selective service regulations or changes number three or manual of instructions for medical advisory boards, Form 64, inconsistent with these amendments are hereby repealed.

Printed slips of the foregoing amendments will be distributed as soon as possible.

Crowder, Provost Marshal.

### New Assistant Surgeon-General in Public Health Service

Surg. A. J. McLaughlin has been detailed to Washington as Assistant Surgeon-General of the Public Health Service in charge of the Division of Domestic (Interstate) Quarantine, beginning March 1. He takes the position vacated by Asst. Surg.-Gen. W. C. Rucker, who has been assigned to duty abroad.

### Wounded in Action

Lieut. Thomas M. Holmes, M. R. C., Delmar, N. Y., is reported to have been slightly wounded in action, February 2.

### Base Hospital Mobilized

Base Hospital No. 11, Chicago, representing the St. Joseph's, St. Mary's and Augustana hospitals, has been ordered to active duty, and Lieut. Robert E. Flannery, M. R. C., has been directed to mobilize the enlisted personnel and to proceed to Camp Dodge, Des Moines, Iowa, and to report to the commanding general of that camp for duty.

### Hospitals for the Wounded Returned from France

The Army medical authorities, basing their opinion on figures from Canada and England, believe it will be necessary to provide hospitals in the United States with from 5 to 10 per cent. bed capacity for the troops serving abroad. A clearing hospital of 1,500 beds on Staten Island has been authorized and is now in process of construction. It is planned also to establish special hospitals, general hospitals and convalescent hospitals and camps. The following special hospitals have been proposed: the clearing hospital on Staten Island, three or four tuberculosis hospitals—one at Otisville, N. Y., is now under construction, the regular Army tuberculosis hospital at Fort Bayard, N. M., is being enlarged and ground has been leased at Asheville, N. C., for the erection of a tuberculosis hospital. A site has been selected for a hospital in Colorado, and the leasing of a tuberculosis hospital in Connecticut is under consideration. The hospital at Hot Springs, Ark., is being enlarged and hospitals in Baltimore will be used for blind and deaf patients. A hospital is being erected at Fort Porter, N. Y., for mental cases. A war neurosis and an epileptic hospital will also probably be necessary. The authorities are considering three methods to provide these hospitals: construction, leasing buildings and converting Army posts.

### Rehabilitating the Soldier After the War

In Canada, under an order-in-council, power has been given to the Military Hospitals Commission to train for new occupations returned soldiers who have been disabled in such a way that they cannot engage in their former occupations. *Reconstruction,* a bulletin published by the Military Hospitals Commission for the information of all interested in the welfare of Canada's returned soldiers, in the January number sets forth the plan under which the soldiers are handled and describes trade and other schools and factories already at work reeducating the maimed soldiers to become self-supporting. Under the procedure established a standing order exists that every returned soldier must be interviewed by the vocational officer of the M. H. C. C. unit to which he is attached and a complete survey made of his capabilities from the industrial standpoint. If the soldier needs assistance he is interviewed by a vocational counsellor and a medical officer whose duty it is to consider the line of industry for which his aptitudes, previous training and remaining abilities qualify him. Their report goes to the Disabled Soldiers' Training Board, the members of which are acquainted with local industrial conditions, and after an interview with the soldier they select the course of training. Soldiers undergoing training receive a pay check from the government for the support of themselves and their families. In November, 1917, the number of men attending the vocational training classes was 3,356, 1,201 of whom were so disabled that they could not follow their former occupations. It has been found that about 10 per cent. of men passing through the Canadian convalescent hospitals require reeducation. In addition to this class is the class of convalescents who are given occupational treatment to loosen up their muscles and keep their minds occupied, as well as giving them an opportunity to improve their educational qualifications and their earning capacity. In this class no effort is made to teach new occupations. In preparing the disabled for new occupations everything is utilized from agriculture to handloom operation. For occupational purposes, commercial subjects and general education, carpentry, metal working, gardening and automobile mechanics are standard subjects. Tuberculous patients and those confined to bed, fancy work and embroidery, basketry and weaving provide occupation. For the limited number permanently incapacitated from active exertion some of the art hand crafts such as basket making, clay modeling and handloom operation have been employed with success.

## NEWS OF THE CANTONMENTS

### Thirty-Third Division, Camp Logan, Houston, Texas

Feb. 16, 1918.

LABORATORY SERVICE

The laboratory staff is at present working according to the following schedule, and the work divided as far as practicable in the way indicated.

Chief, First Lieut. Murray C. Stone, M. R. C., instructor—pathology.

Bacteriology, First Lieut. John C. Simpson, M. R. C. Spinal fluids, blood cultures, throat cultures, exudates, pneumococcus types, typhoid release, vaccines, Wassermanns.

Clinical Pathology, First Lieut. Louis D. Minsk, M. R. C. Urine, feces, stomach contents, blood counts, malaria, sputum, gonococcus, spirochaeta.

Public Health, First Lieut. Edwin Schultz, M. R. C. Water and milk supplies, typhoid carriers, meningococcus carriers, diphtheria carriers, Schick test, parasites.

On account of the freedom of the camp from epidemic disease of any serious magnitude, the work of the laboratory up to the present time has been largely routine in character; that is, such as would obtain in a large civil hospital.

The public health work so far has included the routine examination of water and milk supplies, and a comparatively limited number of examinations for carriers of various kinds.

The laboratory occupies at present 480 square feet of floor space, which in the near future will be more than doubled. An incubation room has been built which will allow of the incubation at one time of several thousand cultures. The officers in the laboratory are thoroughly acquainted with the various methods now employed in the detection of carriers, and in pneumococcus type differentiation, and with the administration of sera, so that in the face of a serious epidemic the entire force would at once be available for the necessary laboratory work.

PNEUMONIA

As it has been impossible to obtain white mice, the determination of pneumococcus types has been according to the method described in The Journal of the American Medical Association, Jan. 5, 1918, by O. T. Avery, M.D., of the Rockefeller Institute, New York. Those cases that give an organism, which forms a precipitate in Type 1 serum, are treated intravenously by doses of about 90 c.c. of Type 1 antipneumococcic serum to which an equal amount of normal saline solution has been added and the fluid allowed to run slowly into a vein at the elbow so that it takes about one-half hour for the total amount to be administered. In our cases we have noticed a slight rise of temperature during the first three or four hours after treatment, and then usually a sudden drop to normal with a coincident clearing up of symptoms. Those cases whose temperatures are still above 102 F. at the end of twelve hours, are treated again and repeated in twenty-four hours if the temperature still remains above 102. As this amount of foreign serum at times produces symptoms of anaphylactic shock all patients are desensitized two or three hours before the treatment by the hypodermic administration of 0.5 c.c. of the serum. By us this is done to each patient, while the sputum is being worked up, and when we find a Type 1 infection, the patient is already desensitized.

### Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Feb. 18, 1918.

SCARLET FEVER AND MUMPS

The most rigid quarantine enforced yet at Camp Zachary Taylor was placed on the Forty-Sixth Infantry, Regular Army, February 12. The order placed a quarantine around the entire regiment for more than seven days, and included all officers and enlisted men. No one but those carrying supplies were allowed to enter or leave the camp. The quarantine was the result of the breaking out of seven cases of scarlet fever in seven companies, and the discovery of at least twenty-five suspected cases.

Scarlet fever has also been discovered in the Three Hundred and Twenty-Sixth Field Artillery. Experts of the medical department were sent to certain milk dealers to investigate their milk supplies in an effort to find the source of the disease.

Mumps is affecting nearly 300 soldiers, the "mump colony" being located in the One Hundred and Fifty-Ninth Depot Brigade, where two barracks buildings are fitted up. As the cases develop, the men are sent there instead of to the base hospital.

Measles has abated materially, there being but few new cases. One hundred and twenty-eight pneumonia patients were under treatment at the base hospital on the 13th, but only a few were serious.

The first death of a colored soldier occurred on the 13th from cerebrospinal meningitis.

### EAR TROUBLES

Otitis media has made its appearance in an acute form at the camp, and a half dozen medical officers and several Red Cross nurses have suffered with it. First Lieut. L. A. Mayer, Capt. Milton J. Lichty and First Lieuts. Hugh L. McLean, Earl Moorman and Carl Harris have been affected. The otological department of the hospital was very busy during the past week.

### SANITARY TRAIN DOWNCAST

Gloom struck the sanitary train last week when an order came through stating that unless specially ordered, the sanitary trains of a division will not move with the full organization. The order is believed to mean that Lieut.-Col. John H. Allen, commanding officer of the Three Hundred and Ninth Sanitary Train, and many other officers of the sanitary train will remain in Louisville.

### CAPTAIN LICHTY'S DEATH

Gloom has prevailed at the base hospital over the death of Capt. Milton J. Lichty, M. R. C., of Cleveland, the first officer to die at the camp. He was universally liked, and his sudden taking created a deep impression. As chairman of the tuberculosis examining board he did faithful, efficient and painstaking work. He was at work early and late. The night before his death he dictated ten official letters, although in the officers' ward with otitis media. Like so many others in the camp, he had been infected with the *Streptococcus hemolyticus* and had had a severe cough and was much below par. The pneumococcic meningitis was very virulent, as he died twenty hours after the onset of the first general symptoms. His brother, Dr. J. A. Lichty of Pittsburgh, and his wife arrived after his death. All flags were at half mast in the camp, and a military escort left on the 15th for Cleveland with his remains, where he was buried.

### BASE HOSPITAL ENLARGMENT

Considerable correspondence has passed between the military authorities at the cantonment and the War Department in regard to the needs of the base hospital, and there will be an increase of 700 beds with additional buildings for medical officers and enlisted men. The nurses' building has been finished. Lieut.-Col. Will Pyles has been notified that the nurses' quota will be increased from sixty-five, the original number, to 135.

### PERSONAL

First Lieut. John B. Webster has been appointed orthopedic surgeon at the base hospital.——Chaplain John A. Ellis has been relieved from duty with the Three Hundred and Thirty-Sixth Infantry and assigned to the base hospital.——Capt. Marvin S. Veal of the base hospital has been ordered to proceed to his home, and on arrival there to revert to inactive duty status.——Major Julius McHenry, in charge of the surgical department at the base hospital, has returned to camp after a two months' course of instruction at the Roosevelt Hospital, New York, and resumed his official duties.——First Lieuts. Augustus B. Riley and George Hyenowine of the Three Hundred and Thirty-Sixth Infantry have been detailed students at the School of Hygiene and Sanitation.

Feb. 25, 1918.

Seventy-eight patients were received at the base hospital February 21, during the forenoon, the largest number for any half day on record. Most of the men were suffering from tonsillitis, grippe and coughs from laryngitis and bronchitis. No deaths were recorded during that twenty-four hour period.

### COURT MARTIAL MEDICAL OFFICERS

Acting on the complaint of Representative Robert Y. Thomas, the War Department has issued instructions convening a court martial to try Lieut.-Col. John H. Allen, M. C., and Major Milton Board, M. R. C., Camp Zachary Taylor. The court martial is the result of allegations regarding the death of Otho Murray of Cumberland County, Ky., a selective draft man at Camp Zachary Taylor, who following measles, had acute ascending paralysis. He was allowed to be taken from the hospital and sent home, dying at Glasgow, Ky., before he reached his home.

### PERSONALS

Lieut.-Col. John H. Allen has received an order from Washington, relieving him from duties as division surgeon and naming him as camp surgeon. Major Luther Poust, who has been chief sanitary officer has been detailed as acting division surgeon.——Lieut.-Col. Wallace De Witt, division surgeon of the Eighty-Third Division at Camp Sherman, spent a few days at Camp Zachary Taylor, conferring with Col. J. H. Allen and Major Luther R. Poust, regarding health conditions.——Colonel Donaldson and Major Sweet of the inspector general's office spent several days at Camp Zachary Taylor inspecting every department of the cantonment.——Major-Gen. Harry C. Hale, his chief of staff, Lieut.-Col. Lawrence Halstead and his aide Capt. Oscar Griswold, who have been to France returned to Louisville last week.——Capt. Bert E. Scott has arrived and reported to the Base Hospital.——Lieut. Lawrence H. Mayers has been ordered to Chicago to join Base Hospital Unit No. 14, as adjutant. Lieutenant Mayers has been assistant chief to the medical service at Camp Taylor since last October.

## Eighty-Eighth Division, Camp Dodge, Des Moines, Iowa

Feb. 18, 1918.

### BASE HOSPITAL NOTES

Our first hospital unit of 500 beds proved to be insufficient to care for the sick of this cantonment. In the latter part of December, therefore, the venereal patients and some of the patients with contagious diseases were moved into two large and two small barracks. These barracks have since been remodeled to meet most requirements. At present there is under construction another 500 bed unit, which will be ready for occupancy in about three weeks. The base hospital has received almost all of the sick of this command, which caused for a short time a little crowding in the general medical wards. On completion of the new hospital unit, we shall have accommodations for the sick of a division of 42,000 men.

The total number admitted to hospital to date has been 7,214 cases, with an average of 10.5 hospital cases to date. The average number of patients per day for November was 427, for December, 700, and for January, 975. Since the beginning of the camp, there have been forty-four deaths, or an annual death rate of 603 per hundred thousand.

The commanding officer of the hospital is Major A. T. Cooper, M. C., U. S. Army. The chief of the medical service is Major Joseph Miller, M. R. C. The chief of the section of surgery of the head is Major Frank Todd, M. R. C. The surgical service is temporarily in charge of Capt. C. G. Fraining. The laboratory is under the direction of Capt. Daniel Glomset and the roentgen-ray department under that of Capt. William G. Alexander, M. R. C.

The medical service has averaged 300 beds for general cases and about 600 beds for contagious cases. Arthritics and patients with bronchopulmonary diseases have formed the great bulk of the general medical cases, there having been but few gastro-intestinal cases, and no patients with a dystrophic or metabolic disease. During December and January, 100 soldiers with pulmonary tuberculosis were recommended for discharge, or one out of four of those given a special four to six day examination.

From the beginning of the cantonment to Feb. 1, 1918, this department has cared for the following number of cases of the communicable diseases: pneumonia, 168 (mortality, 15 per cent.); meningococcus meningitis, 14 (mortality, 36 per cent.); diphtheria, 30 (1 death); and the following cases without mortality: typhoid, 2; smallpox, 16; chickenpox, 6; measles, 595; scarlet fever, 65, and mumps, 850.

The laboratory has made 20,250 examinations, of which 1,205 were Wassermann reactions, 30 milk examinations, 955 cultures for typhoid, 2,543 cultures for the meningococcus, 621 examinations for intestinal parasites, 53 determinations of pneumococcus types, and 3,905 cultures for diphtheria bacilli.

The roentgen-ray department has made 2,800 examinations, of which 510 were for tuberculosis. Pneumonia patients have been roentgenographed as routine at five day periods until convalescent.

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Feb. 15, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):

| | |
|---|---|
| All Troops | 1611.6 |
| National Guard Camps | 1424.9 |
| National Army Camps | 1901.8 |
| Regular Army | 1351.5 |

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

| | |
|---|---|
| All Troops | 51.1 |
| National Guard Camps | 48.1 |
| National Army Camps | 59.4 |
| Regular Army | 41.8 |

3. CAMPS HAVING ADMISSION RATE FOR DISEASE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Bowie, Sevier, Wheeler, Doniphan, Kearny and Shelby. NATIONAL ARMY: Camps Travis, Pike, Funston, Sherman, Jackson, Zachary Taylor and Dodge. REGULAR ARMY: Central Department.

4. CAMPS HAVING NONEFFECTIVE RATE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Bowie, Sevier, Beauregard, Wheeler, Shelby, Kearny and Doniphan. NATIONAL ARMY: Camps Funston (Eighty-Ninth), Pike, Travis, Funston (Ninety-Second), Jackson, Zachary Taylor, Dodge, Sherman and Lee. REGULAR ARMY: Southeastern and Central Departments.

5. VENEREAL DISEASES: Annual admission rate per 1,000:

| | |
|---|---|
| National Guard Camps | 67.4 |
| National Army Camps | 69.8 |
| Regular Army | 69.2 |

CAMPS HAVING RATE ABOVE AVERAGE: NATIONAL GUARD: Camps Logan, Bowie, Beauregard, Wheeler and Sheridan. NATIONAL ARMY: Camps Pike, Zachary Taylor and Lee. REGULAR ARMY: Southern and Eastern Departments.

6. NUMBER OF NEW CASES OF PNEUMONIA REPORTED. 687
Highest number in any camp (Travis) 76

7. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING FEB. 15, 1918

| Camps | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffective per 1000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 10 | ... | ... | 16 | .. | .. | 3 | 2 | .. | 1 | 28.1 |
| Hancock | 6 | ... | ... | 18 | .. | .. | 9 | 4 | 2 | 5 | 28.2 |
| McClellan | 9 | ... | ... | 19 | .. | .. | 21 | .. | 3 | 1 | 37.7 |
| Sevier | 23 | ... | ... | 29 | .. | .. | 23 | 2 | 17 | 3 | 67.7 |
| Wheeler | 10 | 1 | ... | 35 | .. | .. | 4 | 1 | .. | 4 | 61.9 |
| Logan | 23 | ... | ... | 117 | .. | .. | 39 | 1 | .. | 3 | 34.9 |
| Cody | 38 | ... | ... | 12 | .. | .. | 9 | 3 | .. | 8 | 43.2 |
| Doniphan | 26 | ... | 1 | 19 | .. | .. | 5 | .. | .. | 10 | 49.6 |
| Bowie | 48 | ... | ... | 85 | .. | .. | 2 | 1 | .. | 6 | 77.8 |
| Sheridan | 3 | ... | ... | 4 | .. | .. | 7 | 1 | 3 | 2 | 24.6 |
| Shelby | 5 | ... | ... | 25 | .. | .. | 3 | 1 | 1 | 6 | 60.9 |
| Beauregard | 18 | ... | ... | 50 | .. | .. | ... | 5 | .. | 6 | 65.9 |
| Kearny | 6 | ... | ... | 6 | .. | .. | 3 | 1 | 10 | 2 | 55.3 |
| Devens | 10 | ... | ... | 17 | .. | .. | 14 | .. | 2 | 3 | 39.1 |
| Upton | 7 | ... | ... | 21 | .. | .. | 3 | .. | 1 | 3 | 29.6 |
| Dix | 1 | ... | ... | 6 | .. | .. | 51 | 1 | 10 | 0 | 46.5 |
| Meade | 2 | ... | ... | 35 | .. | .. | 10 | 1 | 5 | 5 | 31.7 |
| Lee | 24 | ... | ... | 50 | .. | .. | 46 | 3 | 2 | 6 | 64.9 |
| Jackson | 5 | ... | ... | 4 | .. | .. | 15 | 4 | .. | 3 | 75.8 |
| Gordon | 9 | ... | ... | 15 | .. | .. | 25 | 4 | .. | 5 | 37.1 |
| Sherman | 4 | ... | ... | 23 | .. | .. | 41 | .. | 16 | 5 | 66.3 |
| Taylor | 19 | ... | ... | 47 | .. | .. | 2 | 2 | 17 | 8 | 73.0 |
| Custer | 2 | ... | ... | 11 | .. | .. | 15 | .. | 4 | 5 | 43.7 |
| Grant | 5 | ... | ... | 17 | .. | .. | 26 | 1 | 29 | 5 | 41.8 |
| Pike | 38 | 1 | 1 | 201 | .. | .. | 17 | .. | 5 | 12 | 102.8 |
| Dodge | 17 | ... | ... | 25 | .. | .. | 23 | 3 | 15 | 2 | 68.8 |
| Funston (89th) | 3 | ... | ... | 16 | .. | .. | 8 | 2 | 3 | 4 | 107.1 |
| Travis | 76 | 2 | ... | 20 | .. | .. | 1 | 2 | .. | 10 | 101.6 |
| Lewis | 7 | ... | ... | 37 | .. | .. | 24 | .. | 29 | 0 | 51.2 |
| Funston (92d) | 2 | ... | ... | 2 | .. | .. | ... | .. | .. | 1 | 85.5 |
| Regulars | 216 | 3 | 4 | 510 | .. | .. | 515 | 27 | 84 | 95 | 41.8 |
| National Guard in Departments | 4 | ... | ... | 12 | .. | .. | 37 | 1 | .. | 1 | 32.9 |
| National Army in Departments | 11 | ... | 3 | 40 | .. | .. | 53 | .. | 13 | 2 | 105.0 |

8. ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

| | Regulars, U. S. Army, in U. S. only, 1916* | Regulars in U. S., Week Ending Feb. 15, 1918 | National Guard, All Camps, Week Ending Feb. 15, 1918 | National Army, All Camps, Week Ending Feb. 15, 1918 |
|---|---|---|---|---|
| Pneumonia | 2.59 | 29.3 | 34.8 | 29.5 |
| Dysentery | 39.7 | 0.4 | 0.1 | 3.8 |
| Malaria | 12.52 | 0.5 | 0.1 | 0.1 |
| Venereal | 91.23 | 69.2 | 67.4 | 69.8 |
| Paratyphoid | 0.31 | 0.0 | 0.0 | 0.0 |
| Typhoid | 0.21 | 0.0 | 0.0 | 0.0 |
| Measles | 20.28 | 73.9 | 19.8 | 40.9 |
| Meningitis | 0.29 | 3.6 | 3.2 | 2.9 |
| Scarlet fever | 0.59 | 11.4 | 5.6 | 17.6 |

* Enlisted men only, both white and colored.

## PROMOTIONS

### Captains of the Medical Reserve Corps Recommended for Promotion as Majors

*Feb. 20, 1918*

EDWARD CLARENCE MOORE, Los Angeles; GEORGE WATERS, Memphis, Mich.

### First Lieutenants of the Medical Reserve Corps Recommended for Promotion as Captains

*Feb. 20, 1918*

JOHN FRYE CHAPMAN, San Francisco; ROBERT WELLINGTON CLANCY, Midford, Ore.; GARRETT MARCELLUS CLOWE, Schenectady, N. Y.; DOWELL GANN, Jr., Little Rock, Ark.; FLEETWOOD GRUVER, Nashville, Tenn.; CHARLES WILBUR HYDE, Washington, D. C.; CYRUS JACOBSKY, Wilkes-Barre, Pa.; JOHN GREENWOOD JENNINGS, Boston; ROBERT MAXWELL JONES, Culver City, Calif.; THOMAS HENSHAW KELLY, Cincinnati; JOSEPH JAMES KOCYAN, Plains, Pa.; GEORGE VICTOR LITCHFIELD, Abingdon, Va.; THOMAS LITTLEWOOD, Pittsfield, Mass.: AUSLEY LYMAN LOWE, Robinson, Ill.; VELPEAU HILL RAGSDALE, Bessemer, Ala.; FRED RANKIN, Baltimore; ABRAM KARL REEVES, East Orange, N. J.

### Personnel of the Medical Department

For the week ending February 23, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 768, including 1 major general, 61 colonels, 103 lieutenant colonels, 210 majors, 2 captains and 391 lieutenants.

MEDICAL RESERVE CORPS: 17,052, including 1,011 majors, 3,762 captains and 12,279 lieutenants. On active duty: 13,687, including 844 majors, 3,227 captains and 9,616 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,207, including 7 lieutenant colonels, 259 majors, 147 captains and 794 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 32, including 4 brigadier-generals, 10 colonels, 16 lieutenant colonels and 2 majors.

The DENTAL CORPS, 211; DENTAL RESERVE CORPS, 5,036, of whom 1,297 are on active duty; DENTAL CORPS, NATIONAL GUARD, 266; VETERINARY CORPS, 24; VETERINARY RESERVE CORPS, 1,380, of whom 701 are on active duty; VETERINARY CORPS, NATIONAL GUARD, 57; VETERINARY CORPS, NATIONAL ARMY, 288; SANITARY CORPS, 864, and AMBULANCE SERVICE, 136, constitute the remainder of the commissioned personnel.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Camp Wheeler,* Macon, Ga., for duty in connection with the Medical Department of the Army, and on completion *to his proper station,* Major-Gen. WILLIAM C. GORGAS.

The following officers are constituted a board for the purpose of reviewing promotions in the Medical Corps of the National Army to the grade of colonel and lieutenant colonel: Brig.-Gen. CHARLES RICHARD, Col. REUBEN B. MILLER and Lieut.-Col. VICTOR C. VAUGHAN.

*To Camp Greene,* Charlotte, N. C.; *Camp Wadsworth,* Spartanburg, S. C.; *Camp Sevier,* Greenville, S. C.; *Camp Gordon,* Atlanta, Ga.; *Camp Jackson,* Columbia, S. C., to make special sanitary inspections, and on completion *to his proper station,* Col. PERCY M. ASHBURN.

*To Fort Riley* for duty as commanding officer, from Williamsbridge, N. Y., Col. EDWARD R. SCHREINER; from Fort Thomas, Major JAMES A. WILSON. For duty, from Camp Jackson, Major THOMAS J. LEARY.

*To Hoboken, N. J.,* and *Camp Merritt, N. J.,* to make sanitary inspections, and on completion *to his proper station,* Col. DEANE C. HOWARD.

*To Lake Charles, La.,* Gerstner Field, to make sanitary inspection, and on completion *to his proper station,* from Fort Sam Houston, Col. WILLIAM F. LEWIS.

*To report to the commanding general, Western Department,* for assignment to duty, Col. BENJAMIN J. EDGER, Jr.

*To Williamsbridge, N. Y.,* for duty as commanding officer, from Fort Riley, Col. DOUGLAS P. DUVAL.

*To Camp Wheeler,* Macon, Ga., for duty in connection with the Medical Department of the Army, and on completion *to his proper station,* Lieut.-Col. CHARLES L. FURBUSH.

*To Fort Oglethorpe,* Camp Greenleaf, as commanding officer, from Hoboken, Lieut. Col. CRAIG R. SNYDER; from Douglas, Arizona, Major GEO. H. McLELLAN.

*To New York City* for duty, and on completion *to his proper station.* Lieut.-Col. LLEWELLYN P. WILLIAMSON. For duty, from St. Louis, Lieut.-Col. MARLBOROUGH C. WYETH. For instruction in orthopedic surgery, from Rochester, New York, Lieut. EGBERT H WESSON.

*To Saranac Inn,* Upper Saranac Lake, New York, to make inspection of property and on completion *to return to his proper station,* from Fort Ontario, Lieut.-Col. HENRY D. THOMASON.

*To Camp Stuart,* Newport News, Va., as division surgeon, from Camp Stuart, Major JULIUS F. LYNCH.

*To Fort Leavenworth, Kan.,* for permanent duty, from Fort Leavenworth, Major FRANK N. CHILTON.

*To Newport News, Va.,* for duty, from Camp McClellan, Major JAMES S. FOX.

*To Portland, Ore.,* Spruce Production Division, for duty, from San Antonio, Major JOHN W. SHERWOOD.

*To San Antonio, Texas,* Kelly Field, for duty, from Boston, Mass., Major LOUIS H. BAUER.

*To Waynesville, N. C., Asheville, N. C.,* and *Tallapoosa, Ga.,* to inspect property and on completion *to his proper station,* Major EARL H. BRUNS.

*To Camp Beauregard,* Alexandria, La., for temporary duty, from Camp Lee, Lieut. HENRY K. B. BUFFORD.

*To Camp Custer,* Battle Creek, Mich., for physical examination to determine his fitnes for active service, Lieut. GEORGE W. KRAHN.

*To Camp Devens,* Ayer, Mass., for duty, from Rochester, N. Y., Lieut. ALBERT BOWEN.

*To Camp Grant,* Rockford, Ill., for temporary duty, from Milwaukee, Lieut. NOBEL DuB. McCORMACK.

*To Camp Greene,* Charlotte, N. C., for duty, from Camp Logan, Lieuts. JOHN J. CARDEN, HAROLD H. GOLDING and FRANK McA. MOOSE.

*To Fort McPherson, Ga.,* for duty, from New York Orthopedic Hospital, Lieut. JOSEPH R. JONES.

The following officers of the Medical Reserve Corps who have passed the preliminary examination for appointment in the Medical Corps of the National Guard will proceed to the Army Medical School for the required course of instruction:' From Camp Meade, Lieut. HARRY A. BISHOP; from Camp Laurel, Lieut. LAWRENCE L. BLACKBURN; from Accotink, Va., Lieut. JAMES A. BUCHANAN; from Fort Thomas, Lieut. TATE B. COLLINS; from Camp Lewis, Lieut. ROY M. COX; from Camp Dix, Lieut. HUGH J. DAVIS; from Presidio of San Francisco, Lieut. DAVID A. GREGORY; from Camp Stanley, Lieut. JOSEPH KOPECKY; from Fort McHenry, Lieut. ABRAHAM L. OLSHANSKY; from Camp Sherman, Lieut. ALEXANDER F. ROBERTSON, Jr.; from Camp Stanley, Lieut. HAROLD A. SPILMAN.

## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Camp Beauregard,* Alexandria, La., for duty, Lieut. EUGENE THOMAS, Mobile.

*To Camp McClellan* for temporary duty, Major JAMES N. BAKER, Montgomery; Lieut. ALVIN E. COWAN, Ensley.

*To Fort Oglethorpe* for instruction, Lieut. BENJAMIN J. LEWIS, Samson.

*To Lake Charles,* Gerstner Field, Signal Corps, Aviation School, for duty, Lieuts. MARION T. DAVIDSON, Ensley; TOLL H. SUDDUTH, Garden City.

*To New York City Neurological Institute,* for instruction, Major WESTLEY E. DRENNEN, Birmingham. *Cornell Medical College* for instruction and on completion *to Hoboken* for temporary duty, from Camp Dodge, Capt. ROBERT D. BROWN, Mobile.

*To the inactive list,* from duty as medical aid to the governor of Alabama, Major JAMES N. BAKER, Montgomery.

*To their home* and honorably discharged, Lieut. FRANK N. McCONNICO, Montgomery. On account of physical disability existing prior to entrance into the service, Lieut. SOSEA F. DOWNS, Clanton.

### California

*To Camp Kearny* for duty, Lieut. SAMUEL McC. SPROAT, Portola.

*To Fort Mason* for duty, from New York City, Major ALANSON WEEKS, San Francisco.

*To Los Angeles* for instruction in orthopedic surgery, from San Francisco, Capt. EARL N. GREENWOOD, San Francisco. For instruction, Lieut. WALTER C. S. KEOBIG, Los Angeles. For orthopedic instruction, Lieuts. ARNOLD M. SCHOLZ, CHARLES S. YOUNG, Los Angeles; STUART Z. PEOPLES, Petaluma; JOSEPH W. CRAWFORD, Sacramento; LOUIS M. COY, San Bernardino; from Camp Kearny, Lieut. GABRIEL J. J. WISCHI, San Francisco; from Camp Lewis, Lieut. JOHN E. PAULSON, San Quentin. To organize a course of instruction and act as instructor in orthopedic surgery, JOHN C. WILSON, Los Angeles.

*To report to the Commanding General, Western Department,* for assignment to duty, Lieut. JAMES B. OWEN, San Francisco.

*To Rochester, Minn.,* Mayo Clinic, for instruction and on completion *to Camp Sheridan,* Montgomery, Ala., for temporary duty, Capt. WILLIAM H. WICKETT, Fullerton.

*To San Antonio, Texas,* Kelly Field for duty, from San Antonio, Major FREDERICK P. GAY, Berkeley.

*To his home* and honorably discharged on account of his inaptitude for the service, Capt. LEWIS H. YOUNG, San Francisco.

### Colorado

*To Camp Logan,* Houston, Texas., for temporary duty, Capt. OLIVER LYONS, Denver.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Camp Joseph E. Johnston, Capt. PHILIP A. LOOMIS, Colorado Springs.

*To Fort Riley* for instruction, Lieut. HENRY H. PANTON, Denver.

### Connecticut

*To Camp Shelby,* Hattiesburg, Miss., as Divisional Tuberculosis Specialist from Camp Upton, Lieut. RAYMOND V. QUINLAN, Meriden.

*To Camp Stuart,* Newport News, Va., for duty, from Fort Oglethorpe, Capt. JOHN S. BLACKMAR, Norwich.

*To Fort Oglethorpe* for instruction, Lieut. CHARLES J. GREENSTEIN, Meriden.

### District of Columbia

*To Danville, N. Y.,* for duty, Capt. CHARLES S. ROBBINS, Washington.

*To Fort Oglethorpe* as instructor in lung diseases, from Walter Reed General Hospital, Major ROY D. ADAMS, Washington; for instruction, Lieut. VIRGIL B. WILLIAMS, Washington.

### Florida

*To Camp Hancock,* Augusta, Ga., Aviation Section Signal Corps, for duty, Lieut. ALBERT C. McKENZIE, Jacksonville.

*To Fort Oglethorpe* for instruction from Camp Jackson, Capt. JOHN MacDIARMID, DeLand.

*To Washington, D. C.,* Government Hospital for the Insane, for duty, Capt. GEORGE D. COON, Tampa.

*To their homes* and honorably discharged, Capt. MALCOLM GUNN, Tarpon Springs; Lieut. LOUIS B. BOUCHELL, New Smyrna.

### Georgia

*To Camp Gordon,* for duty, Lieut. WALTER R. McCOY, Danielsville.

*To Camp Jackson, Columbia, S. C.,* for temporary duty, Lieut. GEORGE H. LANG, Savannah.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, Lieut. LEE ROY HUTCHINSON, Adel.

*To Fort Oglethorpe* for instruction, Lieut. ROBERT C. MADDOC, Rome.

*To Washington, D. C.,* Government Hospital for the insane, for intensive training, from Fort Oglethorpe, Lieut. JAMES K. PETTIT, Milledgeville.

### Idaho

*To Camp Sherman,* Chillicothe, Ohio, for temporary duty, from St. Louis, Capt. ERWIN W. KLEINMAN, Hailey.

### Illinois

*To Ann Arbor, Mich.,* University of Michigan, for instruction, from Johns Hopkins Medical School, Major DEAN D. LEWIS, Chicago.

*To Camp Doniphan,* Fort Sill, Okla., as Divisional Tuberculosis Specialist, from Fort Oglethorpe, Capt. ROY T. RODAWAY, Chicago.

*To Camp Grant,* as member of the tuberculosis board, Lieut. JOSEPH S. LUNDHOLM, Rockford.

*To Camp MacArthur,* Waco, Texas, as member of tuberculosis board, from Camp MacArthur, Capt. HENRY ROBENSTEIN, Chicago.

*To Camp McClellan,* Anniston, Ala., as divisional tuberculosis specialist, Lieut. WALTER S. CONN, Naperville.

*To Camp Pike,* Little Rock, Ark., for temporary duty, Lieut. FREDERICK I. BROWN, Chicago.

*To Camp Shelby,* Hattiesburg, Miss., for duty, Lieut. EDWARD V. DEL BOCARRO, Chicago.

*To Camp Sheridan,* Montgomery, Ala., as divisional tuberculosis specialist, from Fort Oglethorpe, Capt. JOHN E. DOLAN, Chicago.

*To Camp Sherman,* Chillicothe, Ohio, for duty, Lieut. CHARLES J. TIERNEY, Cicero.

*To Camp Wheeler,* Macon, Ga., as divisional tuberculosis specialist, from Fort Oglethorpe, Capt. JAMES A. BRITTON, Chicago.

*To Fairfield, Ohio,* Wilbur Wright Field, Signal Corps, Aviation School, for duty, Lieut. CLEVELAND C. MacLANE, Chicago.

*To Fort Douglas, Utah,* as gas instructor, from Camp Doniphan, Lieut. CARL L. BARNES, Chicago.

*To Fort Leavenworth, Kan.,* department laboratory, for duty, from Fort Riley, Lieut. MAYER A. NEWHAUSER, Chicago.

*To Fort McPherson, Ga.,* for duty, Lieut. OLIVER P. BRITTIN, Petersburg.

*To Fort Oglethorpe* for duty, from Camp Gordon, Lieut. HUDSON McB. GILLIS, Wood River. For instruction, from Camp Wheeler, Lieut. EDWARD BUCKMAN, Chicago.

*To Fort Riley* for instruction, from Fort Riley, Capts. CHARLES H. POWELL, Old Ripley; CLARENCE W. CHAPIN, Weldon; for instruction Lieuts. WILLIAM R. WHITLEY, Chicago; ALVA E. McREYNOLDS, Peoria.

*To Fort Snelling, Minn.,* for duty, from Fort Riley, Lieut. THOMAS D. CANTRELL, Bloomington.

*To Rockefeller Institute* for instruction and on completion *to his proper station,* from Fort Slocum, Major HENRY E. LEWIS, Chicago.

### Indiana

*To Camp Sheridan,* Montgomery, Ala., for duty, from Camp Shelby, Lieut. FORREST L. REESE, Bicknell.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Camp Travis, Lieut. EVERETTE F. GRAVE, Monrovia.

*To Camp Upton,* Long Island, N. Y., for duty, from Fort Oglethorpe, Major GEORGE L. GUTHRIE, Indianapolis.

*To Camp Zachary Taylor,* Louisville, Ky., for duty, Capt. EDWARD B. IMEL, Petersburg.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. CLAUSIUS H. WHITE, Monrovia; Lieut. ALBERT G. GRUBB, Mongo.

### Iowa

*To Camp Beauregard,* Alexandria, La., for duty, Lieut. ROBERT H. LOTT, Waverly.

*To Camp Dodge*, for duty, Lieut. HUGH P. BARTON, Davenport.

*To Fort Oglethorpe* for instruction, Capt. LEO E. EVENS, Waterloo.

*To Fort Riley* for instruction, Capt. EDWARD C. AYRES, Lorimor.

### Kansas

*To Camp Greene*, Charlotte, N. C., as divisional tuberculosis specialist, from Fort Oglethorpe, Lieut. JACOB H. HALDEMAN, Paola.

*To Fort Riley* for instruction, Lieut. NOBLE E. MELLENCAMP, Dodge City; from Fort Riley, Lieuts. CHARLES M. MILLER, Oakley; SAM M. MYERS, Potter; LEONIDAS T. BROWN, Spearville.

*To his home* and honorably discharged, Lieut. GEORGE E. KNAPPENBERGER, Mankato.

### Kentucky

*To Camp Sheridan*, Montgomery, Ala., for duty, Lieut. MICHAEL J. HENRY, Louisville.

*To Fort Oglethorpe* for instruction, Capts. JOHN T. PRICE, Harrodsburg; AMPLIAS W. DAVIS, Morton's Gap; Lieut. JOHN B. FLOYD, Louisville.

*To Fort Riley*, for instruction from Camp Grant, Capt. ALFRED H. KELLY, Shively; from Fort Riley, Lieuts. WILLIAM C. WORTHINGTON, Clintonville; HERMAN T. CARTER, Gilbertsville; JOHN C. ROGERS, Louisville; WASHINGTON I. BERRY, Washington; JAMES C. GRAHAM, Webbs.

*To Louisville* to recruit for the medical department of the Army, Capt. PHILIP E. BLACKERBY, Bowling Green.

### Louisiana

*To Fort Oglethorpe* for instruction Lieut. WILLIAM L. STEWART, Pollock.

*To Lake Charles*, Gerstner Field, Signal Corps, Aviation School, for duty, Lieut. MICHAEL F. MORVANT, New Orleans.

*To Laurel, Maryland*, for duty, from Army Medical School, Lieut. TRUSS M. BRISTER, Bogalusa.

*To Washington, D. C.*, Government Hospital for the Insane, for intensive training, from Fort Oglethorpe, Lieut. EDWIN M. LECY, Jackson.

### Maine

*To Camp Sevier*, Greenville, S. C., for temporary duty, Lieut. THOMAS A. FOSTER, Portland.

### Maryland

*To Camp Sevier*, Greenville, S. C., as divisional tuberculosis specialist, from Camp Sevier, Capt. WILLIAM H. YEAKER, State Sanatorium.

*To Camp Wheeler*, Macon, Ga., for duty, and on completion *to his proper station*, Major WILLIAM H. WELCH, Capt. ISIDORE I. HIRSCHMAN, Baltimore.

*To Fort McHenry* for duty, Lieut. MORRIS B. LEVIN, Baltimore.

*To Fort Oglethorpe* for duty, from Camp Wadsworth, Capt. THOMAS K. CONRAD, Chevy Chase.

*To his home* and the inactive list, Lieut. HAROLD C. BEAN, Baltimore.

### Massachusetts

*To Camp Devens* for duty, Lieut. HORACE GRAY, Boston.

*To Camp Doniphan*, Fort Sill, Okla., for duty, Major GEORGE A. CRAIGIN, Boston.

*To Camp Greene*, Charlotte, N. C., for temporary duty, Lieut. RICHARD S. EUSTIS, Cambridge.

*To Camp Hancock*, Augusta, Ga., as divisional tuberculosis specialist, from Fort Oglethorpe, Capt. FRANCIS R. BURKE, Quincy.

*To Camp Jackson*, Columbia, S. C., for temporary duty, Capt. BRONSON CROTHERS, Cambridge.

*To Camp Logan*, Houston, Texas, as divisional tuberculosis specialist, from Fort Oglethorpe, Capt. WILLIAM M. GAY, Sharon.

*To Camp Sevier*, Greenville, S. C., for temporary duty, Lieut. GEORGE W. PAPEN, Boston.

*To Camp Wheeler*, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. WILLIAM R. MORRISON, East Boston.

*To Fort Myer, Va.*, for duty, from Fort Oglethorpe, Lieut. JOHN McK. CLAFFY, Springfield.

*To Fort Oglethorpe* for instruction, Lieut. KENNETH L. DOLE, Jamaica Plain.

*To New York City*, Neurological Institute, for instruction, from Camp Devens, Capt. DAVID D. SCANNELL, Boston.

*To Rockefeller Institute* for instruction and on completion *to Army Medical School* for duty, Lieut. DAVID B. MEDALIA, Boston.

*To San Francisco, Calif.*, Letterman General Hospital, for duty, from Camp Kearny, Capt. SIDNEY M. BUNKER, Boston.

*To Washington, D. C.*, for duty, from Fort Banks, Capt. BEN H. METCALF, Winthrop.

*To his home* and inactive list, Major SAMUEL J. MIXTER, Boston.

*To his home* and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EMIL U. DILLENBACK, Springfield.

### Michigan

*To Camp Upton*, Long Island, N. Y., for duty, from Cornell Medical College, Lieut. THEODORE KOLVOORD, Battle Creek.

*To Cape May, N. J.*, and on completion *to his proper station*, Major WALTER R. PARKER, Detroit.

*To Fort Oglethorpe* for instruction, from Camp Jackson, Capt. CHARLES H. MERRILL, Detroit.

*To Fort Riley*, for instruction, from duty as a private at Camp Custer, Lieut. MYRON G. BECKER, Benton Harbor.

*To Long Island City*, Long Island, N. Y., for temporary duty, Lieut. CALVIN R. ELWOOD, Menominee.

*To New York City*, Neurological Institute, for instruction, Lieut. WILLIAM R. McCLURE, Detroit.

*To San Antonio, Texas*, Brooks Field, for duty, from Kelly Field, Capt. HENRY S. BARTHOLOMEWS, Lansing.

### Minnesota

*To Camp Beauregard*, Alexandria, La., for duty, Lieut. ALBERT E. JOHANN, Minneapolis.

*To Dansville, New York*, for duty, Capt. JOSEPH M. A. GRAVELL, St. Paul, Lieut. LOUIS R. KOLLER, South Minneapolis.

*To Fort Omaha, Neb.*, as gas instructor, from Camp Doniphan, Lieut. BRET V. BATES, Wheaton.

*To Fort Sam Houston, Texas*, for assignment to duty, Lieut. FRANCIS G. BLAKE, Minneapolis.

*To Memphis, Tenn.*, Park Field, Signal Corps, Aviation School, for duty, Lieut. GROVER C. BLACK, Minneapolis.

*To Washington, D. C.*, for duty in the Surgeon-General's Office, from duty as medical advisor to the Governor of Minnesota, Major WILLIAM J. MAYO, Rochester.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. WARD AKESTER, Marshal.

### Mississippi

*To Camp Greene*, Charlotte, N. C., for duty, from Camp Greene, Lieut. GEORGE D. MASON, Clara.

*To Camp Sheridan*, Montgomery, Ala., for temporary duty, from Fort Oglethorpe, Lieut. MAURY H. McRAE, Corinth.

To Fort Oglethorpe for instruction, from Camp Greene, Lieut. VIRGIL N. NICHOLS, Carson.

*To New York City*, Neurological Institute, for instruction, from Camp Hancock, Augusta, Ga., Capt. FREDERIC HAGLER, St. Louis.

### Missouri

*To Camp Pike*, Little Rock, Ark., for duty, Lieut. CLAY SPENCER, Rushville.

*To Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Riley, Capt. WILLIAM J. SAY, St. Louis.

*To Camp Travis*, Fort Sam Houston, Texas, as member of tuberculosis board, from Fort Riley, Lieut. ALLEN G. WAINWORTH, St. Louis.

*To Camp Upton*, Long Island, N. Y., for duty, from Cornell Medical College, Lieut. REZIN C. SHAWHAN, Hale.

*To Fort McPherson, Ga.*, for duty, Major JOHN F. BINNIE, Kansas City.

*To Fort Oglethorpe* for instruction, from Camp Doniphan, Capt. CLAUDE E. FRAZIER, Kansas City; from Camp Wheeler, Capt. SOLON CAMERON, St. Louis.

*To Fort Riley* for instruction, Capt. JAMES F. COOPER, Hannibal; from Camp Pike, Capt. AUGUST A. GOSSOW, St. Charles. For instruction, Lieuts. JAMES C. McKAY, Kennett; WILLIAM G. HOGAN, Neck City; from Fort Riley, FREDERICK H. BROWN, Billings.

*To Hot Springs, Ark.*, Army and Navy General Hospital, for duty, Capt. JAMES G. CALHOUN, St. Louis.

*To Memphis, Tenn.*, Park Field, Signal Corps, Aviation School, for duty, Lieut. RALPH E. JONES, Vichy.

*To New York City*, for inspection and on completion *to his proper station*, Major FREDERICK W. BAILEY, St. Louis.

*To Williamsbridge, N. Y.*, for duty, from Cornell Medical College, Lieut. ZACHARIAN C. JONES, Kansas City.

### Montana

*To Fort Oglethorpe* for duty, from Camp Sheridan, Lieut. KARL A. SNYDER, Great Falls.

*To Fort Riley* for instruction, Lieut. JAMES B. REYNOLDS, Great Falls.

### Nebraska

*To Fort Oglethorpe* for duty, Lieut. GEORGE W. COVEY, Lincoln.

*To Fort Riley* for instruction, Lieuts. JAMES E. M. THOMSON, Lincoln; from Fort Riley, WILLIAM O. AKERS, Florence.

*To Memphis, Tenn.*, Park Field, Signal Corps, Aviation School, for duty, Lieut. VINCENT L. JONES, Omaha.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. CLELAND G. MOORE, Omaha; CHARLES N. MERIWETHER, Pauline.

### Nevada

*To Camp Lewis*, American Lake, Wash., as consultant in orthopedic cases, from duty, as a private at Camp Lewis, Lieut. RAY V. LAZALERE, Kimberly.

*To Fort Riley* for instruction, Lieut. JOHN G. KITCHEN, Mine.

### New Hampshire

*To his home* and honorably discharged on account of physical disability existing prior to entrance into the service. Lieut. ERNEST W. LOWE, Fremont.

### New Jersey

*To Albany, N. Y.*, for duty, Lieut. ROBERT J. CHILDERS, Plainfield.

*To Fort Porter, N. Y.*, for temporary duty, Capt. HARRY VAUGHAN, Morristown.

*To Fort Riley*, for instruction, from Fort Riley, Lieut. CHARLES ENGLANDER, Cedar Grove.

*To Garden City*, Long Island, N. Y., Aviation Section, Signal Corps for duty, Lieut. GEORGE GINSBERG, Hoboken.

*To Laurel, Md.*, for duty, from Camp Zachary Taylor, Capt. LUCIUS F. DONOHOE, Bayonne; from Army Medical School, Lieut. THOMAS M. MORRIS, Cranford.

*To Morrison, Va.*, Aviation Section, Signal Corps, for duty, Lieut. ERNESTO CASINI, Garfield.

*To his home* and the inactive list, from Army Medical School, Lieut. THOMAS L. PELLETT, Hamburg.

### New York

*To Albany, N. Y.*, for duty, Capt. REXWALD BROWN; from Camp Travis, Capt. FRED M. MEADER, New York City; from Camp Wheeler, Capts. EDWIN L. DRAPER, CLINTON B. HAWN, Albany; from Camp Upton, Lieut. JONATHAN PEARSON, Schenectady; from Cornell Medical College, Lieut. WILLIAM D. HOWARD, Albany; from Rockefeller Institute, Lieut. HARRY C. SCHMEISSER, New York City.

*To Camp Beauregard*, Alexandria, La., for duty, from Camp Logan, Lieut. WALTER S. BENNETT, Glens Falls.

*To Camp Devens*, Ayer, Mass., for temporary duty, from Camp Devens, Capt. GEORGE B. BROWN, Saratoga Springs.

*To Camp Dix*, Wrightstown, N. J., as member of a board to examine the command in nervous and mental diseases, Lieuts. EUGENE W. BOUDREAU, Asbury; WILLIAM G. DICKINSON, Oneonta.

*To Camp Greene*, Charlotte, N. C., as divisional tuberculosis specialist from Camp Dix, Capt. HENRY C. DREW, Brooklyn; for assignment to duty, from Fort Oglethorpe, Lieut. GILBERT A. ASHMUN, Brooklyn.

*To Camp Sevier*, Greenville, S. C., for duty, Capt. SAMUEL W. SCHAPIRA, New York City.

*To Camp Travis*, Fort Sam Houston, Texas, as member of tuberculosis board, from Fort Riley, Lieut. EUGENE CALVELLI, New York City. For temporary duty, Lieut. FRANK E. FOX, Fulton.

*To Camp Wadsworth*, Spartanburg, S. C., for duty, Lieut. VINXENZO PASCALE, New York City.

*To Dansville*, for duty, Capt. HICKSON F. HART, Peekskill.

*To Fort Dupont, Del.*, to conduct a medical examination in his specialty and on completion *to his proper station*, Capt. SANGER BROWN, II, White Plains.

*To Fort Monroe, Va.*, for duty, from Army Medical School, Lieut. LOUIS M. PASTOR, Kings Park, Long Island.

*To Fort Myer, Va.*, for duty, from Fort Oglethorpe, Lieut. BENJAMIN RABBINER, Brooklyn.

*To Fort Oglethorpe* for duty, Lieut. DANIEL J. SWAN, Brooklyn; for instruction, Lieuts. SAMUEL PERLMAN, Brooklyn; THOMAS J. LUBY, ORVILLE H. RICHER, New York City.

*To Fort Riley* for duty, Lieut. SAMUEL T. NICHOLSON, Jr., Clifton Springs. For instruction Lieut. FREDERICK D. KEPPEL, Tincklaen.

*To Garden City, Long Island*, Aviation Section, Signal Corps, for duty, Lieuts. MORRIS AUSLANDER, Bronx, New York City; JACOB N. COHEN, Brooklyn; HARRY FRIED, JAMES V. SMITH, JOSEPH I. WALLACH, New York City.

*To Laurel, Md.*, for duty, from Army Medical School, Lieuts. FLOYD J. ATWELL, Cooperstown; WILLOUGHBY C. PENDILL, Huntington.

*To Macon, Ga.*, Collegiate Balloon School, for duty, from Camp Wheeler, Lieut. JOHN A. MORRISSEY, Newark.

*To Mineola, Long Island*, Hazelhurst Field, Signal Corps, Aviation School, for duty, Lieut. HENRY A. SUSSMAN, Brooklyn.

*To Morrison, Va.*, Aviation Section, Signal Corps, for duty, Lieuts. WILLIAM H. FERRIERS, Fairport; BURTON L. STERNER, New Brighton, Staten Island; EDWIN M. WEIL, New York City.

*To New York City* for temporary duty, Capt. HARRY M. WEED, Buffalo. Orthopedic Hospital, for orthopedic instruction and on completion *to his proper station*, from Rochester, Capt. CHARLES W. HOYT, Rochester. Cornell Medical College, for instruction from Fort Oglethorpe, Lieut. ALEXANDER W. JACOBS, Bronx, New York City. For duty, from Fort Oglethorpe, Lieut. LOUIS GOLD, Brooklyn; Neurological Institute. For intensive training, Lieut. WALTER F. STILLGER, New York City.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Capts. FRANCIS W. McGUIRE, Buffalo; BURTON S. BOOTH, Troy; Lieuts. LOUIS E. BRESLAU, Brooklyn; WILLIAM J. JACOBS, Carthage.

### North Carolina

*To Camp Greene*, for duty, from Camp Greene, Lieuts. ROBERT P. BECKWITH, Rosemary; ROBERT J. LOVILL, Wingate.

*To Camp Shelby*, Hattiesburg, Miss., for temporary duty, from Camp Greene, Lieut. MICHEL SALIBA, Wilson.

*To Camp Wheeler*, Macon, Ga., for duty, from Camp Lee, Capt. SYLVESTER D. CRAIG, Winston Salem.

*To Fort Oglethorpe* for instruction, Lieut. WILLIAM MONCURE, Jr., Hamlet.

*To Morrison, Va.*, Aviation Section, Signal Corps, for duty, Lieut. JAMES G. RABY, Tarboro.

*To their homes* and honorably discharged Lieuts. THOMAS B. HENDERSON, Henderson; GLENN LONG, Newton.

### Ohio

*To Camp Cody*, Deming, New Mexico, for duty, from Fort Leavenworth, Capt. JAMES F. ELDER, Youngstown.

*To Camp Devens*, Ayer, Mass., for duty, from Fort Riley, Lieut. ALBERT G. EYESTONE, Gibsonburg.

*To Camp Sherman*, for temporary duty, Lieut. ROYAL G. GROSSMAN, Cleveland.

*To Camp Travis*, Fort Sam Houston, Texas, for temporary duty, from Eagle Pass, Texas, Lieut. FRANCIS W. McNAMARA, Youngstown.

*To Fairfield*, Wilbur Wright Field, Signal Corps; Aviation School, for duty, Lieut. JOSEPH R. MONTGOMERY, Steubenville.

*To Fort McHenry, Md.*, for temporary duty and on completion *to his proper station*, Capt. CARROLL L. STOREY, Oberlin.

*To Fort Oglethorpe* for instruction, Capt. ORIN W. ROBE, Portsmouth; from Camp Jackson, Capt. WILLIAM S. P. DONEHOO, Wintersville. For instruction, Lieuts. RALPH S. HOSLER, Amanda; HENRY L. PRICE, Toledo. For duty, from Camp McClellan, WILLIAM S. NICHOLS, Cleveland.

*To their homes* and honorably discharged, Major WILLIAM F. MARTING, Ironton; Lieuts. JOHN H. SCHROEDER, Cincinnati. On account of physical disability existing prior to entrance into the service, Lieuts. DANIEL HEIMLICH, Cleveland; IVAH J. SANSBOTTOM, Coldwater.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. CLINTON C. SHRADER, Toledo.

### Oklahoma

*To Fort Riley*, for instruction, Lieut. FREDERICK R. SUTTON, Bartlesville.

*To Oklahoma City* as instructor, Lieut. REUBEN M. HARGROVE, Norman. For orthopedic instruction, from San Antonio, Lieut. GARDNER H. APPLEWHITE, Shawnee.

*To St. Louis*, Washington University, for instruction in urology and dermatology, from Fort Leavenworth, Lieut. JOSEPH H. SANFORD.

### Oregon

*To Fort Riley*, for instruction, from Camp Lewis, Lieut. GEORGE G. CARL, John Day.

*To Los Angeles*, for orthopedic instruction, from Fort D. A. Russell, Capt. RICHARD B. DILLEHUNT, Portland. For instruction in orthopedic surgery, Lieuts. CHESTER A. DOWNS, Portland; VICTOR L. ROCHO, Woodburn.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. JAMES C. MATTHIS, Monmouth.

### Pennsylvania

*To Camp Bowie*, Fort Worth, Texas, for duty, from Camp Meade, Major THOMAS W. JACKSON, Philadelphia.

*To Camp Dix*, Wrightstown, N. J., as senior officer of a board to examine the command in nervous and mental diseases, from Newport News, Capts. RALPH L. HILL, Woodville. As member of board to examine the command in nervous and mental diseases, Capt. PERCY DeLONG, Philadelphia; from Hoboken, Lieut. MATTHEW C. BAINES, Philadelphia. For duty, Lieut. KARL S. SIMPSON, Pittsburgh; from Camp Grant, Lieut. EDGAR N. FOUGHT, Philadelphia.

*To Camp Greene*, Charlotte, N. C., for temporary duty, Lieut. WALTER E. BROWN, Pittsburgh.

*To Camp Jackson*, Columbia, S. C., for duty, from Fort Oglethorpe, Lieuts. FRANCIS M. B. SCHRAMM, Johnstown; SAMUEL FIRESTONE, Jr., McKeesport.

*To Camp McClellan*, Anniston, Ala., as divisional tuberculosis specialist, from Fort Oglethorpe, Lieut. ANDREW ANDERS, Philadelphia.

*To Camp Travis*, Fort Sam Houston, Texas, as member of tuberculosis board, from Fort Riley, Lieut. MAURICE I. STEIN, New Bloomfield.

*To Camp Upton*, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. CARL F. KOENIG, Philadelphia.

*To Camp Wadsworth*, Spartanburg, S. C., as divisional tuberculosis specialist, from Camp Gordon, Capt. ALBERT P. FRANCIS. For duty, Lieut. SAMUEL SINGER, Philadelphia.

*To Camp Wheeler*, Macon, Ga., for duty, Lieut. CHARLES R. HUGHES, Philadelphia.

*To Fort Oglethorpe*, for instruction, Lieuts. WILLIAM F. HERBST, Allentown; EZRA P. DICKINSON, St. Michael; PATRICK F. McHUGH, Wilkes-Barre.

*To Mineola*, Long Island, N. Y., Hazelhurst Field, Signal Corps, Aviation School, for duty, Lieut. ELLIS C. WINTERS, Ford City.

*To New York City*, Neurological Institute, for instruction, from Camp Lee, Major EWING W. DAY, Pittsburgh.

*To Rockefeller Institute*, for instruction, and on completion *to his proper station*, Capt. JAMES D. BLEVINS, Pittsburgh.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Major JOHN F. CULP, Harrisburg; Lieut. JESSE B. HOWE, Erie.

*To their homes* and honorably discharged, Lieuts. CHARLES E. PEACH, Pine Grove; HOWARD A. COLLINS, Winberne.

### Porto Rico

*To Camp Joseph E. Johnston*, Jacksonville, Fla., for duty, from Camp Hancock, Capt. EMMET I. VAUGHN, Central Aguirre.

### Rhode Island

*To Garden City*, Long Island, N. Y., Aviation Section, Signal Corps, for duty, Lieut. GEORGE A. RICE, Providence.

*To Fort Oglethorpe*, for duty, from Fort Oglethorpe, Lieut. CHARLES F. GORMLY, Providence.

### South Carolina

*To his home* and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. FRENCH A. SMITH, Mullins.

### Tennessee

*To Camp Meade,* Annapolis Junction, Md., Capt. THOMAS P. MILLER, Knoxville. For duty, from Fort Myer, Lieut. ALLEN L. LEAR, Sewanee.

*To Camp Pike,* Little Rock, Ark., for duty, Lieut. DAVID DeW. MONCRIEF, Shelbyville.

*To Fort Oglethorpe,* for instruction, Capt. CHARLES PENDER EDWARDS, Kingsport; Lieut. ALEXANDER J. BRYANT, Sharon.

*To San Antonio, Texas,* Kelly Field, for assignment, from Austin, Texas, Lieut. FLEMING J. O'CONNOR, Jackson.

*To Washington, D. C.,* Government Hospital for Insane, for intensive training, Lieut. WILLIAM B. LUNSFORD, Nashville.

*To his home* and honorably discharged, Lieut. CHARLES H. KYLER, Oliver Springs.

### Texas

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. ERNEST J. STEVES, San Antonio.

*To Camp Pike,* Little Rock, Ark., for temporary duty, Lieut. EDWARD T. MILLER, Newton.

*To Camp Shelby,* Hattiesburg, Miss., for duty, Capt. JAMES W. GARTH, Beaumont.

*To Camp Travis,* Fort Sam Houston, for duty, from Camp Travis, Capt. GEORGE S. MILNES, Houston.

*To Camp Upton,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. JESSE L. HALL, Bertram.

*To Fort Logan H. Roots,* Little Rock, Ark., for temporary duty, from Fort Oglethorpe, Lieut. ROBERT L. HOWELL, Snyder.

*To Fort McPherson, Ga.,* for duty, Lieut. CHARLES W. STEVENSON, Loraine.

*To Fort Myer, Va.,* for duty, from Fort Oglethorpe, Lieut. ROGER ATKINSON, Pleasanton.

*To Fort Riley,* for instruction, Lieuts. ROBERT V. MURRAY, Austin; JAMES H. HAPPEL, Cleburne.

### Vermont

*To Fort Monroe, Va.,* for duty, from Fort Monroe, Lieut. LEWIS F. McCARTHY, Essex.

*To Williamsbridge, N. Y.,* for duty, from Cornell Medical College, Lieut. RAY B. THOMAS, Enosburg Falls.

### Virginia

*To Camp Meade,* Annapolis Junction, Md., for duty, from Camp Meade, Lieut. FRANK LEVINSON, Hopewell.

*To Fort Oglethorpe,* for instruction, Lieuts. WADE CLEVELAND PAYNE, Haymarket; PAUL DAVIS, Roanoke.

*To Morrison, Va.,* Aviation Section, Signal Corps, for duty, Lieut. ALLEN C. BILLER, Forestville.

### Washington

*To Camp Dodge,* Des Moines, Iowa, for duty, from Camp Dodge, Lieut. HENRY W. BORTNER, Sultan.

*To Camp Lewis,* for temporary duty, Capt. ALFRED J. HELTON, North Yakima.

*To Fort Riley,* for instruction, Lieut. PIUS A. ROHRER, Spokane.

*To Los Angeles,* for instruction in orthopedic surgery, Capt. EVERETT O. JONES, Seattle. For orthopedic instruction, and on completion of this course *to his proper station,* from Fort Worden, Capt. RICHARD C. HILL, Irondale.

*To Portland, Ore.,* United States Signal Corps, for duty, Lieut. LORENZO S. DEWEY, Okanogan.

*To report by wire to the commanding general, Western Department,* for assignment to duty, from duty as a private at Camp Lewis, Lieut. VEZIO C. UNGHERINI, Camp Lewis.

### West Virginia

*To Camp Greene,* Charlotte, N. C., for assignment to duty, from Fort Oglethorpe, Capts. ALBERT L. GRUBB, Berkeley Springs; BARRICK S. RANKIN, Tunnelton.

*To Fort Myer, Va.,* for duty, from Fort Oglethorpe, Lieuts. GEORGE P. McCOY, Franklin; WILLIAM E. WHITESIDE, Harrisville.

*To Fort Oglethorpe,* for instruction, Lieuts. THURMAN E. VASS, Bluefield; JOHN P. FARSON, Charleston; AUBREY F. LAWSON, Weston.

*To his home* and honorably discharged, Lieut. CONRAD F. SAYRE, Mason.

### Wisconsin

*To Camp Pike,* Little Rock, Ark., for duty, Capt. HOMER SYLVESTER, Montfort.

*To Fort Oglethorpe,* for instruction, Lieut. DEXTER H. WITTE, Hartford.

*To Memphis, Tenn.,* Park Field, Aviation School, Signal Corps, for duty, Lieut. EARL L. SHARP, Plymouth.

*To Mineola, Long Island,* Hazelhurst Field, medical research board, aviation section, signal corps, for duty, and on completion *to Camp Upton,* Long Island, N. Y., and on completion *to his proper station,* Major NELSON M. BLACK, Milwaukee.

*To Williamsbridge, N. Y.,* for duty, from Cornell Medical College, Lieut. HARRY B. PODLASKY, Milwaukee.

*To his home* and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. JOHN R. HUGHES, Dodgeville.

## Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

### CALIFORNIA

**New Officers.**—San Mateo County Medical Society, at San Mateo, February 7: president, Dr. F. Holmes Smith, San Bruno, and secretary, Dr. Frank S. Gregory, Redwood City.

**California Law Upheld.**—The United States Supreme Court January 21, decided that the California medical practice act licensing and governing healers of the sick is constitutional. The validity of the law had been attacked by a chiropractor on account of the alleged discrimination in favor of Christian Scientists.

**Personal.**—Dr. Wilfred H. Kellogg, Berkeley, was elected secretary and executive officer of the state board of health at its meeting, held at Sacramento, February 2. He succeeds Dr. Wilbur A. Sawyer, Sacramento, resigned to enter military service. Dr. Frank L. Kelly, Berkeley, succeeds Dr. Kellogg as epidemiologist and director of the state bureau of communicable diseases.——Dr. Lester Keller has been reelected secretary of the Yorba Linda Chamber of Commerce.

### CONNECTICUT

**Health Association Officers.**—At the annual meeting of the Connecticut Public Health Association, Dr. Stephen J. Maher, New Haven, was elected president; Dr. Charles J. Bartlett, New Haven, vice president, and Dr. Charles P. Botsford, Hartford, secretary.

**Personal.**—Drs. Karl B. Bretzfelder and W. F. Westevelt, New Haven, have been elected members of the staff of the Grace Hospital, New Haven.——Dr. Charles Fitzgerald, Hartford, for two years in the service of the Austrian government, has returned to the United States.——Dr. Anthony J. Hill, formerly of Torrington, who was committed to the Norwich State Hospital in 1914, has been missing from the state hospital for several months, and all trace of him is said to have been lost.

### COLORADO

**Cooperation in Prevention of Venereal Diseases.**—The city council of Denver has passed an ordinance which was signed by the mayor, Feb. 19, 1918, in pursuance of the general plan of cooperation by state, county and municipal governments with the military and public health authorities of the United States, declaring syphilis, gonorrhea and chancroid communicable diseases dangerous to the public health, and requiring physicians, hospitals, sanatoriums and other institutions to report all such cases within forty-eight hours after coming to their knowledge, to the manager of health and charity, with the name, address and occupation of the afflicted person. It also requires persons having such diseases, whether they consult a physician or not, to report within forty-eight hours to the same department. Druggists or other persons filling prescriptions or selling medicines for the relief of such diseases must also keep a record and make a like report to the department. The records shall be confidential and not open for public inspection, but any person giving a false name or address or occupation shall be deemed guilty of a violation of the ordinance.

### GEORGIA

**The J. B. White Fund.**—Among the many claims for the J. B. White Fund which have been presented to the committee in charge were the building of clinics, laboratories, and a dispensary in connection with the medical college of the University of Georgia, Augusta.

**Personal.**—Dr. William W. Meriwether, an intern at the Macon Hospital, who has been on trial on the charge of involuntary manslaughter, was acquitted, February 8. It was charged that Dr. Meriwether had been negligent in administering ether during an operation for the reduction of a fracture of the arm.——Dr. Melville C. Martin, Atlanta, has been reelected physician to the city prison for the fourteenth executive term.——Dr. Claude A. Smith has resigned as pathologist of Atlanta and has been succeeded by Dr. Elmore C. Thrash.——Dr. Robert G. Stone, Hawkinsville, has been appointed a member of the medical staff of the state sanatorium, Milledgeville.

## ILLINOIS

**Personal.**—Dr. Josephine Milligan, Jacksonville, has been called for service in France, through the Rockefeller Foundation, and will work directly under the French government.

**Drake Makes Tour of Army Camps.**—Dr. C. St. Clair Drake, Springfield, director of the state department of health, has just returned from a trip of three weeks during which he visited army camps in Missouri, Arkansas, Tennessee, Mississippi, Louisiana and Kentucky. Dr. Drake made this trip as a representative of the communicable disease department of the United States Public Health Service, and conferred with the state health authorities regarding the spread of venereal diseases and other communicable diseases in the zones surrounding military camps.

### Chicago

**Medical Charities Need Funds.**—It is announced by John E. Ransom, chairman of the Central Council of Social Agencies, that twelve hospital, medical and nursing agencies in Chicago need $200,000 outside of all regular sources of income for their work planned for this year.

**War and the Medical Profession.**—At conferences held, February 15 to 17, inclusive, at the Northwestern University building under the auspices of the Young Men's Christian Association and the student volunteer movement for foreign missions, the general topic for discussion was "The War and the World Responsibility of the Medical Profession." On the second evening, Dr. William A. Evans spoke on "Some Achievements of the American Doctors and Nurses in the Various War Zones."

**Personal.**—Dr. and Mrs. Hugh T. Patrick have left for California to spend the rest of the winter.——Dr. N. Elizabeth Todd was awarded $20,000 damages against the Madison Building Company on February 23, by a jury in Judge Torrison's court. Dr. Todd was crushed by an elevator in the American Bank Building in 1914, and entered suit for $75,000 damages.——Dr. Emma W. Gillmore has arrived in Chattanooga to take charge of the physical examination of female restaurant employees in the military zone near Chattanooga.

## INDIANA

**Osteopath on Health Board.**—Much opposition was aroused at Frankfort, recently, because an osteopath had been appointed as secretary of the county board of health. The legality of the appointment of one not licensed as a physician is questioned.

**Compulsory Vaccination Authorized.**—By a vote of six to three, the city council of Indianapolis passed an ordinance authorizing the city board of health to enforce vaccination whenever there is an epidemic or danger of an epidemic of smallpox. This ordinance applies only to those who have never been successfully vaccinated and would affect perhaps not more than 25 per cent. of the population.

**State Tuberculosis Society Officers.**—At the annual meeting of the Indiana Society for the Prevention of Tuberculosis held in Evansville, February 1 and 2, Dr. Roscoe L. Sensenich, South Bend, was elected president, and Drs. Gardner C. Johnson, Evansville; Henry B. Shacklett, New Albany; Walter A. Gekler, Terre Haute; A. J. Garrish, Seymour; William J. Martin, Kokomo, and Otis B. Nesbit, Gary, were elected as members of the board of directors.

**Personal.**—Dr. E. P. Davenport, Craigville, suffered a cerebral hemorrhage while staying at Ossian, January 26, and is reported still to be in a serious condition.——Dr. William H. Long, now special smallpox physician of Indianapolis, has been appointed contagious disease physician to succeed Dr. William H. Dowd, resigned.——Dr. Gardner C. Johnson, Evansville, was elected vice president of the Association of Secretaries of Anti-Tuberculosis Societies held at Evansville, February 1.

**Car Sanitation.**—Inspectors from the state board of health and the public service commission have started an inspection and investigation of the service and sanitary conditions on the cars of the Union Traction Company of Indiana, following numerous complaints to the state agencies concerning conditions of service and cars operating between Indianapolis and Fort Benjamin Harrison. If the insanitary conditions of which complaint is made are found, Dr. Hurty, state health commissionr, said that evidence will be laid before the prosecuting attorneys of the counties involved, with instructions that prosecutions shall be brought against the traction company under the general sanitary law, which makes "generating, transmitting or promoting disease" a crime.

## IOWA

**Hospital Offered Grinnell.**—The Sisters of St. Francis, Clinton, have submitted a proposition to the citizens' hospital committee at Grinnell, that they propose to erect and maintain a modern hospital with thirty-five beds, and a four-bed contagious disease annex in Grinnell, and to open a training school for nurses, contingent on the citizens' purchasing a 5-acre site in the city of Grinnell and donating $15,000 in cash before July 1, 1918.

**Personal.**—Rewel H. Sylvester, director of the psychologic clinic of the University of Iowa, Iowa City, has gone to Fort Oglethorpe, Ga., as a member of the psychologic examining group of the cantonment at that post.——Dr. John P. Sprague, head of the department of hygiene and physical education at Grinnell College, has been called to Washington as assistant to Major Philip S. Doane, Chicago, national director of health and sanitation for the United States Shipping Board.

**Venereal Disease Organization.**—Dr. Robert A. Weston, Des Moines, has been placed in charge of the newly organized venereal disease unit at Des Moines. He has working with him one male and one female nurse, two social service nurses and four policemen. The clinic is housed in three rooms in the basement of the new city hospital, and is open between 12:30 and 2:30 daily. Eventually an internment will be established, where all persons found to be suffering from venereal diseases will be placed.

## KENTUCKY

**Salary Changes and Appointments.**—The new fiscal court, composed of three of the newly elected county commissioners, has reduced the salary of the county health officer to $2,500 from $3,500; appointed Melville Dailey, sanitary inspector, at $100 a month; allowed a salary of $100 a month to a clerk in the health office, and fixed the salary of Dr. T. M. Dorsey, county bacteriologist, at $100 a month. The court also decided that all supplies and medicines for the county health office be purchased on requisition approved by the court.

## MARYLAND

**New Hygiene Faculty.**—Dr. William H. Welch, Baltimore, announced the following appointments to the Institute of Hygiene and Public Health to be opened in Baltimore next October: Dr. Carroll G. Bull of the Rockefeller Institute, New York, associate professor of immunology and serology, and Dr. Raymond Pearl, of the experiment station, to take charge of the department of biometry and vital statistics.

**Historical Club Meets.**—At the second meeting of the Historical Club of Johns Hopkins Hospital, Baltimore, February 11, Dr. David I. Macht presented a paper on "Pharmacological Appreciation of Shakespeare's Hamlet"; Dr. John C. Hemmeter, a paper on "Lavoisier and the History of the Physiology of Respiration and Metabolism: Contemporaneous Views of Life's Processes," and Dr. Howard A. Kelly presented a short paper on "America's Physiologist, Dr. John R. Young of Hagerstown."

**Personal.**—Dr. Charles A. Riefschneider, senior resident surgeon of the University Hospital, Baltimore, has been appointed superintendent to succeed Dr. Harry M. Stein, who has resigned to enter the military service.——Dr. Chester P. Woodward has been appointed secretary of the Baltimore Health Department, succeeding Dr. Austin H. Wood, who has entered the military service.——The residence of Dr. J. Hubert Wade, Boonsboro, was destroyed by fire, recently.——Dr. William H. Welch has been reelected president of the University Club, Baltimore.

## MICHIGAN

**Municipal University Planned.**—Plans are on foot to establish a municipal university in Detroit, of which the Detroit College of Medicine and Surgery is to be the medical department. The city is asked to provide $30,000 a year.

**Income Tax Protested.**—At the meeting of the Council of the Michigan State Medical Society in Detroit, January 23, a resolution was adopted protesting against the extra 8 per cent. tax on incomes over $6,000 earned by professional men. Dr. William T. Dodge, Big Rapids, was reelected chairman of the council; Dr. Arthur L. Seeley, Mayville, vice president; Dr. Frederick C. Warnshuis, Grand Rapids, secretary, and Dr. D. Emmett Welsh, Grand Rapids, treasurer.

**Personal.**—Dr. Richard E. Mercer has been elected president; Dr. David H. O'Donnell, vice president, and Dr. George C. Chene, secretary-treasurer of Providence Hospital, Detroit.

——Dr. W. L. Arntz, Sunfield, who was seriously burned by an explosion of gasoline in Aberdeen, S. D., recently, has recovered and returned home.——Fred B. Jones has been appointed superintendent of the Detroit Receiving Hospital, succeeding Dr. Leo J. Dretzka, resigned to enter military service.

**Venereal Clinics.**—The Calhoun County Medical Society has decided to operate a free venereal clinic in Battle Creek. The clinic will make a free examination of every person who presents himself for examination, but will not treat persons who are able to pay for treatment. Since November 1 the secretary of the state board of health has been able to secure records of 2,000 cases of venereal disease and an endeavor is being made to trace the source of infection and to intern for treatment the men and women who have the disease.

## MINNESOTA

**City Proposes Ordinance Against Quackery.**—An ordinance has been introduced in the city council of Duluth in opposition to quackery. The ordinance is being opposed by chiropractors and other irregular practitioners.

**The Mayo Unit.**—The Mayo Unit, Rochester, of which Major Louis B. Wilson, M. R. C., U. S. Army, is director, with Capts. Wayne W. Bissell and Arthur U. Des Jardins as assistant directors, has left for a mobilization point preparatory to sailing for France.

**Excess Sanatorium Payments Refunded.**—Six counties out of eight, which contributed to the establishment of a tuberculosis sanatorium at Worthington, have been refunded $1,600 from excess levies paid during 1917. The largest amount received was about $238.98, by Cottonwood County, and the smallest amount was $91.24 by Jackson County.

**State Health Board to Move.**—The revised budget for social hygiene work includes $4,000 for rental of offices to be shared by the state board of health and the hygiene commission. The space now occupied and the capital used by the state board are too small and requests for increased space have not been granted.

**Personal.**—Dr. Henry W. Cook, Minneapolis, has been chosen chairman of the "health week" committee.——Dr. Fred A. Carrell, Minneapolis, sentenced to imprisonment last October for one year, is said to have been pardoned by the state pardon board, February 7.——F. W. Cappelen, city engineer, Minneapolis, has been appointed a member of the state board of health to succeed Dr. William A. Jones, Minneapolis, term expired.——Dr. Isaac I. Gellman has resigned as resident physician of the Minnesota State Sanatorium, to accept a similar position in the Pennsylvania State Sanatorium for Tuberculosis No. 3, Hamburg.

## MISSOURI

**Service Flag Dedicated.**—A service flag bearing twelve stars, donated by Dr. Charles Wood Fassett, St. Joseph, was dedicated at the meeting of the Buchanan County Medical Society, February 20.

**Personal.**—Dr. Thomas J. Rigdon, Kennett, has been appointed coroner of Dunkin County to fill the vacancy caused by the resignation of Ernest F. Harrison to join the military service.——Dr. Robert C. Forsyth, Kirkwood, suffered a loss of about $20,000 by the destruction of his house by fire, February 11.——Dr. Martha M. Bacon, Kansas City, has been recommended by the Women's International Hospital Commission for roentgen-ray service in connection with war service.——Dr. Joseph B. Hawkins, Mexico, was struck by a train at a grade crossing, February 11, and sustained a comminuted fracture of the leg.——The offices of Drs. John T. Boland, William Frye, H. L. King and Albert W. Bleil, Kansas City, were damaged by fire to the extent of $10,000, February 3.

### St. Louis

**Murderer of Physician Sentenced.**—Jacob Stenzel, who killed Dr. Frederick L. Pohlmann, May 14, was found guilty of murder in the second degree in the criminal court, February 19, and sentenced to imprisonment for ten years in the penitentiary.

## NEBRASKA

**Personal.**—Dr. Warren M. Phillips, assistant physician at the Norfolk State Hospital has resigned to enter the United States service.

**Morbidity and Mortality Statistics of Lincoln.**—During 1917, there were in Lincoln 115 deaths from the contagious diseases, including pulmonary tuberculosis and pneumonia, as against seventy-eight for the previous year. There was a total of 2,030 cases of contagious disease during 1917, as against 794 for 1916. Deaths from all causes numbered 708 in 1917, as against 668 in 1916, giving a death rate of 11.8 per thousand for the former year, as compared with 11.13 for the latter. The number of births in 1917 was 1,200 and in 1916, 1,205. The figures seem to coincide with the general increase of contagious diseases in the middle western states in 1917 over 1916. The increased number of deaths in Lincoln was confined to diphtheria, measles, lobar pneumonia and pulmonary tuberculosis. The excess of deaths from pneumonia occurred in January after an epidemic of influenza in the preceding month. The other contagious diseases showed a decrease.

## NEW YORK

**Preserving Vital Statistics Records.**—The bureau of vital statistics of the Buffalo department of health has installed apparatus by which all certificates filed with the bureau are photographically copied and filed for record. The state law requires that the original certificates must be sent to the state department of health. The photographic method eliminates the possibility of error in copying and provides an exact reproduction of the original.

**Personal.**—Dr. Edward Clark, Buffalo, has been relieved of his duties as acting chief of the division of child hygiene of the state department of health at Albany, and has returned to his former duty as sanitary supervisor of the western part of the state, with station at Buffalo. Dr. Herman F. Senftner, New York City, has succeeded Dr. Edward Clark as the head of the division of child hygiene, pending the release of Dr. Henry L. K. Shaw, Albany, from military service.——About fifty physicians of Binghamton gave a dinner in honor of Dr. Daniel S. Burr, February 14, commemorating his semicentenary as a medical practitioner of Broom County.——Dr. Helen R. Pallieter has been selected as city physician of Poughkeepsie.

**The Record of One Hospital.**—Up to January 10, among the physicians connected with the Mount Sinai Hospital, seventy-five have been commissioned in the Medical Reserve Corps. Of these, seventeen were members of the attending staff, twenty-two members of the outpatient staff, eight specialists and twenty-eight interns. In addition, more than forty members of the alumni association of the hospital have been commissioned and assigned to duty. One member of the board of trustees of the hospital is a major in the Quartermaster Corps, and one a major in the Engineer Corps, and two members are giving full time service to the American Red Cross. Also sixty-five nurses, including the associate superintendent and the night superintendent of the training school comprise the nursing staff of Base Hospital Unit No. 3, the Mount Sinai Hospital Unit, which is now in foreign service.

### New York City

**Conference on Hospital Social Service.**—The New York conference on hospital and social service held a meeting at the Academy of Medicine, February 20. Dr. William Francis Honan spoke on "The Importance of Social Service in a Municipal Hospital," and Dr. James Alexander Miller made an address on "Social Conditions in France."

**Health Department Extends Autonomy Plan.**—The new health commissioner, Dr. J. Lewis Amster, has announced that hereafter in the boroughs of the Bronx and Queens, the assistant sanitary superintendent will be responsible for most of the administrative work of those boroughs. Dr. Arthur J. O'Leary has been made assistant sanitary superintendent of the Bronx and Dr. John L. R. Barry will continue in that office in Queens. This is in accordance with the present policy of bringing the health department close to the people and practically giving each borough autonomy in its own locality.

**Prevention of Diseases in War Industries.**—The meeting of the New York Academy of Medicine to be held, March 7, under the auspices of the public health committee is to be devoted to a discussion of the prevention of diseases in war industry, and the subject will be considered under the following heads:

1. Extent and Importance of the Problem, by Dr. David Linn Edsall, Professor of Clinical Medicine, Harvard University.
2. New Poisons in War Industries (illustrated by lantern slides), by Dr. W. Gilman Thompson, Emeritus Professor of Medicine, Cornell University Medical College, New York City.
3. Methods of Prevention and Control, by Dr. Joseph W. Schereschewsky, Director, U. S. Public Health Laboratory, Pittsburgh, Pa.
4. Aid from the Medical Profession, by Dr. Alfred Stengel, Professor of Medicine, University of Pennsylvania.

**Personal.**—Dr. Frank E. Wilson, Brooklyn, former congressman, recently underwent an operation at the Post Graduate Hospital, Manhattan, and is reported to be making satisfactory progress toward recovery.——Dr. Isidore H. Goldberger has been appointed special lecturer on child hygiene in the school for oral hygiene at Columbia University.——Dr. Sylvester R. Leahy, resident alienist in charge of the psychopathic ward in the Kings County Hospital, Brooklyn, for three and one-half years, has resigned to enter private practice.——Dr. Geza Kremer has been appointed medical superintendent, Dr. Julius Dworetzky, resident physician and acting deputy medical superintendent, and Dr. Maurice G. Milan, resident physician of Sea View Hospital and Sanatorium, West New Brighton.——Dr. Stanley L. Wang has resigned as resident physician of the Sea View Hospital and Sanatorium.

### PENNSYLVANIA

**Personal.**—Dr. Samuel McC. Hamill, Philadelphia, has been appointed chief to the division of Babies' Welfare, a new bureau created in the state department of health.——Dr. George T. MacLeod, Ardmore, is under treatment at the Bryn Mawr Hospital for a fracture of the arm and other injuries from a fall.

**Resolutions for Increased Rank and National Licensure.**—At a recent meeting, the board of directors of the Allegheny County Medical Society passed resolutions requesting army authorities and legislators to support legislation giving increased rank to medical officers and to exempt all honorably retired medical men from state board examinations.

#### Philadelphia

**Personal.**—Dr. Charles H. McDevitt has been appointed assistant medical inspector to the bureau of health.——Dr. S. Lewis Ziegler, former director of health and charities, has been elected president of the Philadelphia Alumni Association of the University of Pennsylvania Medical School. The other officers elected were Drs. Henry J. Off, John J. Robrecht and William S. Wray, vice presidents; Dr. Herbert B. Carpenter, treasurer; Drs. Stephen E. Tracy and W. Oakley Hermance, secretaries.

### SOUTH CAROLINA

**District Society Meeting.**—At the annual meeting of the First District Medical Association held in Walterboro, February 6, Dr. John B. Johnston was elected president, and Dr. Judy, secretary, both of St. George. The next meeting will be held in Beaufort in July.

**Meningitis.**—February 3, orders were issued by the public health department of Columbia closing the public schools, churches, motion picture theaters and other public gathering places in an effort to prevent the spread of meningitis. Fifteen cases were reported in the city and suburbs, one new case having occurred on the date mentioned. The order did not affect Camp Jackson.

**The Listing of Delinquents.**—At a recent meeting of the Medical Society of the State of South Carolina, a resolution was adopted setting forth that in view of the enormous increase in the cost of living and the fact that physicians have made no increase in their regular fees, each member of the society be requested to hand to the officials "the names of those persons of means, who have refused to pay their doctor bills, so that a list may be made."

**Personal.**—Lieut. James A. Hayne, Columbia, state health officer and secretary of the state board of health, has been ordered to report to Camp Joseph H. Johnston, Jacksonville, Fla., for active service. The boards of health of the city, county and state, as well as the house of representatives, have wired to the War Department requesting that this order be rescinded on account of Lieut. Hayne's important work.——Dr. Edwin R. Wilson has been elected secretary of the Sumter County Tuberculosis Camp Commission.

### TEXAS

**Reciprocal Relations.**—Official information received from the Texas State Board of Medical Examiners states that reciprocal relations have been established between Illinois and Texas.

**Venereal Clinic Opens.**—A clinic for the treatment of venereal diseases of men and women was opened last month at El Paso, in charge of Drs. John W. Tappan and B. V. Wood of the United States Public Health Service, Dr. Will Rogers, health officer of El Paso County, and Dr. Hugh S. White, health officer of El Paso.

**Personal.**—Fire in the office of Dr. John W. Kuykendall, Fort Worth, February 1, did damage to the extent of $700.——Dr. Peter H. Scardino, Houston, has asked the city council for indefinite leave of absence that he may go to Italy with Loyola Unit No. 102 of New Orleans.——Dr. Thomas B. Fisher, Dallas, has been appointed a member of the state board of health, succeeding Dr. William D. Littler, Fort Worth, resigned.

### VIRGINIA

**Personal.**—Dr. James W. Reed, Ocean View, has been elected health officer of Norfolk County, and Dr. George M. Converse of the United States Public Health Service, director of health for the county.

**State Health Officer's Salary Increased.**—By a vote of 58 to 50, the house of delegates of Virginia adopted the senate bill authorizing an increase in the salary of the state health officer from $3,500 to $5,000 a year.

**Additions to Hospital.**—The directors of the Protestant Hospital of Norfolk announce that in order to meet the growing needs of the institution, a new ward for colored patients is to be built and an addition is to be made to the nurses' home.

**Hospital Unit to Mobilize.**—The Medical College of Virginia Base Hospital Unit, organized at the Medical College of Virginia, has been ordered to mobilize immediately for training at Camp Lee. The unit is commanded by Major Stuart McGuire, Richmond; the chief of the surgical staff is Capt. William L. People, M. R. C.; the chief of the medical staff is Capt. J. Garnett Nelson, M. R. C., and the adjutant, Capt. James H. Smith, M. R., all of Richmond.

### WISCONSIN

**Personal.**—Dr. Edward M. Hunt, Aniwa, has been appointed local surgeon to the Minneapolis, St. Paul and Sioux Ste. Marie Railway at Goodman.——Dr. Thaddeus D. Smith, Neenah, who was wounded in a German air raid over a base hospital in France and incapacitated for further military service, has returned home.——Dr. John P. Koehler has been appointed deputy health commissioner of Milwaukee.——Dr. William F. Whyte, Madison, has been reappointed a member of the state board of health.——Dr. John A. Froehlich, Princeton, has accepted an appointment to the staff of the Mayo Hospital, Rochester, Minn.——Dr. George C. Ruhland has been elected president, Drs. George A. Harlow and Philip P. Rogers have been made vice presidents, and Dr. John Van de Erve, Wauwatosa, has been elected secretary of the Milwaukee Social Hygiene Society.——Dr. Ladislaus L. Adamkiewicz, Milwaukee, assistant surgeon, U. S. Navy, who was rescued when the United State destroyer *Jacob Jones* was torpedoed, is now on the medical staff of a base hospital in Scotland.

### CANADA

**Standard for Flour.**—On and after January 28, one barrel of flour must be made from 265 pounds of wheat, the amount of grain formerly used being 300 pounds. There is now only one standard of flour, which is made from a 74 per cent. abstraction. This, it is expected, will save 35 pounds of flour in each 300.

**Standardizing Medical Board.**—Lieut.-Col. Harry H. Alger, Stirling, Ont., who went overseas as medical officer of the Eightieth Battalion, after several months' service at the front, has been sent to a base hospital for instruction, and will go from there to England to standardize the medical board work, beginning at the base and carrying on the work through England, and thence to Canada.

**Personal.**—Major George R. Cruickshank, head of the standing military medical board at Windsor, Ont., has, at his own request, been retired from active participation in military affairs.——Former Comptroller Dr. Robert W. Shaw, London, Ont., has been appointed a commissioner of the London Railway Commission.——Dr. Walter S. Downham, London, Ont., has been appointed a medical sanitary inspector of that city.——Col. Adam T. Shillington, Ottawa, has returned from overseas.——Capt. David E. Staunton Wishart, Toronto, on duty with the British army in Palestine, son of Dr. David J. Gibbs Wishart, was recently mentioned, in despatches by General Allenby, for gallant conduct and distinguished service.——Capt. Albert E. Sutton, Bethany, Ont., who was awarded the military cross recently for distinguished services, is in Toronto.

**Canadian Military Hospital Commission.**—The Dominion government has created a new department under a responsible minister of the crown. Senator Sir James Lougheed, who has been head of the Military Hospitals Commission since its inception, will be in charge of the new department and will have full cabinet rank. The name of the department is to be the Soldiers Civil Reestablishment Department. The Military Hospitals Commission with its staff is to be continued under the name of the Invalided Soldiers Commission. The new department and the Invalided Soldiers Commission will work in close cooperation with the various provincial governments. The medical end of the work is to be under the control of the Canadian Army Medical Corps.

**Montreal Board of Health.**—As the civic government of Montreal for some time past has not shown efficient results, a municipal survey of the various departments has recently been made by an expert. Dealing with the board of health, the report states that that body, as at present constituted, is performing no function of value. The board has met only five times since 1911. It, therefore, did not meet the needs of a board of health, as it acted in an advisory capacity to the medical officer of health. The report goes on to recommend that the present board of health be eliminated and the by-law creating it be annulled. It commends the efficiency of the present medical officer of health, Dr. Seraphin Boucher. It recommends that he be permitted to select his own board of health from among those interested in public health work, and that such board act in an advisory capacity to him. Another important recommendation calls for the appointment of an assistant medical officer of health. The remainder of the report deals with the internal administration of the health department.

## GENERAL

**Bequests and Donations.**—The following bequests and donations have recently been announced:

United Hospital Fund of New York City, $31,331, from the bankers and brokers' auxiliary.

Samaritan Hospital, Philadelphia, $1,000 by the will of William G. Ellis.

Federation of Jewish Charities of Philadelphia, $3,000, ultimately, to be received from the estate of Raphael Golbacher.

Mount Sinai Hospital, Hebrew Orphan Home, Sanitarium, Hebrew Free Schools and three other nonmedical organizations, $1,000 each by the will of Jacob Uditski.

Quincy, Mass., City Hospital, $2,000 by the will of Dr. John A. Gordon, Quincy.

St. Vincent's Infant and Maternity Home, Chicago, $3,000; Little Sisters of the Poor, $2,500, and Guardian Angel German Catholic Orphan Asylum, Chicago; Home for Jewish Orphans, each $1,000, by the will of Martin T. Corby.

College of Physicians and Surgeons in the city of New York, a gift of $68,000 to provide for future medical students.

**Banquet to Dr. Stephen Smith.**—A banquet in honor of the ninety-fifth birthday of Dr. Stephen Smith, New York, the "Grand Old Man" of American medicine, was given at the Battle Creek (Mich.) Sanitarium, February 19. Dr. Smith gave a most interesting account of the changes he had witnessed in the methods of his profession. Other speakers were Dr. William A. Evans, Chicago, president of the American Public Health Association; Dr. Henry B. Baker, Ypsilanti, for many years secretary of the Michigan State Board of Health; Col. Cosam J. Bartlett, M. C., U. S. Army, and Major Ernest E. Irons, M. R. C., U. S. Army. About 100 medical officers from Camp Custer were present.

**Meeting of Throat, Nose and Ear Specialists.**—The midwinter annual meeting of the middle section of the American Laryngological, Rhinological and Otological Society was held at Indianapolis, February 22.

## FOREIGN

**Deaths in the Profession Abroad.**—**R. Malatesta**, killed by aeroplane bomb while tending the wounded in a hospital raided by enemy aeroplanes, docent of surgical pathology at the University of Padua, aged 39.——The *Policlinico* mentions the death at Berlin from typhus of **A. Pappenheim**, editor of the *Folia haematologica.*——**L. Viviani**, killed by an air bomb while operating on a wounded soldier at Castelfranco, aged 40.——**E. De Ambris** of Padua, a criminologist.——**G. Gandolfi**, chief of the medical department of the army in the Genoa district.——**V. Fazzi**, member of parliament and surgeon at Lecce, Italy.

**The Guatemala Earthquake.**—Relief supplies valued at $110,000 purchased by the American Red Cross from government sources in the Canal Zone, have reached Guatemala City, January 19. Dr. Carlos F. Secord, for twenty years a medical missionary and physician in Guatemala, writes that the United States Marines reached Guatemala City a day after the second earthquake, January 3.

## PARIS LETTER

Paris, Jan. 31, 1918.

### Death of Gaucher

Dr. Ernest Gaucher is dead at the age of 64 years. He was clinical professor of diseases of the skin and syphilis in the Paris Faculté de médecine, physician to the hospital Saint Louis, and physician in chief of the military hospital at Villemin. He was born at Chamfleury, studied medicine in Paris, and was a hospital intern in 1877; technician in histology in 1880; chief of the laboratory of the Charité in 1885; physician to the hospitals in 1886, and associate professor in 1892. In 1902 he was appointed professor of skin diseases and syphilis, succeeding Professor Fournier. Gaucher had been a member of the Academy of Medicine since 1910, was president of the Association générale de médecins de France, and presided over the section on medical sciences at the last congress of the French Association for the advancement of science, in 1908. Among his numerous works may be cited those on primary epithelioma of the spleen, the treatment of diphtheria, chronic intoxication by nitrogenous extractives, and the diatheses. His lectures on the diseases of the skin placed him among the notables in medicine, and helped to maintain the prestige of the French school of dermatology at the hospital Saint Louis. He published also the "Theory and Practice of Diseases of the Skin," 1885; "Epitome of Syphilography" and "Lectures on Diseases of the Skin," 1895. He was also a collaborator on the "Treatise of Medicine and Therapeutics" by Brouardel-Gilbert, and on the "Treatise on General Pathology" by Bouchard (Semeiology of the skin).

### Etiology of Trench Fever

Drs. Couvy and Dujarric de la Rivière recently communicated to the Society of Biology the results of their researches on the etiology of trench fever. It is shown that the condition known as trench fever is a well established clinical entity, and that it is caused by a spirochete, presenting itself in two forms, a short form found in the blood, and a long form found in the organs of infected animals. The guinea-pig can be inoculated with the disease by injecting the blood of a patient. The blood should be withdrawn during a period of fever. The animal presents a temperature curve comparable with that of the human suffering from trench fever. In order to obtain the spirochetes, the guinea-pig should be killed at the height of the fever curve, for death occurs among these animals in only about one third of the cases. The pathogenicity and the immune reactions differentiate this spirochete from the spirochete of icterohemorrhagic fever.

### Stretcher Bearers No Longer Attached to Combatant Units

The *Journal officiel* has published a decree to the effect that stretcher bearers are no longer attached to combatant units, but that they now are *unités sanitaires de première ligne*, that is, they have been transferred from the combatant to the medical department of the army. The members of the groups of stretcher bearers are and remain neutral according to the international conventions in vogue.

### Reorganization of the Invalides

Following a visit made on January 1 to the Invalides, the premier, M. Clemenceau, has decided to reorganize the Invalides at once. This is the famous old soldiers' home, with the tomb of Napoleon, at Paris. After consultation with M. Justin Godart, under secretary of state for the army medical department, he submitted to the president of the Republic an outline for a decree which will soon be signed. The decree provides: I. The Invalides shall receive and treat within the limits of its budget permanently as pensioners members of all grades of the army and navy who cannot receive at home the attention and care they need. It will also receive temporarily discharged soldiers requiring intervention of a special nature. Also, provisionally, the helplessly crippled requiring further treatment and aid for the usual acts of life. II. The Invalides shall be in charge of the War Department, and will account to the under secretary of this department. It will be wholly independent of all other establishments, especially of the museum of the army. III. The establishment shall be subject to the rules laid down for military hospitals. It is under the orders of a *médecin-chef.* The rights conferred on the director of service by the regulations of the Service de Santé are delegated to the director of the Service de Santé of the military government of Paris. IV. The establishment occupies at the Hôtel des Invalides the ensemble of the buildings ordinarily comprising the infirmary of the Invalides; if the necessity for extension arises, annexes can be organized outside of Paris.

## *Association News*

### THE CHICAGO SESSION

### Advisory Committee on Scientific Exhibit

In order to secure desirable material from various sources for the Scientific Exhibit at the coming meeting, an Advisory Committee on Scientific Exhibit has been appointed consisting of Dr. Harlow Brooks, New York; Dr. A. S. Warthin, Ann Arbor, Mich.; Dr. George L. Dock, St. Louis; Dr. L. B. Wilson, Rochester, Minn.; Dr. E. R. LeCount, Chicago; Dr. Oskar Klotz, Pittsburgh; Dr. F. P. Gay, Berkeley, Calif.; Dr. C. C. Bass, New Orleans; Dr. W. M. L. Coplin, Philadelphia; Dr. Joseph C. Bloodgood, Baltimore, and Dr. Walter B. Cannon, Boston.

The Scientific Exhibit will occupy the mezzanine of the Hotel Sherman. This will also be the general headquarters of the Chicago Session. The available space seems ample but in order to arrange the space to the best advantage it is desirable that the Director of the Scientific Exhibit know early what to expect. Applications should be made at once. Assignment of space will be made Tuesday, April 2, 1918, and all applications must be received before that date.

Those desiring to exhibit work may secure application blanks and further details by addressing Dr. George H. Weaver, Director of Scientific Exhibit, 637 South Wood Street, Chicago.

## *Marriages*

Lieut. Lester Joerg Palmer, M. R. C., U. S. Army, Chicago, on duty at Camp Grant, Rockford, Ill., to Miss Mercedes Blackledge of Caney, Kan., at Rockford, February 3.

Capt. Edward Charles Ludwig, M. R. C., U. S. Army, on duty at Camp Hancock, Augusta, Ga., to Miss Elizabeth T. Goldsbury, both of Columbus, Ohio, February 4.

Lieut. Walter Julius Mellies, M. R. C., U. S. Army, on duty at Camp Funston, Kan., to Miss Jeanette Alexander, both of St. Louis, at Manhattan, Kan., February 2.

Passed Asst. Surg. Samuel Westray Battle, Lieutenant, U. S. Navy (retired), to Mrs. Vinton Liddell, both of Asheville, N. C., in New York City, February 7.

Asst. Surg. Gilbert William Haigh, Lieutenant, U. S. N. R. F., on duty at Boston Navy Yard, to Miss Ruth Dana, both of Worcester, Mass., December 1.

Lieut. Imas Pryor Rice, M. R. C., U. S. Army, on duty at Camp Grant, Rockford, Ill., to Miss Emma Edlund, both of Chicago, February 3.

Frederick Windel Chapin, M.D., New York City and Wilton, Conn., to Miss Ellen Childe Emerson of Pittsfield, Mass., February 14.

Lieut. Leroy Henry Smith, M. R. C., U. S. Army, to Miss Frances M. Lougee, both of Winterport, Me., at Shortville, N. Y., February 12.

Lieut. Irl Edwin Hempstid, M. R. C., U. S. Army, Burrton, Kan., to Miss Margaret Stewart of Hutchinson, Kan., January 2.

James Wood Jordan, M.D., Ashland, Va., to Miss Christine Churchill Cooke of Richmond, Va., February 9.

Earl R. Leonard, M.D., Benkelmen, Neb., to Miss Thelma L. Nicholl of Auburn, Neb., February 6.

Samuel H. Heller, M.D., Lancaster, Pa., to Miss Pauline G. Gilbert of Philadelphia, recently.

Arthur Ellis Schiller, M.D., Detroit, to Miss Rena Raffman of Chicago, February 19.

## *Deaths*

**Samuel Gibson Dixon, M.D.,** president of the Medical Society of the State of Pennsylvania, and commissioner of the state department of health; aged 66; died in the University of Pennsylvania Hospital, February 26, from anemia. Dr. Dixon, who was descended from a long line of Quaker ancestors, was born in Philadelphia, March 23, 1851. He studied law and was admitted to the bar in 1877, and was given the degree of M.D., with honors, by the University of Pennsylvania in 1886. Two years later he was made professor of hygiene, and a year thereafter professor of sanitary engineering and dean of the auxiliary department of medicine in his alma mater. Dr. Dixon was always a research worker, and made special fame in the department of bacteriology. He was the first to describe, in 1886, the branched form of the tubercle bacillus, and preceded Koch by six months, in the production of immunity to the tubercle bacillus. In 1890, Dr. Dixon became professor of bacteriology and microscopic technology in the Philadelphia Academy of Sciences, was made curator in 1891, and has been executive curator since 1892 and president of the organization since 1896. He was a member of the board of public education of Philadelphia from 1888 to 1894, and during this time was chairman of the committee of hygiene. He was also a trustee of the University of Pennsylvania, first vice president of the Ludwick Institute, vice president of the Zoological Society of Philadelphia; a member of the board of managers of the Grandom Institution; a Fellow of the American Medical Association; and for many years was a member, in 1916 elected president of the Medical Society of the State of Pennsylvania and inducted into office in 1917.

Dr. Dixon was a prolific writer on bacteriologic and hygienic subjects. To his work as commissioner of health for the commonwealth of Pennsylvania he brought splendid equipment, ideal foundation training and admirable executive ability. Among the notable achievements of the department of health since Dr. Dixon assumed charge are the collection of complete birth records; the collection of full data regarding deaths; the compilation of morbidity statistics; the filing classification of all vital statistics; the working out of the details of rural quarantine; the sanitary inspection of dairies; the evolution of a system of inspection of pupils in the public schools, both interurban and rural; the organization of a state laboratory; the organization of a division of sanitary engineering; the establishment of three large tuberculosis sanatoriums, and a state-wide system of dispensaries for tuberculosis, and a successful propaganda of educational publicity. In the accomplishment of all these results, Dr. Dixon was always the leader and director. He had been ill for many months, but whether in hospital in Philadelphia, or in the State Sanatorium, controlled the sanitary administration of the state.

Dr. Dixon was a sanitarian of distinguished ability and efficiency and as an administrative officer was unsurpassed. The reduction in mortality and morbidity in the state during Dr. Dixon's administration will be his lasting monument.

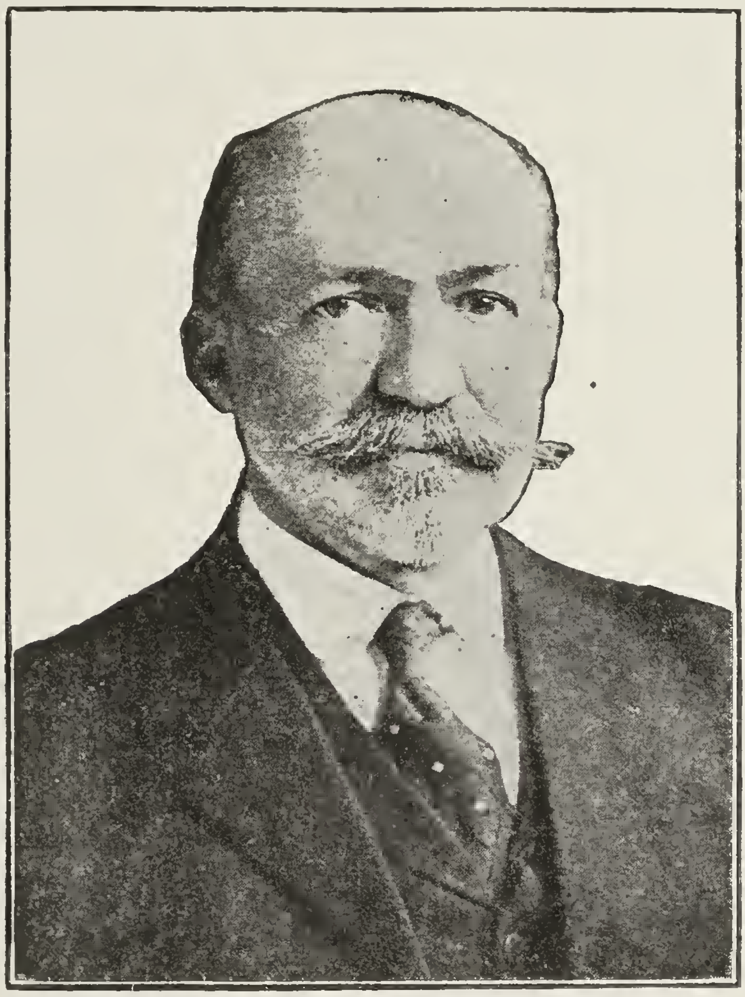
**Major Charles Smith Turnbull, M.D., M. C., N. G. Pa.,** Philadelphia; University of Pennsylvania, Philadelphia, 1871; aged 70; a Fellow of the American Medical Association and American Academy of Medicine, and a member of the Association of Military Surgeons of the United States; a specialist on diseases of the eye; a member of the teaching staff of the New York Ophthalmic and Aural Institute for two years, and of Jefferson Medical College for eight years; chief of the aural department of Jefferson Medical College for ten years; oculist and aurist to the German Hospital, Philadelphia, for more than thirty-five years; to the Odd Fellows' Home, to the Pennsylvania Institute for the Deaf and Dumb, and to the Home for Teaching Deaf Children to Speak; ophthalmic and aural surgeon to the Jewish, Howard and St. Christopher's hospitals, and to the Home for Incurables, Philadelphia; a prolific contributor to the literature of his specialty; major surgeon of the First Infantry, N. G., Pa., since 1900; brigade surgeon during the "Pittsburgh and Round House Campaign"; died at his home, February 21.

**Thomas Jefferson Mays, M.D.,** Philadelphia; Jefferson Medical College, 1868; aged 72; a Fellow of the American Medical Association; a member of the American Climatological Association, American Neurological Association and Philadelphia College of Physicians; a specialist on diseases of the heart and lungs, with special reference to tuberculosis; from 1888 to 1902 professor of diseases of the chest in the

Philadelphia Polyclinic Hospital; one of the organizers of Rush Hospital for Consumption in 1890, and visiting physician to the institution until 1905; organizer of the Philadelphia Clinic for Home Treatment of Consumption, and director thereof until his death; died at his home, February 14, from cerebral hemorrhage.

**Robert Lee Payne, M.D.,** Norfolk, Va.; Jefferson Medical College, 1881; aged 60; formerly president of the Medical Society of the State of North Carolina, and president of the Seaboard Medical Association in 1907; superintendent of health of Davidson County, N. C., for ten years; surgeon to the Southern Railway and Chesapeake and Clyde Steamship Company; chief surgeon of the Norfolk Southern Railroad; director and medical director of the Jamestown Exposition Company; gynecologist to St. Vincent's Hospital, Norfolk; a director of the Norfolk National Bank; died in a hotel in Durham, N. C., February 8, from heart disease.

**Thomas Coke Biddle, M.D.,** Topeka, Kan.; Rush Medical College, 1881; aged 60; a member of the Kansas Medical Society; clinical professor of mental diseases in Kansas Medical College, Topeka; from 1895 to 1898 superintendent of the Osawatomie State Hospital; superintendent of the Topeka State Hospital for nineteen years; surgeon of the Twenty-First Kansas Volunteer Infantry during the war with Spain, with service in Porto Rico; died at his home in the Topeka State Hospital, February 16, from pneumonia.



Samuel Gibson Dixon, M.D., 1851-1918

**Oscar G. B. McMullan, M.D.,** Elizabeth City, N. C.; University of Virginia, Charlottesville, 1880; aged 61; a Fellow of the American Medical Association; organizer in 1885 of the Elizabeth City Cotton Mills and president for five years; organizer in 1889 and since president of the Citizens' Bank, Elizabeth City; director of the Elizabeth City and Norfolk Telephone and Telegraph Company; died at his home, February 13, from pneumonia.

**Capt. Odos Arville Hopkins, M.D., M. R. C., U. S. Army,** Middlefield, Ohio; Kentucky School of Medicine, Louisville, 1893; Medical College of Ohio, Cincinnati, 1895; aged 46; a Fellow of the American Medical Association; on duty at Camp Beauregard, La., with the One Hundred and Fifty-Fifth Ambulance Corps, One Hundred and Fourteenth Sanitary Train; died in Camp Beauregard, January 15, from spinal meningitis.

**Francis Moore Clarke, M.D.,** Middletown, N. C.; College of Physicians and Surgeons, Baltimore, 1893; aged 47; a Fellow of the American Medical Association; formerly acting assistant surgeon, U. S. P. H. S., at Beaufort, N. C., and superintendent of health of Carteret County; died in a hospital in Washington, N. C., February 3, from intestinal obstruction following an operation to relieve intestinal obstruction.

**George Bradfoot Lawrason, M.D.,** Shreveport, La.; Tulane University, New Orleans, 1883; aged 63; a Fellow of the American Medical Association; formerly contract surgeon, U. S. Army, and later surgeon of volunteers during the war with Spain, with service in the Philippine Islands; coroner of Orleans Parish from 1893 to 1896; died in the Touro Infirmary, New Orleans, February 3, after a surgical operation.

**Captain Frank Shumway Pratt, M.D., M. R. C., U. S. Army,** North Ben, Ore.; University of Oregon, Portland, 1908; aged 51; formerly county physician and health officer of Skamania County, Wash., and health officer of Stevenson; local surgeon of the Spokane, Portland and Seattle Railway Company; on duty at Fort D. A. Russell, Wyo.; died at that post, February 12.

**John Jay Marvin, M.D.,** Cincinnati; Pulte Medical College, Cincinnati, 1874; aged 83; formerly demonstrator of anatomy in his alma mater; twice mayor of the village of Pleasant Ridge, and founder of the Pleasant Ridge Library; died at the home of his son in that place, February 5, from the effects of a fracture of the ribs.

**Howard Burhans Besemer, M.D.,** Ithaca, N. Y.; New York University, New York, 1891; Cleveland Homeopathic Medical College, 1892; aged 48; a Fellow of the American Medical Association; and once president of the Tompkins County Medical Society; health commissioner of Ithaca for eight years; died at his home, February 8, from acute gastritis.

**Ambrose John Gallison, M.D.,** Franklin, Mass.; Dartmouth Medical School, Hanover, N. H., 1888; aged 61; a Fellow of the American Medical Association; once president and orator, and for fifteen years secretary of the Thurber Medical Association of Milford, Mass.; died at his home, February 13, from heart disease.

**Lindus LaRell Riggs, M.D.,** Maquoketa, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1904; Jefferson Medical College, 1905; aged 49; a Fellow of the American Medical Association; died at his home, February 7, from heart disease.

**George Jacob Smith, M.D.,** Niles Ohio; University of Pittsburgh, 1899; aged 42; a Fellow of the American Medical Association; while driving his automobile over a grade crossing at Niles, February 5, was struck by an Erie train, and instantly killed.

**Lieut. Henry Edward Hungerford, M.D., M. R. C., U. S. Army,** Waterbury, Conn.; Yale University, New Haven, Conn., 1898; aged 45; a Fellow of the American Medical Association; died at Camp Greenleaf, Fort Oglethorpe, Ga., February 1, from acute dilatation of the heart.

**Edwin Robinson Dean, M.D.,** South Bend, Ind.; Jefferson Medical College, 1890; aged 52; a member of the Indiana State Medical Association; medical director of the Conservative Life Insurance Company; died at his home, February 2, from heart disease.

**William Webster Ensey, M.D.,** Dayton, Ohio; New York Homeopathic Medical College, New York, 1892; aged 48; a member of the staff of the Miami Valley Hospital, Dayton; died in that institution, February 4, a few hours after a surgical operation.

**Olive B. Metcalf, M.D.,** Oakland, Calif.; California Medical College, Eclectic, San Francisco, 1883; aged 100; died at the home of her adopted daughter in Oakland, February 18.

**Rufus A. DuMars, M.D.,** Peoria, Ill.; Louisville Medical College, 1876; University of Pennsylvania, Philadelphia, 1877; aged 68; a member of the Illinois State Medical Society; died in St. Francis' Hospital, Peoria, February 1, from cholelithiasis.

**Joseph B. Sappington, M.D.,** Austin, Texas; University of Nashville, Tenn., 1860; aged 78; formerly a member of the State Medical Association of Texas; surgeon in the Confederate Army during the Civil War; died at his home, January 27.

**Theodore Jacobs, M.D.,** Morristown, Pa.; University of Pennsylvania, Philadelphia, 1860; aged 82; surgeon in the U. S. Navy during the Civil War, and on duty with the gunboat fleet on the Mississippi; died at his home, February 7.

**William Parish Wentworth, M.D.,** Pittsfield, Mass.; New York Homeopathic Medical College, New York, 1886; aged 57; at one time a member of the faculty of his alma mater; died in the Homeopathic Hospital, Boston, February 1.

**Joseph Raoul Pepin, M.D.,** Manchester, N. H.; Laval University, Montreal and Quebec, 1895; aged 45; a member of the Arctic Expedition commanded by Capt. Bernier of Canada in 1896; died at his home, January 31.

**Foster Bradley Crutcher, M.D.,** San Antonio Texas; Vanderbilt University, Nashville, Tenn., 1887; aged 57; formerly a member of the Tennessee State Medical Association; died at his home, Nov. 25, 1917, from septicemia.

**Devotie Dennis Jones, M.D.,** Birmingham, Ala.; University of Maryland, Baltimore, 1872; aged 73; a member of the Medical Association of the State of Alabama; died at his home, Dec. 23, 1917, from pleuropneumonia.

**Daniel Karsner, M.D.,** Philadelphia; Jefferson Medical College, 1865; Hahnemann Medical College, 1887; aged 86; assistant surgeon of United States Volunteers during the Civil War; died at his home, February 8.

**William M. Scott, M.D.,** Centerville, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1871; aged 77; surgeon of the Thirty-Third Iowa Volunteer Infantry during the Civil War; died at his home, February 2.

**Willis Hamilton, M.D.,** Richmond, Mo.; Jefferson Medical College, 1889; aged 87; a pioneer practitioner of Missouri; died, February 1, in a hospital in St. Joseph, Mo., following a fall in which he fractured his right hip.

**Clarence A. Hastings, M.D.,** Malone, N. Y.; University of Vermont, Burlington, 1889; aged 55; a member of the Medical Society of the State of New York; died at his home, Dec. 23, 1917, from cerebral hemorrhage.

**Homer Warren Thompson, M.D.,** Salem, Ohio; Pulte Medical College, Cincinnati, 1885; aged 58; a specialist on diseases of the eye; and a well-known aeronaut; died at his home, February 8, from angina pectoris.

**Silas H. Van Doren, M.D.,** Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1878; aged 66; for many years a practitioner of Elgin, Ill.; died at his home, February 8, from cerebral hemorrhage.

**Thomas Henry Northridge, M.D.,** Brooklyn, N. Y.; Long Island College Hospital, Brooklyn, 1876; aged 67; a member of the Medical Society of the State of New York; died at his home, February 10, from pneumonia.

**William Chauncey Carter, M.D.,** Fredericksburg, Va.; Medical College of Virginia, Richmond, 1878; aged 79; a Confederate veteran; died in the Mary Washington Hospital, Fredericksburg, Va., January 29.

**Frank Post Butler, M.D.,** Whitten, Iowa; State University of Iowa, Iowa City, 1887; aged 56; a Fellow of the American Medical Association; died in a hospital at Marshalltown, Iowa, about February 2.

**Edwin DeWitt Peugh, M.D.,** Brookfield, Mo.; Kansas City, Mo., Medical College, 1895; aged 44; a member of the Missouri State Medical Association; died at his home, February 2.

**George W. Crosby, M.D.,** Atlantic City, N .J.; New York Homeopathic Medical College, New York City, 1878; aged 66; died at his home, February 4, from pneumonia.

**William T. Irvine, M.D.,** Jonesville, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1901; aged 62; died in his home, February 5, from septicemia.

**Zachariah Raphael Morgan, M.D.,** Mechanicsville, Md.; Georgetown University, Washington, D. C., 1880; aged 72; died at his home, February 5.

**Robert A. Childers, M.D.,** Floydada, Texas; Vanderbilt University, Nashville, Tenn., 1899; aged 40; died in Albuquerque, N. M., February 3.

**John W. Johnson, M.D.,** Winchester, Ky.; University of Louisville, Ky., 1861; aged 87; died at his home, February 3, from cerebral hemorrhage.

**Frederick Charles Roth, M.D.,** College of Physicians and Surgeons in the City of New York, 1891; aged 49; died at his home, February 3.

**Susan Ema Pullin, M.D.,** Los Angeles; University of Michigan, Homeopathic Medical School, 1894; died at her home, about February 2.

**William Henry Hamilton, M.D.,** Fort William, Ont.; Trinity Medical College, Toronto, 1884; died in Florida, February 3.

**A. Byron Tapscott, M.D.,** Carlisle, Ark.; Missouri Medical College, 1878; aged 51; died at his home, January 30, from uremia.

**William A. Seeley,** Oelwein, Iowa (license, years of practice, Iowa, 1886); aged 70; died at his home, about February 3.

**George Rodier,** Natick, R. I. (license, Rhode Island, 1900); aged 43; died at his home, January 29.

# *The Propaganda for Reform*

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## NOSTRUMS IN RETROSPECT

### A Review of Worthless or Unscientific Proprietary Mixtures Previously Criticized

[Foreword.—The article that follows is the seventh[1] of a series written for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and prescribed indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[Article VII]

## SHOTGUN NOSTRUMS

By S. Q. Lapius, M.D.

Formerly it was customary to prescribe mixtures of many drugs on the assumption that if one of the ingredients missed the mark another might be expected to hit it, just as a poor marksman is more likely to hit a target at short range with a blunderbuss than with a high powered rifle. Increased precision in every branch of science has become the outstanding feature of civilization. The soldier today must shoot straight with a rifle that sends a single ball. There is none of the disposition to rely on chance as when the blunderbuss was used. A capable physician directs his drug straight at the seat of the trouble, and we now have many drugs that can be depended on to exert definite actions. The complex mixture is just as preposterous in modern therapeutics as the blunderbuss would be on a modern battlefield.

Every drug exerts undesired side actions, and it is the aim of the modern physician to try to select the one which will have a maximum of therapeutic with a minimum of undesired actions. When a complex mixture is employed it is obvious that only the best is utilized whereas all the undesired side actions come into play. We do not pretend that even the best studied drug has not much to be learned about it, but the nostrum maker who exploits a complex mixture either knows practically nothing of the side actions that it will exert or, if he knows, he conceals that knowledge. He knows that massive doses of hydrated chloral-combined with various narcotics can be relied on to cause unconsciousness in nearly all cases, but he prefers to speak of this as a hypnotic action. This is plain gambling with human life. When the patient dies it is difficult to prove that death was caused by the mixture alone.

The Council on Pharmacy and Chemistry has expended a great deal of time and energy in combating the "shotgun" nostrum evil. It is easy to understand the disadvantages of such mixtures but it is not so easy to demonstrate the misleading character of the claims made, with an entire disregard of the truth, for these mixtures. No one believes that a pot of gold lies at the end of the rainbow, but no one has actually gone there to see for himself.

### BROMIDIA

There are many types of "shotgun" nostrum. Some are dangerous, as in the case of "Bromidia"; some are preposterous, therapeutic monstrosities which excite the contempt of educated physicians, as in the case of "Tongaline"; some are merely useless mixtures of well known drugs, sold under grotesquely exaggerated claims, as in the case of "Peacock's Bromides."

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[1] The previous articles of the series are "Bell-ans," The Journal, Nov. 24, 1917; "Anasarcin and Anedemin," Dec. 8, 1917; "Pepto-Mangan," Dec. 29, 1917; "Cactina Pillets," Jan. 19, 1918; "Ammonol and Phenalgin," Feb. 2, 1918; "Fellows' Syrup and Other Preparations of the Hypophosphites," Feb. 16, 1918.

Various formulas have been given for Bromidia. The manufacturers appear to be more cautious under those circumstances where falsehood might lead them into collision with the federal authorities, than when giving reign to fancy and considering only the best means of winning the favor of the physician. It is said to consist of hydrated chloral, potassium bromid, Indian cannabis, and hyoscyamus. It is impossible to determine from the published formulas just how much hydrated chloral and potassium bromid it contains, but it is probable that there are about fifteen grains of each of these two drugs to the fluid drachm, and variable amounts of Indian cannabis and a small amount of either extract or tincture of hyoscyamus.

This much is certain: Bromidia is a distinctly dangerous mixture for indiscriminate use. The claim of the manufacturers, implied, rather than directly stated, that it is superior to an extemporaneously prepared mixture of those drugs is especially reprehensible because it tends to create the impression that the nostrum is safer in effective doses, conducing to a false sense of security on the part of those who are deluded into prescribing it in larger doses than they would a mixture of the same drugs prepared extemporaneously.

A report of the Council on Pharmacy and Chemistry published in THE JOURNAL, May 16, 1914, mentions three instances in which death is reported to have followed the use of Bromidia. The manufacturers of Bromidia have no magic power to render hydrated chloral harmless while retaining its hypnotic action. It depresses the central nervous system, and it is nothing less than monstrous for any one to pretend to rob this drug of its dangerous properties while retaining its hypnotic effects. If the patient requires a hypnotic, the physician should choose that one which his judgment and experience dictate as the best for that particular patient. If he needs hydrated chloral, the physician should prescribe exactly as much as he believes the patient needs. If the effect is slightly greater or slightly less than anticipated, no harm is done and the physician has gained experience that will be valuable in future prescribing. If Bromidia is prescribed and unexpected effects are induced it is impossible to know whether these were due to the hydrated chloral or to one of the other narcotics or to a synergistic action, and there is nothing to guide in the further use of the nostrum, for mixtures of narcotics commonly have much less uniformity of action than a single drug.

The irritant action of hydrated chloral on the stomach can be avoided by the use of bland fluids or dilute solutions. The following serves as an example of the way in which it may be prescribed conveniently:

| | | |
|---|---|---|
| Hydrated chloral ............... | grs. xl | 2.6 gms. |
| Syrup of orange peel ........... | | |
| Water, of each ................. | fl.℥ j | 30.0 c.c. |

A tablespoonful (15.0 c.c.) of this mixture, containing 10 grains (0.65 gm.) of hydrated chloral, will often induce sleep in the absence of severe pain or serious disturbance, and seldom does this dose have to be repeated more than once in such simple cases. Hydrated chloral is often used in somewhat smaller doses in combination with potassium bromid, which may be prescribed in a mixture such as the following:

| | | |
|---|---|---|
| Hydrated chloral ............... | grs. xx | 1.3 gms. |
| Potassium bromid ............... | grs. lx | 3.9 gms. |
| Syrup of orange peel ........... | | |
| Water, of each ................. | fl.℥ j | 30.0 c.c. |

In producing sleep when severe pain is absent this is as effective as the preceding, in similar doses. The use of repeated doses of hydrated chloral either in such a mixture as this, or in the form of Bromidia or other nostrum when sleeplessness is due to severe pain is highly dangerous. It should be remembered that while hydrated chloral is an effective hypnotic in case of simple sleeplessness, it is not actively analgesic except in distinctly dangerous doses. Bromidia in repeated doses will induce sleep even in the presence of pain, of course, but any active narcotic does that, and it is correspondingly dangerous. Small doses of morphin given alone are preferable when sleeplessness is due to severe pain.

### TONGALINE

"Tongaline" is an example of the type of "shot-gun" nostrum that would be merely ludicrous if we could look on anything that degrades therapeutics so lightly. A report was made to the Council on Pharmacy and Chemistry, and published in THE JOURNAL, July 17, 1915, p. 269, and in this report it is stated that Tongaline is said to consist of tonga, cimicifuga racemosa, sodium salicylate, colchicum, and pilocarpin. Whether the formula was cut short just there because the office boy ran out of breath at that point, or because the discoverers of this wonderful combination had not heard of the eminently potent substances that the witches added to their cauldron, we can leave to the reader's imagination, for it is manifestly impossible to present an orderly discussion of the pharmacology and therapeutics of such a preposterous jumble of drugs.

### PEACOCK'S BROMIDES

"Peacock's Bromides" belongs to a slightly different class. It is said to consist of the bromids of sodium, potassium, ammonium, calcium and lithium. In the absence of a logical explanation of the pretended superiority of this mixture over one that is made extemporaneously the exploiters seem to have been driven to the necessity of pretending that its freedom from contaminating chlorids explains its claimed advantages over mixtures of the official or commercial bromids. The truth is that the chlorids are used as antidotes in bromid poisoning.

Disregard the claims made for Peacock's Bromides, and ask yourself the question whether you have ever actually seen any ill results following the use of the official bromids that you could reasonably attribute to contaminating chlorids. Furthermore, carefully consider the relative advantage of a single bromid (say the bromid of potassium, or bromid of sodium, if you prefer it), with the opportunity of observing its effects and adjusting the dose in accordance with the results of your experience, and a mixture such as Peacock's Bromides, the composition of which you do not know, and which the manufacturer can alter to suit his own convenience.

While it is true that the therapeutic art will not degenerate in its entirety merely because some physicians continue to use even the most fraudulent and worthless nostrums, yet, on the other hand, to the extent that a physician continues to be guided by the false teachings of nostrum venders who have no therapeutic training, he is plunged into therapeutic chaos.

## Correspondence

### THE CRITERIA OF THE WASSERMANN REACTION

*To the Editor:*—In my opinion, based on the study of syphilis from the histologic, bacteriologic and clinical points of view, the postmortem appearances, interpreted as being evidence of syphilis are the least valuable as proof and often actually misleading, contrary to the view expressed by Symmers and Darlington (Symmers, Douglaas, and Darlington, C. G.: The Value of the Wassermann Reaction, THE JOURNAL, Feb. 2, 1918, p. *279*).

Syphilis is an anatomic disease, but the postmortem anatomic changes are often better regarded as the results of a disease, of a process which has come to an end before the death of the individual, rather than as the disease itself; hence the fallacy of correlating the results of a reaction, which necessarily depends on the active disease process, with terminal fibroid changes.

The Wassermann reaction presupposes that there are certain substances in one or both of two body fluids, the presence of which is determinable by that procedure.

A patient may have syphilis; but if the so-called Wassermann bodies are not present in the blood serum or spinal fluid, the result will be negative. This may occur in cases of chancre before the end of the fourth week. Here the diagnosis is determined, first by finding the spirochetes by means of the dark field microscope or by one of the staining methods. We have had good results, first, with Wright's blood stain modified for spirochetes, as directed by Mallory and Wright; secondly, by making the Wassermann test after the fourth week, and thirdly, by the results of internal treatment.

I believe it is considered very harmful to wait as formerly advised until the patient exhibited secondaries—a syphilitic septicemia which may implant the disease in every organ and tissue.

A vastly different and more reliable picture is presented by clinical syphilis than is presented by the postmortem appearance, and it is the correlation of the Wassermann test with this evidence that determines its usefulness.

A statement that the Wassermann reaction is found positive in a certain percentage of cases of syphilis is always of small value and often misleading. Instead of this too general statement the percentage of positive results in different phases of the development of the disease, depending on the presence of the specific bodies in the serum and spinal fluid, should be given.

Since 1912, at the St. Joseph's Hospital Laboratory we have been using a syphilitic liver antigen of uniform strength and reliability. We have had no use for any other. The cholesterinized antigen is admitted to give a small percentage of positive results in nonsyphilitic persons. Whatever questionable degree of sensitiveness this antigen affords is offset by this fallacy. We have never been convinced of the necessity of detecting the extremely minute positives, as it is the rule for patients to keep under observation and report for tests at lengthening intervals, so that a recurring positive would sufficiently soon be discovered.

Working with the aforesaid antigen and using one unit of complement instead of two, we have obtained the following results:

After the fourth week of the chancre, the Wassermann test was positive in practically 100 per cent. of the cases, excepting when influenced by proper treatment until the systemic end of the disease.

If secondary systemic syphilis with the blood serum charged with the specific bodies does not give 100 per cent. positives, there is something obviously wrong with the technic.

In the so-called tertiary lesions, the reaction will vary in strength of positiveness, agreeing with the discharge into the blood of the reaction-provoking substances.

Lesions such as aortic insufficiency give about 75 per cent. of positive reactions. Some patients with this affection who give negative reactions have, no doubt, been syphilitic; but the infection has been overcome, and the structural changes alone remain.

In cerebrospinal syphilis, the blood reaction is often negative because the infection there has been overcome; but the comparatively isolated cerebrospinal system is still infected, and the cerebrospinal fluid is positive. When the general infection has been overcome in the cerebrospinal axis, the spinal fluid is, of course, negative to the Wassermann test, but the patient may still have great impairment of his nervous system owing to the fibrosis of these tissues, the result of the conquered infection. Indeed, when this condition obtains—negative blood and negative spinal fluid in terminal syphilis—very little hope can be entertained of any improvement by specific treatment.

The test should not give positive results in nonsyphilitic persons. Very occasionally one may read the test too fine, as it were, because of sustained confidence in the test, and report a weak positive in a nonsyphilitic; but one is soon brought to earth by some means or other, and the mistake is corrected by another test.

Clinical syphilis and the dark field microscope should establish the validity of the Wassermann test in known cases. The Wassermann test should establish the presence of syphilis in unknown cases, and the results of treatment should justify the Wassermann test.

Joseph A. Moore, M.D., Philadelphia.

### STAMMERING

*To the Editor:*—In January, 1916, you published a number of letters on speech defects—especially stammering. This final statement was made: "If any one can point out the reason why stammering is so largely confined to men and boys, few women or girls being so troubled, the cause would be discovered." I have found that when speaking in the lower tones I stammer, and that when using the upper registers of the voice I have no such difficulty. By following out this plan I have overcome a speech defect of some years' standing. I have not found it necessary to speak in louder tones or in monotones, as so often advised. As men and boys almost invariably use the lower tones of the voice, and women and girls the higher, may not this be the reason why the trouble is limited to males? The knowledge that by raising my voice I can speak without difficulty enables me now to speak in any tone, as the fear of stammering has disappeared. This psychologic effect seems to me quite important.

George L. Kennedy, Minneapolis.

## Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### THE PROCHOWNICK DIET

*To the Editor:*—Please give me either the reference in English or publish the Prochownick diet for contracted pelves.

E. L. Cornell, M.D., Chicago.

Answer.—The Prochownick diet was described in Queries and Minor Notes, The Journal, Oct. 28, 1911, and March 22, 1913.

For patients threatened with dystocia on account of a contracted pelvis, excessive development of the fetus with normal pelvis or fat and weak abdominal walls, Prochownick (*Therapeutische Monatshefte,* 1901) proposed a diet for the last eight weeks of pregnancy which should decrease the size and weight of the child, while strengthening the mother. The essential features of the diet are the withholding of carbohydrates and fluids and the giving of sufficient amount of proteins. It is practically an antifat diet.

The following is the daily bill of fare:

Morning, one small cup of coffee without sugar; a small, thin piece of bread (three-quarters ounce).

Noon, all kinds of meat, fish without sauces, eggs, a little green vegetables, salad and cheese.

Evening, same as at noon, one medium piece of bread (1½ ounces) butter, eggs and meat.

If the patient is accustomed to the use of alcohol, a small bottle of red or white wine is allowed; or an equal quantity of water may be taken during the day.

Large quantities of liquids, soups, potatoes, desserts, sugar, etc., are forbidden.

Such a diet provides about 125 gm. of proteins, giving 100 gm. of fat, giving 900 calories, or in all about 1,800 calories a day.

Fat patients with weak muscles improve physically and mentally on this diet, and come to labor in a much improved condition. As to the effect on the child, Prochownick and his followers assert that it will weigh a pound less than it would in the absence of the diet. The fat of the new-born, which amounts to 1 or 2 pounds, is laid on during the last eight weeks of pregnancy; the diet prevents this fat deposit. The child looks wrinkled, the head sutures are larger, and the head molds much better in its passage through the obstetric canal.

### STOKES-ADAMS DISEASE

*To the Editor:*—1. What is Stokes-Adams disease, its etiology and pathology? 2. Is the condition of the heart in the disease such that it might be overlooked in an examination of the patient? 3. I have tried to find this in the medical literature at hand, but most of my books do not have anything on the subject.

J. A. Valenta, M.D., Lake City, Iowa.

Answer.—1. Stokes-Adams disease, or heart block, is the name applied to a combination of symptoms described by

Stokes in 1846 and previously observed by Adams in 1827. It is characterized by bradycardia and cerebral attacks, either syncope or pseudo-apoplectic, or convulsive attacks. In order to understand the pathology and the mechanism of the production of the Stokes-Adams syndrome, it is necessary to be thoroughly acquainted with the newer studies of the physiology and pathology of the heart and circulation as revealed by the newer instruments of precision, such as the polygraph, electrocardiograph, etc. It has been found by studying the pathology of Stokes-Adams disease, as well as by noting with instruments the contractions of different parts of the heart, that the bradycardia is really due to interruptions of the impulse passing from the auricle to the ventricle through the bundle of His, and it is generally believed that degeneration of the tissue in the bundle of His is the cause of Stokes-Adams disease. The auricles beat many times more often than the ventricles, and these contractions are not transmitted to the arterial system. On the other hand, cases have occurred in which no lesion of the heart could be found, although generally there is arterial sclerosis, especially of the coronary arteries and the arterial system of the brain. The previous history of the patient often discloses syphilis.

2. This condition in a patient might easily be overlooked if the examination did not include all of the various methods that may be applied to a study of heart disease.

3. The following literature may be consulted:

Lewis, Thomas: Mechanism of the Heartbeat, London, Shaw & Sons, 1911; New York, P. B. Hoeber & Co.; $7.
Lewis, Thomas: Clinical Disorders of the Heartbeat, $2.
Osborne, O. T.: Disturbances of the Heart, Chicago, American Medical Association, 75 cents.
Cabot, Richard C.: Differential Diagnosis, New York, William Wood & Co., 1915, $3.50.
Greene, Charles L.: Medical Diagnosis, Philadelphia, P. Blakiston's Son & Co., 1917, $10.

### ACETYLSALICYLIC ACID (ASPIRIN)

*To the Editor:*—What injurious effect is to be feared from the administration of aspirin, either in too large a single dose or by too prolonged moderate dosage? What is the largest single medicinal dose considered safe, and is the American aspirin reliable?

Evan O'Neill Kane, M.D., Kane, Pa.

Answer.—In reference to untoward effects from acetylsalicylic acid (aspirin), it is stated in New and Nonofficial Remedies, 1917, p. 265: "The promiscuous use of acetylsalicylic acid (aspirin) by the laity, especially for the relief of headache, has frequently led to cases of rather severe poisoning, the chief symptoms being edema of the lips, tongue, eyelids, nose or of the entire face; also urticarial rashes, vertigo, nausea and sometimes cyanosis. Some persons are especially susceptible to acetylsalicylic acid and these symptoms are usually ascribed to an idiosyncrasy." The following is the dosage of acetylsalicylic acid given in New and Nonofficial Remedies: "From 0.3 to 1 gm. (5 to 15 grains), repeated once in three hours until symptoms of salicylism (ringing in the ears, etc.) are noted."

The following brands of acetylsalicylic acid (aspirin) have been found to comply with the standards of the Council on Pharmacy and Chemistry for acetylsalicylic acid, and were admitted to New and Nonofficial Remedies:

Acetylsalicylic Acid-M. C. W., Mallinckrodt Chemical Works, St. Louis.
Acetylsalicylic Acid-Merck, Merck & Co., New York.
Acetylsalicylic Acid-Milliken, John T. Milliken & Co., St. Louis.
Acetylsalicylic Acid-Monsanto, Monsanto Chemical Works, St. Louis.
Acetylsalicylic Acid-P. W. R., Powers-Weightman-Rosengarten Company, Philadelphia.
Acetylsalicylic Acid-Squibb, E. R. Squibb & Sons, New York.
Aspirin-L. and F., Lehn & Fink, New York.

### PERMIT AND BOND FOR USING AND DISPENSING ALCOHOL

*To the Editor:*—I am in receipt of the enclosed communication, which I presume went to all physicians, and which I think is a carefully concealed misrepresentation of the facts intended to mislead physicians. In reading the attached, one is led to believe that no alcohol can be used by a physician in his office; but as I understand the law, he can use nonbeverage alcohol in his spirit lamp, etc., and is not required to take out this permit.

L. L. Lyman, M.D., Springfield, Ohio.

Answer.—The enclosure is a circular letter from a surety company offering to execute a bond for physicians who might purchase and use alcohol under the regulations prescribed in the war revenue measure. A complete discussion of the subject appeared in Queries and Minor Notes, The Journal, Jan. 19, 1918, p. 186.

# *Medical Education and State Boards of Registration*

## COMING EXAMINATIONS

Alaska: Juneau, March 5. Sec., Dr. L. P. Dawes.
Colorado: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
Connecticut: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.
Connecticut (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.
District of Columbia: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigly.
Illinois: Chicago, March 25-26. Mr. F. C. Dodds, Supt. of Registration, Springfield.
Maine: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
Massachusetts: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
Minnesota: Minneapolis, April 2-4. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.
Missouri: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.
Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.
New Mexico: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.
Oklahoma: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.
Rhode Island: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.
Utah: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

### Pennsylvania July Examination

Mr. Nathan C. Schaefer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports the practical and written examination held at Philadelphia and Pittsburgh, July 10-12, 1917. The examination covered 5 subjects. An average of 75 per cent. was required to pass. Of the 182 candidates examined, 175 passed and 7 failed. The following colleges were represented:

| College | Year Grad. | Total No. Licensed |
|---|---|---|
| PASSED | | |
| Howard University | (1916) | 1 |
| Bennett Medical College | (1915) | 1 |
| Hahnemann M. Coll. and Hosp. of Chicago | (1915) 1; (1916) | 1 |
| College of P. and S., Baltimore | (1913) 1; (1915) | 2 |
| Eastern University | (1913)* | 1 |
| Johns Hopkins University | (1914) 1; (1915) 1; (1916) | 3 |
| Maryland Medical College | (1912) | 1 |
| University of Maryland | (1916) | 2 |
| Harvard University | (1911) 1; (1915) 1; (1916) | 1 |
| Fordham University | (1916) | 1 |
| Syracuse University | (1913) | 1 |
| University of Buffalo | (1916) | 1 |
| Leonard Medical School | (1903) | 1 |
| University of Cincinnati | (1916) | 4 |
| Western Reserve University | (1915) | 1 |
| Hahnemann Med. Coll. and Hosp. of Phila. | (1915) 1; (1916) | 10 |
| Jefferson Medical Coll. of Philadelphia | (1912) 1; (1914) 1; (1915) 9; (1916) 34 | |
| Medico-Chirurgical College of Philadelphia | (1914) 1; (1915) 9; (1916) 28. | |
| Temple University | (1914) 1; (1916) 8; (1917) | 1 |
| University of Pennsylvania | (1913) 1; (1915) 3; (1916) | 10 |
| University of Pittsburgh | (1916) | 20 |
| Woman's Medical College of Pennsylvania | (1915) 2; (1916) | 5 |
| University of Vermont | (1907) 1; (1913) | 1 |
| FAILED | | |
| Hahnemann Med. Coll. and Hospital of Philadelphia | (1916) | 71.6 |
| Jefferson Medical College of Philadelphia | (1915) | 69.8 |
| University of Pennsylvania | (1912) | 62.6 |
| University of Berlin | (1908) | 73.4 |
| Royal University of Naples | (1892) 60; (1895) 62.2; (1905) | 33 |

* Graduation not verified.

### Rhode Island January Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Jan. 3-4, 1918. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the two candidates examined, 1 passed and 1 failed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| George Washington University | (1906) | 88.2 |
| FAILED | | |
| Laval University | (1900) | 74.5 |

## Book Notices

A Doctor's Diary in Damaraland. By H. F. B. Walker. Cloth. Price, $2.10 net. Pp. 202, with illustrations. New York: Longmans, Green & Co., 1917.

The author was one of the physicians of South Africa who, on the breaking out of the rebellion, offered their services to the Union. He was called on for active service in February, 1915, at which time he was appointed to one of the mounted field ambulance units attached to General Botha's army. This book is a record, in the form of a diary, of Dr. Walker's adventures and observations from the time he left Cape Town till his return. Owing to the nature of the country, his experiences were exciting, as may be imagined, and he had to endure many hardships. Damaraland is, or was, a German province of South Africa, and the scene of General Botha's successful war with the Germans. Usually the author's unit was far from the scene of actual conflict, and he did not know that fighting had taken place until the wounded came in; consequently one can get only a vague idea of the military aspect of this remarkable campaign, which deprived Germany of the colony. However, while the book gives only a vague idea of what Botha did, it gives a graphic description of the life of a medical officer connected with a rapidly moving army in an unusually wild, desolate country. For days at a time, Dr. Walker and his unit were practically without water or food for either animal or man, and often they suffered from heat in the day and from cold at night. The book is both interesting and enlightening: it is enlightening in that it gives one an idea of the country, of the Germans' methods of colonizing and, above all, of how far-reaching this great war really is. In reading of Botha's campaign in South Africa, we may have regarded it merely as one of England's isolated campaigns with Germany. This book reveals that it was far from insignificant—rather that it was an important and costly campaign, especially for the Germans, and one of far-reaching possibilities. After all, however, the book is interesting and important to medical men as a revelation of what army surgeons have to and can do under difficult circumstances, and in spite of hardships.

Kirkes' Handbook of Physiology. Revised and Rewritten by Charles Wilson Greene, A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Ninth American Revision. Cloth. Price, $3.75. Pp. 790, with 509 illustrations. New York: William Wood & Co., 1917.

For the information of those unfamiliar with the general plan of this well known textbook, the following brief statements might be made: Three introductory chapters, dealing with the phenomena of life, structure of the tissues (histology), and an outline of physiologic chemistry, cover 117 pages of text. The succeeding chapters deal with mechanical and chemical physiology, many chapters ending with laboratory experiments on the particular subject under discussion. The text ends in the conventional manner with two chapters (Chapters XVI and XVII) on the reproductive organs and development, followed by a carefully prepared subject index.

It is apparent that the book is not designed for study by medical students, or as a reference book for physicians. This follows from the extensive, illustrated treatment of histology and elementary physiologic chemistry, subjects that are usually classed as prerequisites to physiology. Again, the majority of the laboratory experiments are quite simple. Some, on the other hand, are difficult, and need special training and apparatus not usually found in the laboratories in which the book will be used to the best advantage (those dealing with calorimetry or plethysmography). Whereas quite a number of laboratory experiments concern digestive juices and elementary urinalysis, there are none on absorption or on the cerebrum, cerebellum or spinal cord. With the inadequate instructions given in the paragraphs dealing with laboratory directions for experiments on vision, it is not clear how the student will learn the principles of ophthalmoscopy and retinoscopy, much less be able to fit "glasses for himself and at least two others." The method of using an ophthalmoscope is most superficially described under the heading "retinoscopy," with only fleeting and inadequate reference to the direct and indirect methods or the physical principles involved. Corneoscopy is performed with a Javal-Shiötz ophthalmoscope (?). Retinoscopy or skiascopy is not mentioned except where the term "ophthalmoscopy" should have been used. It appears that in the text and laboratory directions the author confuses retinoscopy with ophthalmoscopy as these terms are commonly used. When the student is recommended to fit glasses for himself and two others, more and better information should appear in the text and laboratory instructions.

As a textbook, it assumes a rank intermediate between a high school physiology and one designed for medical students. The book is serviceable for college students and students of dentistry, for the presentation is, on the whole, good, and the subject matter brought up to date.

The distinction between myxedema and cretinism is, to say the least, poorly expressed. It is not certain that most physiologists would agree to the statement that the "parathyroids are intimately associated with the thyroids in the constructions of the thyroid compound," or that the "parathyroids contain iodin." Furthermore, when the best experimental evidence points to the conclusion that death following complete suprarenalectomy is due to the removal of the cortex and not the medullary portion of the suprarenal gland, it is rather disappointing to find no mention of this fact, particularly when the importance of epinephrin's coming from the medulla is probably overemphasized, as appears from the recent experimental work of Stewart.

There are many instructive illustrations in the text. Some of the older ones might profitably be replaced by better ones. Those illustrating the chapter on the nervous system are especially commendable. The typographic errors are not numerous. "Chromofile" is, possibly an etymological mistake. Again, like other revisions, some of the illustrations are credited to "Moret" instead of to "Morat." The other errors are inconsequential.

## Medicolegal

### Choice of Remedies in Action for Malpractice

*(Stokes vs. Wright (Ga.), 93 S. E. R. 27)*

The Court of Appeals of Georgia, Division No. 1, in affirming a judgment in favor of the defendant, says that this was the second action brought by the plaintiff against the defendant, to recover damages for alleged negligence in an operation performed by the defendant on the plaintiff, Nov. 25, 1913. The first suit was filed to the January, 1916, term of the superior court, and was what is called an action in tort, or for a wrongful act not considered as a breach of contract. The defendant demurred generally, and also on the special ground that the alleged cause of action, if any existed, was barred by the statute of limitations. The demurrer was sustained and the petition dismissed, after which the plaintiff filed the present suit to the September, 1916, term of court, alleging the same facts as his cause of action, but claiming damages for the breach of the implied contract between himself and the defendant which resulted from the alleged negligent operation. Again the defendant demurred, and his demurrer was sustained, the court of appeals holds properly so, because the plaintiff, having elected in the first action to sue on the alleged tort, was bound by that election, and, his cause of action therefor being barred, he could not afterward prosecute this action for alleged breach of contract. When a person has two or more conflicting and inconsistent remedies for the same wrong, his election and actual prosecution of the one to a favorable or an adverse decision is a bar to the others. The plaintiff had the right to bring his action in tort, or for the breach of duty arising out of the contract of employment, express or implied. But he would not be permitted, after the choice of one of several inconsistent and conflicting remedies, which he might originally have pursued at his option, to change his position and take a course wholly inconsistent with the remedy which he first selected. When he elected to sue in tort and actually commenced his action for the tort, and prosecuted it to an adverse decision, his right to sue on the contract was lost. It was of no avail that the statute of limitations had already barred the action in tort at the time of the filing of the plaintiff's first suit. His election to sue in tort related back to the original wrong, and to his rights as they then existed. In other words, owing to the nature of the relation between a physician and a patient, the latter, in the case of malpractice by the former, ordinarily has a choice of remedies, and may sue the physician either in contract or in tort. If he elects to sue in tort, and actually commences and prosecutes his action to a final adverse decision, his right to sue as for a breach of the contract, or a breach of the duty imposed by law, by reason of the defendant's calling and the relation between the parties, is lost. And this is true although at the time of the commencement of the action for the tort it was barred by the statute of limitations. The election to sue in tort, and the prosecution of such suit to final judgment, relates back to the original transaction out of which the action arose, and constitutes an irrevocable election of remedies as they then existed on the part of the patient.

### Position of All-Time County Health Officer

*(Harrington vs. State ex rel. Van Hayes (Ala.), 76 So. R. 422. State ex rel. Smith et al. vs. Justice (Ala.), 76 So. R. 425)*

The Supreme Court of Alabama holds, in the first or Harrington case, that the position or place of an "all-time" health officer for a county is not an "office," within the meaning of Section 1467 of the Code of 1907; or, in other words, that appellant Harrington was not an officer of the state, or holding or attempting to hold an office under the authority of the state, within the meaning of that section, and, for that reason, that he was not required to be an elector of the state to be eligible to his position. If a county health officer is an officer within the meaning of Section 1467, then it would seem that he is a county officer within the meaning of Section 175 of the Constitution—in which case he would be removable only by impeachment, as provided by the Constitution. The statutes providing for such health officers prescribe other summary modes for their removal from office. If, therefore, they are county officers, these various statutory provisions as to their removal from office would be void. This court is committed to the construction of the state health and quarantine laws as creating a system which places the entire control and management of these subjects in the hands of the state board of health, and the respective boards for the several counties acting under the state board. The statutes also provide for various agents, employees, and officers of these various boards, state and county; and these are mentioned in the statutes as state and county officers, and, at other times and in other places, as officers of the boards which elect or appoint them. To treat or construe them to be officers of the boards, and not of the state and county, gives the entire system harmonious operation and effect as expressly written and provided.

In the second or Justice case, the court holds that when the court of county commissioners of Elmore County, in the exercise of the delegated power, declared, by proper resolution entered on the minutes of that court, that the terms of the act of the legislature of Sept. 25, 1915, should have effect in Elmore County, by the establishment of the office of public health, to be filled by a reputable practicing physician of the county "to be elected by the county board of health," and that his duties should be those defined by the provisions of the act having application to such county health officers, and directed the judge of probate to notify the chairman of the county board of health of this resolution and order, and by the resolution fixed the salary of the health officer at the sum of $2,100 per annum, to be paid monthly on the warrant of the judge of probate out of moneys in the general fund of the county, and further notified the county board of health of this action, the discretion and power of the court, under the amended statute as to the health officer in Elmore County, ceased. On this notice from the court of county commissioners, it became the duty of the county board of health to elect an incumbent in the office, and when that board, by the election of Dr. Justice as county health officer, discharged its delegated authority from the legislature, it was without further power or duty in that behalf. And Dr. Justice's employment, election or status, as health officer, was fixed, on his qualification and the assumption of the duties of his office, subject to the several provisions of the amendatory acts relating to his term of office, duties and incumbency therein. The county board of health may not compel the board of revenue or court of county commissioners to exercise the discretion reposed in the court or officials by the act, or control that discretion to declare, within the terms of the act, the necessity for the health officer. Similarly, the board of revenue or court of county commissioners may not control the county board of health, in the exercise of its discretion and power to elect or direct the "all-time" health officer for the county within the provision of the act. It cannot revoke its order declaring the necessity for an all-time health officer and putting into operation in the county the provisions of the statute.

# *Society Proceedings*

### COMING MEETINGS

American Medical Association, Chicago, June 10-14.

Am. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
American Orthopedic Association, Washington, D. C., April 22-23.
South Carolina Medical Association, Aiken, April 16-18.
Tennessee State Medical Association, Memphis, April 9-11.

## FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

*Annual Meeting, held in Chicago, Feb. 5, 1918*

The President, Dr. David A. Strickler, Denver, in the Chair

### Medical Licensure and Standards

Dr. David A. Strickler, Denver: The enforcement of the law and regulations against limited practitioners—the cults—is one of the most perplexing problems in all the states in which limited licenses are provided. Colorado has attempted to meet it by printing in a prominent place on the face of the license the statutory provision and limitations. This is done to inform the public of the limitations and to assist in the administration of the law. Thus far no infractions of the law have come to our knowledge.

As to reciprocity, such licenses should not be influenced by reciprocity agreements, but should rest wholly on evidence of good moral character, satisfactory practice record, and educational qualifications, without reference to the attitude of the state from which the applicant comes.

A year ago we advocated the reporting to a central organization of all information relative to medical crooks and frauds, practitioners of ill repute, revocation of licenses, legal actions brought against practitioners for violating the medical practice act, commitments after conviction for criminal acts, etc. I have given the subject much thought, and believe it is not feasible for the federation to organize and maintain a central body, because of the large amount of detail and expense involved. My suggestion is that the federation by resolution or otherwise encourage its members to send all such data to the Biographic Department of the American Medical Association.

Difficulties in the administration of practice acts are due largely to an indifferent public. A great service would be rendered the membership generally by a sustained effort on the part of the medical profession toward educating laymen as to the high aims of the medical profession in general and on public health matters in particular.

In regard to standards of medical education, the committee of the federation is making progress. Some members of the federation claim that the evaluation of colleges has been well done by the Council on Medical Education of the American Medical Association, and that we should accept its ratings. While acknowledging the value of the work done by that body, I am of the opinion that the purposes served by the two bodies are so distinct that each should establish its own standards.

I believe it is a mistake that any state establish different standards for those who are licensed to practice the healing art. Fake educational institutions should be prohibited by every state in the Union. This prohibition can be accomplished through legislative enactments which require bona fide educational standards of all institutions chartered to teach any profession.

### Uniformity of Reciprocity Applications

Mr. F. C. Dodds, Superintendent of Registration, Department of Registration and Education, Springfield, Ill.: We have heard a great deal about the standardization of schools and colleges, but not about the standardization of examination. That is equally as important as the standardization of colleges. In the last year I have issued fifty reciprocal certificates to physicians and surgeons. The blanks that come to us in the ordinary course of business are voluminous. It makes no difference to the State of Illinois if, we will say, a physician from Colorado comes to us; all we want to know is that he has met the requirements of the Colorado board in the matter of education, and also that he has passed a successful examination before that board and is certified to us by that board as being a reputable practitioner. It matters not to us what form of certificate or license was issued to him, how many names of members of examining committees are shown on the license, and the exact wording of it. All we are particularly interested in is in knowing that he has fulfilled the requirements for preliminary education and has passed a successful examination. This federation should undertake to prepare a uniform blank covering the different requirements that would be needed in the way of photographs, preliminary education, etc.

Since July 1, 1917, the examining board of Illinois has had but one applicant for a license to practice osteopathy, and he passed. We have not had an applicant from a chiropractic school that could qualify. We have not issued a license to a chiropractor since July 1, 1917, and I do not think we will issue a license to any one to practice chiropractic for many years to come, because the educational requirements for the chiropractor in Illinois are the same as for the physician and surgeon.

### Sectarianism in the Science of Healing, as Treated in Legislative Acts and Judicial Decisions

Mr. Harry Eugene Kelly, Chicago: The fundamental thing for consideration in the regulation of the practice of healing is the question of cults or sectarianism. No matter what the educational standard is, some one will not be able to reach it, and that somebody will desire, nevertheless, to practice healing. Since he cannot attain the educational requirements, he will go about seeking some other means by which he can get into the profession. A man who wants all the advantages of practice without going through hardships to qualify for those advantages usually organizes a society of some sort and makes it appear that the society is organized for some great benefit to the public. These persons begin through their associations to bombard the legislature, because the legislature makes the laws. They tell the members of the legislature that they have worked hard in trying to qualify themselves to do the public great good, and yet it is nothing but camouflage.

The object of a medical practice act is to create a standard, and anybody reaching that standard and passing an examination should be entitled to practice by any method of healing he desires. The object of the law is to require a man to be able to diagnose a case and prescribe some form of treatment for it, leaving him free to practice whatever method of healing he pleases. It is hard to get members of the legislature to understand that. All persons interested in the science of healing should maintain that all persons who heal disease as a profession shall be required to pass examinations in the same subjects before they shall be permitted to heal according to any method whatever. Nothing else is logical.

### Responsibilities of State Boards in the Present War Emergency

Dr. C. E. Sawyer, Marion, Ohio: Before the war began, small communities were lacking medical attention because recent graduates, after an expensive and extensive preparation, could not afford to accept the remuneration obtainable in small communities. Since the war this condition has been increased by the call of medical men to the colors.

With 17,000 physicians already under commission and many others needed in the making of our next army, there is an increasing gap in our supply of physicians. To provide for this is one of the responsibilities brought about by the war. At least three years could be saved in the system of the medical student's education and still have the actual standard of service as high as at present.

Our public school system should be organized on a more business-like basis, and students should be directed into vocational and professional channels earlier. This would save two years in the grades and another year could be eliminated from the college and medical course.

The restrictions and requirements of some states are senseless. Medicine must be broader than state's rights; it must be directed by a national legalized body with power to act.

With hospitals and colleges being standardized by various state board committees acting separately, no real standard can be maintained. The medical boards are the only real authorities for proper standards.

This federation should create a commission with power to act in the following important matters: 1. The fixing of premedical requirements consistent with a reasonable and regulated practical course. 2. The standardization of medical colleges on the basis of a minimum requirement fixed by the federation. 3. The standardization of hospitals on the basis of two classes, general teaching hospitals and special hospitals. 4. The creation of a national reciprocal requirement that will be just and equable.

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# ANNUAL CONGRESS ON MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

*Held in Chicago, Feb. 3, 1918*

*(Concluded from page 568)*

## JOINT SESSION OF THE COUNCIL WITH THE FEDERATION OF STATE MEDICAL BOARDS

### The Civil Administrative Code of Illinois and Medical Licensure

This paper, by Mr. Francis W. Shepardson, Director of Registration and Education, Springfield, Ill., is to be published in The Journal.

### The General Problem of the Minor Forms of Healing

Hon. Howell Wright, State Senator of Ohio, Cleveland: Education is the fundamental basis for licensure of the limited or unlimited practice of medicine. With few exceptions, the present system and laws pertaining to medical licensure place too little emphasis on education. Our medical laws are prohibitive rather than based essentially on educative standards. A great majority of the ninety-three separate and independent boards in the fifty states, having to do with the licensing of those who seek to practice the healing art, are not educational, but politicomedical boards. An examination of the medical practice acts indicates that in a majority, including Ohio, the legal fundamental basis of medical practice is commercial. In any criminal procedure aimed to protect the public from ignorant practitioners, the question to be proved should be, "What are the man's educational qualifications for the work in question?" and not, "Did he get a fee?" The fact that this use of the police power of the state was delegated primarily to detect and prosecute quacks does not justify the emphasis of the commercial factor of medical practice over and above the educative.

It is fundamentally wrong to lodge the police power of the state in the hands of representatives of any profession to prescribe the educational qualifications of that profession, to govern its license, and to regulate its practice. It was undoubtedly necessary for the medical profession to take the lead in advocating our present licensing system and medical laws. However, it should no longer have to fight every year in the legislature as the guardian of the public interests in opposition to other healing professions. It can well continue to advocate higher educational qualifications for the degree of Doctor of Medicine and for the license to practice. It has no fear of serious competition from other healers. If it continues to render effective service, the public will demand that service.

The general educational board or a department of education and registration should gradually supersede the present system of politicomedical licensing boards. Ohio is undoubtedly ready to consider one of these plans. In general, if the board plan is adopted, no healing profession to be regulated by the board should be represented on it. The advice and assistance of representatives of the various healing professions can be secured in technical and professional matters, but final authority—subject, of course, to the legislature—over all that pertains to the examination and licensing of these professions must rest in the hands of the board, or like the Illinois plan of a department headed by a well qualified lay educator. The states must soon choose between further extension and multiplication of the modern "guild controlled" licensing system and the single licensing educational board or department.

There should be more systematic state control and regulation of educational institutions existing for the purpose of granting professional degrees. The present loose system in some states makes the inspection and recognition of certain schools by the licensing authorities almost impossible, and is a decided bar to the enactment of modern legislation.

Uniform educational standards should be applied to all medical cults or sects. If the minor forms of healing, including optometry, osteopathy, chiropractic, etc., are the practice of medicine or the healing art in the sense that "the practice of medicine means the science of preserving the health and treating diseases for the purpose of cure, whether such treatment involves the use of medicinal substances or not," then the same educational standards must be applied to them as to the doctor of medicine. If not, they should be regulated as "limited practitioners," and their educational qualifications gradually raised to standards corresponding to their work.

There seem to be reasons why those who seek to cure disease by spiritual means or prayer, in obedience to the tenets of a recognized church, should be exempt from the application of the educational standards. The contagious disease problem, however, presents the element of doubt. Spiritual healers are now exempted in some states on religious grounds, subject to certain safeguards. There is no reason for any exemption from any law pertaining to public health or welfare.

### The United Service Medical School

Dr. Isadore Dyer, New Orleans: The excellent college laboratories, the abundance of clinical material, and the hearty cooperation of the faculties of the medical schools both in Chicago and New York have fully satisfied the National Board of Medical Examiners that the plan of conducting examinations in the large cities is a decided step in advance. It affords a broader scope in the examinations themselves and brings the work of the board to the notice of men engaged in medical education to whom the operation of the board and its purposes should appeal as to no other class of men.

The members of the National Board of Medical Examiners have sacrificed many personal interests and devoted much time to the problems of medical education and of developing standards, in the hope that the results may make for a stable future. The successful candidates are gratified at their achievement, and more than one of those who have failed have remarked that it was a privilege to undergo the test, even though unsuccessful.

Most men who apply for the federal services might be better trained before they actually qualify for service. This can be done in a school especially devised for that purpose. The young man who is ambitious to reach the best efficiency in either the Army or the Navy goes to West Point or Annapolis for his training. Why should not such an opportunity be afforded for a young man who wants to enter the medical departments of the services? It is practicable in more than one way:

1. By the establishment of a national medical service school in which students with the standard preliminary education may be received for a period of five years for training as a medical officer in one or another of the federal services. From the beginning, his laboratory training, his class work and his vacation periods may be planned to train him to the fullest efficiency, and at the end of the second year of such a school course, the student might elect or might be required to elect the department in which he wishes to enter when graduated, so that the remainder of his course could be arranged to fit him for Army, Navy or Public Health Service, as he may have chosen. The detail of the curriculum plan could be worked out as easily as in any of the technical schools where specialty courses are arranged.

2. The second plan, and one which might easily be started as the beginning of a school which could later expand into the first plan suggested, is to take over students who have already completed two or more years in a first grade medical school, giving them the three years of special training in the service of their election. Such a plan could successfully provide hospital and laboratory training in the government hospitals and institutions, and could afford field or service training during vacation periods. The consummation of such a plan is not difficult if it is decided on. Already the Army, the Navy and the Public Health Service have established laboratories and teaching facilities. At the same time, there are enough government and civil hospitals in Washington to afford clinical material. There are enough experienced and trained teachers in the several services to make a large and necessary part of a faculty which might be readily augmented by picked men from civil institutions. There should be a careful plan for organization of such a school, and particularly with reference to the faculties, so that the common aim of efficient training may be arrived at, without too great preponderance of military technic.

#### DISCUSSION

Dr. Joseph Byrnes, New York: With all our equipment, with all our medical education, why is it that an untrained spiritual healer is able to step into a case and turn us clean out? The profession has not bothered itself about it. We have been doing nothing in the way of educating the people to meet that. We know the psychologic side of medicine, but we do not practice it. If we did practice it, the faith healer would not have such a foothold.

Dr. J. Henry Carstens, Detroit: Why do the Christian Scientists beat us to it? Because they lie, and the worst feature about it is, they don't always know that they lie. They go to a patient's bedside and say they can cure him. They hypnotize that patient. On the other hand, we are frank and conscientious and do not hesitate to tell a patient that we cannot cure him if he has an incurable malady. Knowledge will succeed in the end; but in the meantime faith healers are having case after case of contagious diseases that they do not report. These diseases are transmitted from person to person, and many of them die, especially children, because they catch the contagion from some other patient.

Dr. Sivers, Centerville, Ohio: The average medical man has studied medicine purely from a physical standpoint. The reason why faith healers beat us to it is that some cases of sickness are purely psychologic. There are other cases that are pathologic. The medical man comes in and does his work so far as the pathologic part of that individual is concerned, but he is ignorant, as a rule, of the psychologic condition of that patient. Osteopathy, chiropractic, hypnotism and healing by prayer are all based on the fact that the operator believes that he is doing something toward healing the patient, not because he does it, but because he believes he does it, and inflicts that belief on the psychologic nature of the patient, and gets the patient to believe that he is having something done for him.

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Orthopedic Surgery, Boston

December, 1917, **15**, No. 12

1 *Lumbosacral Pains Considered Anatomicaly. G. G. Davis, Philadelphia.—p. 803.
2 Gynecologic Paper. W. P. Graves, Boston.—p. 807.
3 Cord and Nerve Affections Causing Low Back Pain. C. H. Henninger, Pittsburgh.—p. 814.
4 *Genito-Urinary Causes of Low Back Pain. T. Baker, Pittsburgh.—p. 819.
5 Displacements of Bones as Cause of Low Back Pain. F. J. Fassett, Seattle.—p. 826.
6 Gutter Ankle Splint. W. J. Merril, Philadelphia.—p. 840.

1. **Lumbosacral Pains Considered Anatomically.**—Davis emphasizes the fact that localized pain and tenderness is good evidence of local injury. Referred pains can originate from such a multitude of sources as to render them extremely unreliable for diagnostic purposes. That the most common cause of pain is rupture of ligaments; that sometimes overstretching the nerves is a cause, and finally, that while displacements of the various joints, including the sacro-iliac, do occur, it is exceptional for them to be of sufficient extent to produce positive objective evidence of their occurrence and rarely, if ever, to demand manipulation for their reduction. From the viewpoint presented by Davis it follows that benefit should be derived from apparatus so constructed as to support, fix and limit the extent of motion of the parts involved.

4. **Genito-Urinary Causes of Low Back Pain.**—Baker's experience with low back pain due to genito-urinary causes is limited to 41 cases collected from a series of 146 cases of chronic prostatitis and spermatocystitis. There were 15 cases in which the pain was purely sacral or lower lumbar, and constituted a prominent symptom; in 5 cases there was pain over the sacrum and one or both sacro-iliac articulations, and radiating along the course of the sciatic nerve; 6 patients had pain localized over the sacro-iliac articulation on one or both sides; there were 8 cases in which the pain was sacral, but radiated along the sciatic nerve on one or both sides; 5 cases in which the pain was localized definitely over one or both sacro-iliac articulations or gluteal areas and radiated along the sciatic nerve; and of sciatic pain alone, simulating mild sciatica, there were but 2 cases. The frequent occurrence of pain radiating along the sciatic nerve is very striking, and in many of the cases it was very annoying. In none of the cases was there tenderness along the course of the nerve, which distinguishes this type of pain from true sciatica. Of the 41 cases, 25 were nongonorrheal (that is, there had been no history of gonorrhea within three years, and no gonococci were to be found in the prostatic secretion, yet in some of these the specific infection was primary); other organisms were found, however, principally bacilli and cocci. The 16 remaining cases were definitely due to gonococcus infection.

### American Journal of Public Health, Boston

January, 1918, **8**, No. 1

7 War and Mental Diseases. P. Bailey.—p. 1.
8 Red Cross and War. W. H. Frost, Washington, D. C.—p. 8.
9 Rehabilitation of Diseased and Injured Soldiers Due to War. E. G. Brackett, Washington, D. C.—p. 11.
10 Morbidity Reports and Records of Army. W. P. Chamberlain.—p. 14.
11 Classroom Ventilation and Respiratory Diseases among Schoolchildren.—S. J. Baker, New York.—p. 19.
12 Industrial Hygiene in Wartime. W. G. Thompson, New York.—p. 27.
13 Rats and Insects as Public Enemies. W. T. Sedgwick, Cambridge.—p. 34.
14 Work of Public Health Committee of Massachusetts Medical Society. E. H. Bigelow, Framingham.—p. 35.
15 Conservation of Child Life. W. J. Galivan, Boston.—p. 37.
16 *Relation of Streptococci to Bovine Mastitis and Septic Sore Throat. D. J. Davis, Chicago.—p. 40.
17 Activated Sludge and Treatment of Packinghouse Wastes. L. Pearse, Chicago.—p. 47.
18 Activated Sludge Test at Cleveland. R. W. Pratt, Cleveland.—p. 55.
19 Why Life Insurance Companies Should Ally Themselves with American Public Health Association. C. J. Hastings.—p. 61.

16. **Streptococci and Septic Sore Throat.**—The question of pasteurization is an interesting one in relation to these infections. In the case of several epidemics in this country, Davis says, that the infected milk had been pasteurized by the "flash" method and the evidence in all indicated quite clearly that the milk was contaminated before pasteurization. Therefore the "flash" method is inefficient. The harm it may do by giving people a sense of false security is also self-evident. In certain epidemics the milk was consumed raw. It would seem that the only safeguard against such epidemics is efficient pasteurization not only of the milk and cream, but also of the material entering into the manufacture of other milk products. It is a point of some importance that it is not uncommon for firms to sell pasteurized milk but to sell cream in the raw state. The latter is even more dangerous than milk. The question as to what constitutes efficient pasteurization for streptococci is one that requires further study. It is commonly stated in the literature that pathogenic streptococci are killed at relatively low temperatures (52-54 C. for ten minutes, Sternberg). Undoubtedly for many strains this is altogether too low. The recent work of Ayers and Johnson indicated that the thermal death point of typical streptococci varies considerably and one of twenty-two strains studied by them resisted heating for thirty minutes at 62.8 C. (145 F.) the usual temperature for pasteurization. Furthermore their viability in milk and milk products should be carefully studied since we know that media may exert an important effect on the resistance of organisms to heat. In Davis' work in which ninety-eight strains of streptococci were tested none of twenty-four pathogenic hemolytic streptococci of human origin resisted 60 C. (140 F.) for thirty minutes. Twenty of seventy-four strains of hemolytic streptococci of milk origin and having practically no virulence resisted 68.3 C. (155 F.) for thirty minutes. Davis knows of no evidence to indicate that strains of streptococci pathogenic to man can resist the usual temperature for pasteurization (145 F. for thirty minutes).

### American Journal of Syphilis, St. Louis

January, 1918, **2**, No. 1

20 Intraventricular Treatment of Paresis. N. Sharpe, New York.—p. 1.
21 Syphilis of Inner Ear and Eighth Nerve. G. W. Mackenzie, Philadelphia.—p. 9.
22 Syphilis of Ear. V. Dabney, Washington, D. C.—p. 26.
33 Syphilis and Malignancy. B. P. Thom, New York.—p. 40.
24 Syphilitic Aortitis. L. A. Levison, Toledo.—p. 45.
25 Condyloma of Umbilicus. A. G. Rytina, Baltimore.—p. 64.
26 Masses in Neck. I. Cohn, New Orleans.—p. 67.
27 Tatooing and Syphilis. A. Keidel and E. L. Zimmermann, Baltimore.—p. 83.
28 Skeletal Roentgenography as Aid to Diagnosis of Obscure Syphilis. W. P. Coues, Boston.—p. 97.
29 Blood and Cerebrospinal Fluid in Three Hundred Known Cases of Syphilis. C. C. Dennie and D. O. Smith, Kansas City, Mo.—p. 101.
30 Technic of Bordet-Wassermann Reaction. H. K. Detweiler, Toronto, Canada.—p. 120.
31 Treatment of Early Syphilis in Relation to Development of Neurosyphilis. L. G. Lowrey, Boston.—p. 138.
32 Syphilis Clinic of Emory University, Atlanta, Ga. W. B. Emery, Atlanta, Ga.—p. 142.
33 Syphilis and War. H. H. Hazen, Washington, D. C.—p. 144.
34 Effect of Venereal Diseases on Infant Mortality. F. H. Bartlett, New York.—p. 156.
35 Adequate Treatment for Syphilis. H. G. Irvine, Minneapolis.—p. 167.

### Archives of Internal Medicine, Chicago

February, 1918, **21**, No. 2

36 *Transient Complete Heart Block with Numerous Stokes-Adams Attacks. F. N. Wilson and G. C. Robinson, St. Louis.—p. 181.
37 *Endocrine Origin of Muscular Dystrophy. N. W. Janney, S. P. Goodhart and V. I. Isaacson, New York.—p. 188.
38 *Studies in Acute Nephritis. E. H. Mason, Montreal, Que.—p. 216.
39 Papillary Carcinoma of Kidney with Metastasis in Brain. E. F. Hirsch, Chicago.—p. 231.
40 *Relationship of Toxic Lymphoid Hyperplasias to Lymphosarcoma and Allied Diseases. D. Symmers, New York.—p. 237.
41 *Chemical Changes in Blood and Urine in Progressive Muscular Dystrophy, Progressive Muscular Atrophy and Myasthenia Gravis. F. H. McCrudden and C. S. Sargent, Boston.—p. 252.
42 *Nature of Pathologic Process in Progressive Muscular Dystrophy. F. H. McCrudden, Boston.—p. 256.
43 *Effect of Thyroid Secretion on Excitability of Endings of Cardiac Vagus. R. L. Levy, Baltimore.—p. 263.

44 Maintenance Diet in Diabetes Melitus as Determined by Nitrogen Equilibrium. H. O. Mosenthal and S. W. Clausen, Baltimore. —p. 269.
45 Distribution of Bile in Certain Types of Jaundice. M. A. Blankenhorn, Cleveland.—p. 282.
46 *Experimental Intestinal Obstruction. F. L. South and L. L. J. Hardt, Chicago.—p. 292.

36. **Transient Complete Heart Block.**—A case is cited by Wilson and Robinson which is of interest because electrocardiographic records were obtained during several Stokes-Adams attacks, and also as an example of transient complete heart block. The electrocardiograms taken shortly after the patient entered the hospital and while she was having syncopal attacks, revealed the presence of complete auriculoventricular dissociation with frequent periods of ventricular standstill lasting from seven to eleven seconds, and corresponding to the syncopal attacks. On the following day, complete dissociation returned for a time, but there were no periods of ventricular standstill and the complete dissociation quickly gave place to a 2:1 block. Four days later the only sign of defective conduction which remained was a prolongation of the P-R interval which measured 0.31 second. Thereafter, the improvement in conduction was less rapid, but by the sixteenth day the P-R interval had decreased to 0.20 second. During this time there was also a rapid improvement in the patient's general clinical condition. The general picture, then, was one of complete dissociation with the rapid idioventricular rate and ventricular standstill causing Stokes-Adams syndrome. This was followed by improvement associated with a rapid decrease in the grade of the heart block.

The authors are of the opinion that the ventricular stoppage was partly dependent on the abnormal character of the ventricular rhythm during the periods of ventricular tachycardia. The length of the periods of ventricular standstill was apparently determined by the time required for sufficient improvement in the auriculoventricular conductivity to allow an auricular stimulus to reach the ventricles; for, as the degree of block diminished the periods of ventricular standstill became shorter. The periods of standstill were apparently never long enough to allow the usual slow idioventricular rhythm to develop. Three factors; then, took part in the production of the syncopal attacks: the abnormal character of the ventricular rhythm, the high grade of heart block, and the slow development of the idioventricular rhythm. The cessation of the syncopal attacks was apparently due to the occurrence of ventricular contractions arising in the left ventricle during the long ventricular pauses. The rapidity with which the block cleared up suggests that it was not due to some destructive lesion of the A-V bundle, but to some toxic or acute inflammatory process. The patient's history and the slight fever on the day of admission to the hospital indicate that she had recently had an acute infection. The presence of an old endocarditis and possibly a chronic myocarditis indicated by the history and the presence of mitral regurgitation may have been a contributory factor.

37. **Muscular Dystrophy.**—The metabolism in nine cases of muscular dystrophy was studied by the authors. In addition to certain disturbances in the creatinin creatin metabolism, there was observed constant hypoglycemia and impaired utilization of carbohydrate. The metabolic picture presented is essentially the same as that recorded in the diseases of unquestionable endocrine origin (myxedema, hypopituitarism and Addison's disease) and after experimental removal of the thyroid or suprarenal glands in animals. In view of these metabolic findings, also the clinical as well as pathologic, the authors believe that it seems justifiable to regard muscular dystrophy a result of dysfunction of the ductless glands.

38. **Acute Nephritis.**—Studies were made by Mason in three cases of acute nephritis which demonstrate that in very severe cases of acute nephritis the kidney function during the early stages is much better than the actual state of the kidneys would seem to warrant. This is due to the increased stimulation from which they are suffering. With the subsidence of the inflammation the function tends to fall to a very low level, which level is more truly an index of the kidney state. As convalescence is established this level tends to return to that at which the kidneys remain permanently damaged. This "slump" in function takes place simultaneously with a marked improvement in the clinical condition of the patient. Theophyllin probably acts in part by lowering the chlorid threshold, thereby allowing the chlorids to pass out of the blood plasma, water following.

40. **Lymphoid Hyperplasias.**—Since the lymphoid tissues are so frequently exposed to the action of bacterial toxins and irritants brought to them in solution from absorptive surfaces of vast extent, and since, in these circumstances, they so often display a definite tendency to respond to irritation by hyperplasia of their cellular constituents, Symmers thinks it not improbable that a like reaction is to be held responsible for the inception of certain types of disease characterized by overgrowth of lymphoid cells, local or general. If the irritant is withdrawn after the lapse of a reasonable interval of activity the cellular reaction in the lymph node ceases and the hyperplastic process is withdrawn. If, however, the irritant continues to act it appears to be inevitable that the cellular response will also continue. Finally, a time is to be expected at which, either as a result of the activity of the same irritant, or, more probably, as the result of the formation of a self-perpetuating toxin in the lymph nodes concerned, the reaction is converted into a process characterized by indefinite hyperplasia. In the absence of a better explanation, this, according to Symmers, is a not illogical method of accounting for the origin of the lymphosarcomas and for similar otherwise inexplicable lesions of the lymphoid system, including not only certain localized lymphoid hyperplasias, but chronic lymphatic leukemia, pseudoleukemia and the like.

41. **Chemical Changes in Blood and Urine in Progressive Muscular Dystrophy.**—In three cases of progressive muscular dystrophy McCrudden and Sargent found: (1) muscular weakness, (2) hypoglycemia, (3) hypocholesterinemia, (4) creatinuria, (5) normal ammonia excretion, (6) a rise of blood sugar in the treated patients with a parallel increase in strength.

42. **Pathologic Process in Progressive Muscular Dystrophy.**—The facts marshaled by McCrudden indicate that the myasthenia of progressive muscular dystrophy is due to hypoglycemia; that the hypoglycemia and fatty infiltration are due to impaired glycogenesis, the carbohydrate of the food being probably changed largely to fat instead of glycogen; and that this impaired glycogenesis is the result of suprarenal or other endocrine disease.

43. **Effect of Thyroid Secretion on Cardiac Vagus.**—Levy found that in cats pithed to midthorax, repeated stimulation of either vagus with a given strength of stimulus results in a uniform series of responses, both as to degree of depressor effect and duration of cardiac inhibition. After inducing secretory activity in the thyroid gland, even at a time when increased pressor response to a given dose of epinephrin gives evidence that there has been a pouring out of thyroid secretion, there is no significant alteration in depressor effect or duration of cardiac inhibition following stimulation of either vagus nerve. It is therefore evident that after the thyroid gland has liberated its secretion in sufficient amount to sensitize the sympathetic structures acted on by epinephrin in raising arterial pressure, there is no demonstrable effect on the excitability of the endings of the cardiac vagus.

46. **Experimental Intestinal Obstruction.**—South and Hardt summarize their findings as follows: 1. A majority of the dogs with isolated loops succumb to perforative peritonitis. 2. But the development of toxic symptoms and death may occur independently of peritonitis. 3. Symptoms on injection of loop contents are different from those due to absorption. 4. Washing of the loop delays the development of symptoms and onset of death. 5. Loss of body weight is not great enough to be an important factor in the process. 6. Overdistention and strangulation are not necessary factors in the development of symptoms. 7. Animals may live indefinitely with loops draining externally. 8. Animals may live indefinitely with loops draining directly into the peritoneal cavity. 9. Dogs may continue well and active with enormously distended loops that have closed spontaneously.

### Boston Medical and Surgical Journal

Feb. 7, 1918, **178**, No. 6

47 Laboratory Methods in Tuberculosis. B. White, Otisvile, N. Y.—p. 175.
48 Problem of Physical Selection Applied to Large Numbers of Applicants. A. F. Downing, Cambridge.—p. 177.
49 Reeducating German War Cripples at Düsseldorf. D. C. McMurtrie, New York.—p. 182.
50 Physical Selection in Its Relation to Heart and Lung Conditions. M. J. Cronin, Boston.—p. 187.
51 *Study of Kidney Function in Senility. W. C. Rappeye, Foxboro. —p. 191.

51. **Kidney Function in Senility.**—Rappleye's study was made on a group of forty-one patients, whose ages ranged from 70 to 88 years. These patients were free from gross evidences of renal insufficiency or other compromising conditions (fever, edema, dyspnea, anemia of note, etc.) and most of them were active workers. Under the conditions of diet and hospital routine the upper normal value of blood urea nitrogen is considered as 15 to 16 mg. per 100 c.c., the blood being drawn before breakfast, twelve to fourteen hours after the preceding meal. Of the cases studied 50 per cent. showed a moderate degree of retention, using the blood urea nitrogen figures as a criterion. Fifty per cent. of the cases showed a systolic blood pressure of 160 mm. or over; a higher percentage showed a diastolic pressure of 85 to 90 mm. or over. The blood pressure readings cannot be said to be related to either the blood urea nitrogen or to the rate of elimination of phenolsulphonephthalein. In twenty-seven cases in which the elimination of phenolsulphonephthalein was determined, thirteen showed a value of 40 per cent. or lower; nine of these were 35 per cent. or lower. A low value of elimination of the dye is associated for the most part with an elevated blood urea nitrogen. A good excretion is related for the most part with a relatively low blood urea nitrogen. Of the cases, 25 per cent. showed albumin in the urine. There were no cases of glycosuria or hematuria. Practically all of the cases showed casts, a customary observation. Sixty-six per cent. of the cases showed either an elevated blood urea nitrogen or a depressed value of phenolsulphonephthalein elimination (40 per cent. or lower). If one disregards the findings of only a few casts in the urine and diregards the blood pressure also, it can be said that, in the group of patients studied, about 70 to 75 per cent. show easily demonstrable evidences of kidney insufficiency. In this group there are several cases showing a relatively low blood urea nitrogen and a good renal function, but which have a considerable elevation of blood pressure, the so-called cases of essential hypertension.

### California State Journal of Medicine, San Francisco

February, 1918, **16**, No. 2

52 Tuberculosis of Eye. P. H. Pierson, San Francisco.—p. 74.
53 Complement Fixation in Tuberculosis. B. Jablons, San Francisco. —p. 79.
54 Differentiation of Syphilitic and Tuberculous Pulmonary Lesions. W. C. Klotz, Los Angeles.—p. 82.
55 Metabolism and Disease. L. M. Breed, Pasadena.—p. 85.
56 Practical Value of Complement Fixation Test for Gonorrhea. M. Krotoszyner, San Francisco.—p. 90.

### Florida Medical Association Journal, Jacksonville

January, 1918, **4**, No. 7

57 Anatomy of Bladder. F. J. Walter, Daytona.—p. 191.
58 Treatment of Cystitis of Aged. J. Reeve, Deland.—p. 192.
59 Histology of Prostate and Bladder. L. C. Ingram, Deland.—p. 194.
60 Physiology of Kidneys. J. W. Stephens, Deland.—p. 195.
61 Cystitis Complicating Enlarged Prostate. D. T. Smith, Daytona. —p. 196.
62 Treatment of Cystitis. C. C. Bohannon, Daytona.—p. 197.
63 Tuberculosis of Bladder. W. C. Chowning, New Smyrna.—p. 197.
64 Etiology and Pathology of Cystitis. V. Z. Baerecke, Deland. —p. 199.

### Illinois Medical Journal, Chicago

February, 1918, **33**, No. 2

65 *Diagnosis of Age of Fetus by Roentgenograms. J. H. Hess, Chicago.—p. 73.
66 Malaria. J. W. Barrow, Carbondale.—p. 88.
67 Obstetrics in Country Practice. J. S. Templeton, Pinckneyville.—p. 90.
68 Extra-Uterine Pregnancy; Report of Case. J. B. Moore, Zeigler. —p. 93.
69 Tuberculosis. M. W. Harrison, Collinsville.—p. 96.
70 Plea for Intensive Treatment of Nervous Diseases. D. S. Booth, St. Louis.—p. 98.
71 Diagnostic Value of Roentgen Ray in Advanced Pulmonary Tuberculosis. M. Biesenthal and E. P. Carroll, Chicago.—p. 101.
72 Chronic Lead Poisoning in Etiology of Pernicious Anemia. A. F. Byfield, Chicago.—pp. 104.
73 Fractures of Pelvis and Resulting Injuries to Urethra and Bladder. H. C. Mitchell, Carbondale.—p. 107.

65. Also published in the *American Journal of Diseases of Children;* abstracted in The Journal, Dec. 29, 1917, p. 2208.

### Journal of Experimental Medicine, Baltimore

February, 1918, **27**, No. 2

74 *Progress of Cicatrization of War Wounds. T. Tuffier and R. Desmarres, Paris, France.—p. 165.
75 *Studies of Oxygen Unsaturation in Venous Blood of Patients with Circulatory Disturbances. C. Lungsgaard, New York.—p. 179.
76 *Oxygen Determinations on Five Patients with Compensated Circulatory Disturbances. C. Lundsgaard, New York.—p. 199.
77 *Oxygen Determinations on Five Patients with Incompensated Circulatory Disturbances. C. Lundsgaard, New York.—p. 219.
78 *Factors Concerned in Appearance of Nucleated Red Blood Corpuscles in Peripheral Blood. C. K. Drinker, K. R. Drinker and H. A. Kreutzmann, Boston.—p. 249.
79 Skin Ferments. E. Sexsmith and W. F. Petersen, Chicago.—p. 273.
80 Intravenous Serotherapy of Weil's Disease (Spirochaetosis Icterohemorrhagica). R. Inada, Y. Ido, R. Hoki, H. Ito and H. Wani, Japan.—p. 283.
81 *Distribution of Spirochaeta Icterohemorrhagiae in Organs after Intravenous Serum Treatment. R. Kaneko and K. Okuda, Japan.—p. 305.
82 *Therapeutic Experiments with Rosenow's Antipoliomyelitic Serum. H. L. Amoss and F. Eberson, New York.—p. 309.

74. **Cicatrization of War Wounds.**—Some hypothetical conclusions bearing on the evolution of cicatricial tissue are suggested by Tuffier and Desmarres. The arterial circulation deposits in the wound chemical substances necessary for contraction of the wound and for epithelial proliferation. When the biologic process is not hindered by any special or severe bacterial infection this deposit is as regular as the circulation itself, and enables us to determine in advance the date of cicatrization. It even seems as though when the epidermization process is retarded by a slight infection the substances necessary for epidermization are stored up in the wound, and when the delay due to infection is removed the epithelium finds an accumulation of nutritive substances, and, so to speak, makes up the lost time. Moreover, when an infection entirely or partially stops epidermization, the authors have observed that after the infection has disappeared the progress of new epidermization is much more rapid than normally; it even passes the calculated curve. The infection apparently destroyed only the epithelium and left in the wound the chemical substances which activate epidermization. The existence of these physical or chemical activating agents has been indicated again by two anatomic clinical facts. In treating a scalp wound in which there had been practically no epidermization for many months. Tuffier and Desmarres applied over the entire surface of the sterile wound dermoepidermic grafts of fetal skin. After apparently taking, the grafts were absorbed and disappeared, but epidermization of the periphery of the wound, which hitherto had not progressed, took place abundantly, almost a hundred times as much as before. The authors believe that by mathematical measurements they can solve the problem of the action of various organic fluids on the cicatrization of wounds.

75. **Oxygen in Venous Blood with Circulatory Disturbances.**—Thirty-one determinations of the total oxygen combining power and the oxygen in the venous blood from vena mediana cubiti of sixteen resting patients are reported by Lundsgaard. The difference between the total oxygen capacity of the hemoglobin and the oxygen in the venous blood, the oxygen unsaturation, is calculated. In twelve patients with compensated heart lesions the unsaturation was found within normal limits, between 2.5 and 8 volume per cent. In four patients with incompensated heart disease the values for the unsaturation were all above the normal limit, from 9.7 to 15.2 volume per cent. A general discussion of the problem of interpreting the results is given. A comparison is drawn between the oxygen consumption calculated from direct

determination of the blood flow on a normal person (the author) and the oxygen unsaturation determined four years later on the same person. A close agreement between the two series of values exists.

76. **Oxygen in Venous Blood with Compensated Circulatory Disturbances.**—Forty-six determinations of the oxygen unsaturation, that is, the difference between the venous oxygen and the total oxygen capacity of the hemoglobin, have been done in five patients with compensated circulatory disturbances. Values within normal limits and near or below the normal average were found in four patients with regular pulse. In one patient with mitral insufficiency and arrhythmia perpetua extremely varying values were encountered. Six determinations were made; in one instance the value was within normal limits, in five above, and in one of those even higher than in most cases of incompensated heart lesions. A comparison is drawn between the directly determined oxygen unsaturation in these patients and the oxygen consumption calculated from previous experiments by Lundsgaard, in cases in which the blood flow was determined directly by the nitrous oxid method. A close parallelism is found.

77. **Oxygen in Venous Blood with Incompensated Circulatory Disturbances.**—This is a report of 103 determinations of the oxygen unsaturation of the venous blood of five patients with incompensated heart diseases. Values for the oxygen unsaturation within normal limits were found only under two circumstances: (*a*) in a stage of full compensation, and (*b*) in a stage of incompensation in which the symptoms were rapidly lessening. Values above the upper normal extreme were met with under three circumstances: (*a*) during incompensation, (*b*) during compensation just before the clinical symptoms of incompensation had developed, and (*c*) at times in patients with auricular fibrillations in a condition of complete and stable compensation. A comparison has been drawn between the directly found value for the oxygen unsaturation and the values for the oxygen consumption calculated from previous experiments by the writer on the blood flow (minute volume of the heart), in patients with similar clinical conditions. A close agreement existed. It seems probable from experience with patients under digitalis therapy that the oxygen unsaturation affords an objective criterion of the positive effect of the therapy.

78. **Nucleated Red Blood Corpuscles in Peripheral Blood.**—The authors found that increase in circulatory rate caused by hard exercise has no power to dislocate nucleated red cells from the bone marrow either in normal, in anemic, in hyperplastic, or in anemic and hyperplastic animals. In anemic and hyperplastic animals pseudocrises of nucleated red cells can be produced at certain periods by hard exercise, but careful analysis leads inevitably to the conclusion that the increase in these cells is merely a more accurate expression of circulatory content at the time of the procedure. Section of the vasomotor nerves to the four limbs with consequent dilatation of the marrow vessels and increased blood flow through the tissue does not result in the freeing of nucleated red cells from the bone marrow.

81. **Distribution of Spirochaeta Icterohemorrhagiae after Serum Treatment.**—On the bases of their findings the authors believe that they are justified in saying that the immune serum of Weil's disease is capable of destroying the spirochetes found within the organs in man, with the exception of the kidneys, and that the action of the serum on the spirochetes is spirochetolytic and spirocheticidal. The scattered spirochetes in the kidney, on the other hand, are resistant to the action of the immune serum. The spirochetes disappear almost completely from the organs during the convalescent stage of Weil's disease, even when no serum has been administered. The only organ to be excepted is again the kidney, but no comparison between serum treated and nonserum treated cases should be made in this respect, for spirochetes are found numerously in the kidneys even with serum treatment. The disappearance of the spirochetes from the organs and tissues in Weil's disease seems to be not so marked with the subcutaneous serum treatment as with the intravenous method, but the manner of their disappearance is about the same.

82. **Rosenow's Antipoliomyelitic Serum.**—Two series of experiments are described by Amoss and Eberson in which Rosenow's antipoliomyelitic serum, so called, has been compared with the immune serum derived from monkeys which have convalesced or recovered from experimental poliomyelitis. The results of the experiments are unequivocal. They show the Rosenow serum to be devoid of protective power. Moreover, they show that the Rosenow serum acts in the manner of normal horse serum in promoting infection in monkeys from an intravenous injection of the virus, in itself incapable of inducing paralysis. The immune monkey serum possesses, under the same conditions of administration, perfect protective power, as has been shown previously by Flexner and Amoss. The Rosenow serum acts in the manner of normal horse serum; it promotes the passage of the virus of poliomyelitis from the blood into the nervous organs, and it does not protect from infection. The authors have found no evidence that Rosenow's serum under the conditions of the tests is effective therapeutically in monkeys or possesses antibodies of the same nature as those present in the blood of monkeys which have recovered from experimental poliomyelitis.

### Kentucky Medical Journal, Bowling Green

February, 1918, **16**, No. 2

83 Treatment of Infected Wounds; Carrel's Technic. G. Loewy, France.—p. 63.
84 Tuberculosis. S. Graves, Louisville.—p. 67.
85 Treatment of Diabetes Mellitus and Complications. H. A. Gilliam, Milburn.—p. 71.
86 Gastric and Duodenal Ulcer. U. V. Williams, Frankfort.—p. 73.

### Medical Record, New York

Feb. 9, 1918, **93**, No. 6

87 Some Therapeutic Considerations of Periodic Mental Depressions. L. P. Clark, New York.—p. 223.
88 Food; Classification of Foods; Preparation of Foods. F. F. D. Reckord, Harrisburg, Pa.—p. 229.
89 *Problem of Neurotics in Military Service. A. Gordon, Philadelphia. —p. 234.
90 Thyroid Disease and War. S. P. Beebe, New York.—p. 237.
91 Exaggerated Views About Contagion and Outcome of Pulmonary Tuberculosis. B. Robinson, New York.—p. 238.
92 *Sterilization and Purification of Water with Isotonic Sodium Hypochlorite Solution. W. G. Fralick, New York.—p. 239.

89. **Neurotics in Military Service.**—Gordon directs attention to the fact that types, varieties, and subvarieties of neurotics are many. While all are unfit for actual military work at the firing line, some of them nevertheless are capable of performing some duties of a nature different from fighting. A good number of them could be utilized for work of a secondary character behind the firing line and thus release the men who are more fit to face the enemy. A large contingent of good and strong men will thus be added to the fighting force. The home examining psychiatrist after a profound study of the recruit's personality will determine the variety of the neurosis and the degrees of its development, and will thus be able to make suggestions and recommendations to the military authorities as to the kind of work a given neurotic individual could be assigned to. A systematic plan can be worked out by which the examining psychiatrist will familiarize himself with the multifarious duties incidental to military service in wartime so as to be able to make the proper recommendation in behalf of those neurotic men who are not totally rejected.

92. **Purification of Water with Isotonic Sodium Hypochlorite Solution.**—Fralick has proposed and demonstrated the use of two chemicals for water purification in emergency outfits (Lister bags), so as to produce a safe water, entirely free from objectionable tastes and odors. To do this he has recommended the use of the isotonic sodium hypochlorite solution as a disinfection and the neutralization of the excess sodium hypochlorite by peroxid of hydrogen sodium hypochlorite + hydrogen dioxid = sodium chlorid + water + 20, while the effectiveness of this method had been repeatedly demonstrated at his laboratory, field tests under army conditions were conducted and the testimony of a number of sanitary experts obtained. There was a unanimous opinion expressed that water neutralized with the hydrogen dioxid

was entirely free from any objectionable or even noticeable taste or odor, while bacterial tests demonstrated its freedom from micro-organisms. In view of the disagreeable and probably injurious qualities of water disinfected with calcium hypochlorite, in emergency outfits (Lister bags), and in view of the fact that troops avoid drinking this water, Fralick recommends its discontinuance.

### Medicine and Surgery, St. Louis

January, 1918, **2**, No. 1

93 Tetany and Parathyroid Glands. W. F. Koch, Detroit.—p. 9.
94 Function of Suprarenal Glands. T. Tieken, Chicago.—p. 18.
95 Treatment of Certain Forms of Asthma with Ovarian Substance and Corpus Luteum. M. Fishberg, New York.—p. 26.
96 Bit of Hormonology with Practical Applications. E. A. Tracy, Boston.—p. 35.
97 Clinical Endocrinology in General Practice. H. R. Harrower, Los Angeles.—p. 41.
98 Treatment of Goiter with Quinin and Urea Injections. L. F. Watson, Chicago.—p. 49.
99 Syphilis of Kidney. H. A. Fowler, Washington, D. C.—p. 54.

### Michigan State Medical Society Journal, Grand Rapids

February, 1918, **17**, No. 2

100 Fractures of Skull; Report of Cases. L. J. Dretzka, Detroit. —p. 47.
101 Future of Medicine. W. H. Smith, St. Clair.—p. 52.
102 Etiology of Thyroid Hyperplasia. B. N. Epler, Kalamazoo.—p. 56.
103 Tics or Habit Spasm. D. Inglis, Detroit.—p. 58.

### Missouri State Medical Association Journal, St. Louis

February, 1918, **15**, No. 2

104 Congenital Constrictions of Gastro-Intestinal Tract. O. F. Bradford, Columbia.—p. 39.
105 Protein Indigestion in Infant. J. Zahorsky, St. Louis.—p. 46.
106 Use of Roentgen Ray on Gastro-Intestinal Tract of Children. J. Aull, Kansas City.—p. 48.
107 Fractures of Humerus. R. A. Woolsey, St. Louis.—p. 50.
108 Pupil—from Ophthalmologist's Standpoint. H. D. Lamb, St. Louis. —p. 52.
109 Tooth Pulp Stones and Their Relation to Tic Douloureux. F. W. Brownfield, Chicago.—p. 53.

### Modern Hospital, St. Louis

February, 1918, **10**, No. 2

110 Transformation of Dwelling House into Hospital. E. F. Stevens, Boston.—p. 75.
111 Economy in Management of Small Hospitals. W. Morritt, Colorado Springs, Colo.—p. 79.
112 Saranac Lake General Hospital, Saranac Lake, N. Y. H. L. Walker, New York.—p. 82.
113 Children's Clearing Bureau of New York. F. C. Brooke, New York.—p. 85.
114 Economical Isolation Hospital. H. B. Dox, Peoria, Ill.—p. 88.
115 Occupations for Outpatients at Massachusetts General Hospital. J. F. Bresnahan, Boston.—p. 90.
116 Small Hospital with Up-To-Date Features. J. E. Broyles, Kalamazoo, Mich.—p. 92.
117 Standardization of Hospitals—Classes, VIII, IX, X, XI, XII and XIII. J. A. Hornsby and others.—p. 95.
118 Kistler Memorial Home for Nurses of Lock Haven Hospital. C. Happersett and L. H. Rush, Philadelphia.—p. 101.
119 Control of Exercise in Pulmonary Tuberculosis. H. L. Staring, Valmora, N. M.—p. 104.
120 How Small Hospital May Give High Grade Service. F. W. Shelton, Independence, Kan.—p. 112.
121 Individualty of Mentally Defective Persons. H. MacMurchy, Ontario, Canada.—p. 113.
122 Some Hindrances to Adoption of University Standard in Small Hospitals. C. M. Perry, Malden, Mass.—p. 117.

### New Orleans Medical and Surgical Journal

February, **70**, No. 8

123 *Some Principles of Anthelmintic Medication. M. C. Hall, Detroit. —p. 637.
124 Fate of Ova of Ankylostoma Ingested by Larvae of Musca Domestica. P. L. Querens, New Orleans.—p. 653.
125 Excessive Feeding Cause of High Per Cent. of Infant Mortality. J. B. McMahon, De Ridder.—p. 655.
126 Chancre of Nipple. Carotid Body Tumor. Ruptured Rectus Femoris Muscle, Chronic Myositis. Dislocation of Sternal End of Clavicle (Forward). Fracture of Surgical Neck of Humerus. Dichloramin-T. Splints. I. Cohn, New Orleans.—p. 657.
127 Theory of Germ of Yellow Fever. E. M. Albers, Galveston, Texas. —p. 663.

123. **Principles of Anthelmintic Medication.**—Hall points out that anthelmintics are selective in their action; at least their dependable effectiveness is limited to certain sorts of worms. Certain kinds of worms require not only a suitable anthelmintic, but also suitable modes of medication, whereas other worms only require the simple administration of a single therapeutic dose of a suitable drug. Forms like the ascarids, which inhabit the small intestine and lie unattached in the lumen, are readily accessible to the ordinary types of anthelmintics. Forms like the hookworm, which attach for indefinite periods to the intestinal mucosa and occasionally detach and remain free in the lumen of the intestine for a time before attaching again, show a response to anthelmintics which may perhaps be correlated with this habit of attaching and detaching. Forms like the whipworm, located for the most part in the cecum are apparently not always exposed to the action of anthelmintics even when adequate doses of potent drugs are given. Fluidextracts or other preparations using alcohol as a solvent for active anthelmintic ingredients are frequently unsuitable as anthelmintics. These alcoholic preparations are often rapidly absorbed, largely in the stomach and duodenum, occasioning more or less irritation at the point of absorption and producing systemic effects of a more or less toxic nature. The considerable and rapid absorption leaves a comparatively small amount of drug available for actual anthelmintic action, and by the same token leaves the minimum of drug that could possibly be removed by purgation after exerting its anthelmintic effect. Anthelmintics of the supposedly insoluble type are not as insoluble as they are commonly supposed to be.

There are two factors to be considered in connection with the rate of absorption. One is the local effect of rapid absorption and the other is the systemic effect. When such toxic drugs as anthelmintics are rapidly absorbed, it means that the brunt of the irritation and insult due to the drug is borne by a rather limited section of the digestive tract; that a large amount of comparatively concentrated drug is taken in over the gastric and duodenal mucosa, and possibly by that of the upper jejunum. It would appear that what is desired in anthelmintic administration is, first, as little absorption as possible, and second, since there must be some absorption, probably a large amount as a rule, it is desirable to retard that absorption in order to distribute it over as large a surface of the gastro-intestinal mucosa as possible and to allow the maximum time for the body gradually to dispose of the drug by oxidation and elimination. Some anthelmintics do not need to be allowed "time to act" on the worms before purgatives are administered. The above proposition is stated tentatively. Preliminary fasting is important. Gastric stasis might occasionally interfere with the efficacy of anthelmintics. The passage of worms following anthelmintic treatment is a better indication for repeating or continuing treatment than for stopping treatment. Severe helminthiasis calls for caution in administering anthelmintics. While the majority of worms passed after anthelmintic treatment come away in the first twenty-four hours after treatment, there is a fairly large percentage which will commonly come away from one to six or seven days later.

### New York Medical Journal

Feb. 9, 1918, **107**, No. 6

128 Vertigo. C. Graef, New York.—p. 241.
129 Wandering Dropsical Gallbladder; Report of Case. J. L. Amster, New York.—p. 244.
130 *Raynaud's Disease. G. Rubin, Chicago.—p. 246.
131 Kidney Infection as Result of Pyorrhea. F. S. Crockett, LaFayette, Ind.—p. 247.
132 Safeguards in Manufacture of Explosives. W. G. Hudson, New York.—p. 248.
133 *Blood Pressure in Head Injuries. H. M. Armitage, Chester, Pa. —p. 250.
134 Analysis of Seven Cases of Friedreich's Ataxia. M. Osnato, New York.—p. 255.

130. **Raynaud's Disease.**—Rubin cites a case treated by him with vaccines. The injections were made every fourth day, given subcutaneously and in varying locations in arms, thighs and back. A small Luer syringe with a twenty-four gage needle was used. At the eighth injection of the vaccine, at the instant the needle was plunged into the skin, at about the level of the sixth dorsal vertebra and about 2 inches to the right of the spinous processes, the skin blanched to almost

snow whiteness, extending to the left of the spinous processes; the appearance was almost symmetrical, except that the area to the left of the spinous processes was somewhat larger than that to the right. The whole area was about 10 cm. across and 7 or 8 cm. vertically. The patient felt a sharp stinging pain not experienced on previous occasions. The ischemia was still present when the patient left the office a half hour later. The following day the area assumed a dark purple hue and the patient complained of severe burning pain and being kept awake all night. It was then evident that the case was one of angioneurosis and from general indications it corresponded unmistakably to the Raynaud's symptom complex variety. With the exception of the site it was a classical textbook case. The sloughing of the tissues continued for about three weeks and it healed very slowly. The skin and subcutaneous structure, including muscle, were destroyed.

133. **Blood Pressure in Head Injuries.**—According to Armitage blood pressure readings are only of negative value in head injuries where compression of the brain with medullary involvement has not occurred. In severe fractures of the base with widespread hemorrhage, blood pressure readings are valueless. In all other fractures of the skull with compression and medullary involvement, blood pressure readings form one of our most important symptoms, but contrary to all teachings, Armitage believes the systolic pressure to be of no value whatever as a diagnostic measure in determining the degree of compression of the brain and aiding in the decision as to the advisability of an operation. These cases show conclusively that the pulse pressure is proportionately high in cases of traumatic compression of the brain and the more serious the compression the higher the pulse pressure until the last stages when vasomotor compensation begans to fail. They also prove that the pulse pressure ascends as the pulse rate descends in each case until finally the pulse pressure becomes greater than the pulse rate and when this has occurred compression has always been present. It would be folly, however, to wait deliberately for this phenomenon to occur before operating in cases in which a proportionately high pulse pressure was rising and the pulse rate falling. The choice whether or not a patient should be trephined must be made with a moderation of counsel and temperateness of judgment. Under such circumstances the final decision must always be formed from the study of the entire group of symptoms; the most important one is the frequent estimation of the pulse pressure in its relation to the pulse rate and systolic and diastolic pressures.

### Oklahoma State Medical Association Journal, Muskogee

February, 1918, **11**, No. 2

135 Acidosis and Recent Methods of Demonstrating It. O. J. Walker, Oklahoma City.—p. 41.
136 Tonsillectomy by Modification of Sluder Technic. E. F. Stroud, Tulsa.—p. 51.
137 Acute Suppurative Otitis Media. W. A. Cook, Tulsa.—p. 54.
138 Iridocyclitis Due to Focal Infection from Tooth; Report of Case. L. M. Westfall, Oklahoma City.—p. 61.
139 Is the Middle Turbinate Bone Essential? L. C. Kuyrkendall, McAlester.—p. 65.
140 Medical Nomenclature. H. B. Gwin, Tulsa.—p. 67.

### Ohio State Medical Journal, Columbus

February, 1918, **14**, No. 2

141 Local Infection as Causative Factor in Production of Duodenal and Gastric Ulcer. W. D. Haines, Cincinnati.—p. 77.
142 Classes for Conservation of Vision in City Public Schools. R. B. Irvin, Cleveland.—p. 81.
143 Care of Perineum During Second and Third Stages of Labor. J. P. Gardiner, Toledo.—p. 83.
144 Factors to Be Considered in Treatment of Pelvic Infections. L. G. Bowers, Dayton.—p. 85.
145 Interpretation of Wassermann Test. T. Zbinden, Toledo.—p. 87.
146 Some Contraindications for Certain Gynecologic Operations. M. J. Longsworth, Lima.—p. 90.
147 An Outline of Health Survey. J. A. Tobey.—p. 93.

### Rhode Island Medical Journal, Providence

February, 1918, **2**, No. 2

148 Poliomyelitis, Anterior, Pathology, Symptoms, Indications and Treatment. W. B. Snow, New York.—p. 17.
149 Value of Speech Reading for Adult Deaf. M. A. Durfee, Providence.—p. 26.

### Southwestern Medicine, El Paso, Texas

February, 1918, **2**, No. 2

150 Case of Mitral Stenosis and Left Recurrent Paralysis. M. P. Schuster, El Paso.—p. 1.
151 Value of Careful History in Treatment of Chronic Digestive Disorders and Necessity of Postoperative Medical Treatment. E. C. Prentiss, El Paso.—p. 10.
152 A Little Mexican Medicine. B. Smith, Douglas, Ariz.—p. 14.
153 *Anomaly in Location of Terminal Ileum; Report of Case. F. T. Wright, Douglas, Ariz.—p. 17.
154 Obscure Fevers of Infancy and Childhood. J. A. Rawlings, El Paso.—p. 19.
155 Thrombosis of Mesentery; Report of Case. H. A. Miller, Clovis, N. M.—p. 25.

153. **Anomaly in Location of Terminal Ileum.**—In a man who had died following an operation for what had been diagnosed as chronic appendicitis, the following arrangement of the cecum and terminal portion of the ileum was found by Wright. The cecum was located in its normal place in the abdominal cavity. It was, however, as though rotated on its longitudinal axis about 180 degrees, so that the base of the appendix presented on the anterior and external aspect instead of on the inner and posterior. The ileum joined the cecum on its outer side, and, instead of running thence toward the middle of the abdominal cavity, ran directly outward and a little downward to the external abdominal wall, a distance of perhaps 3 inches. This portion of the ileum was provided with a mesentery which became shorter as the abdominal wall was approached and finally disappeared. When the ileum reached the abdominal wall it disappeared behind the peritoneal layer, and ran directly downward for about 4 inches, completely covered all the way with peritoneum, and intimately adherent to the subjacent tissues. It then emerged from behind the peritoneum, turned directly inward and upward, acquired a mesentery, and became, so to speak, its usual part of the normal abdominal contents. There was no indication that this condition was the result of any inflammatory process. This retroperitoneal portion of the ileum simply came over to the abdominal wall, lost its mesentery, disappeared in a tunnel beneath the peritoneum, emerged, acquired a mesentery, and proceeded back into the abdominal cavity where it belonged. The retroperitoneal portion was of decidedly smaller caliber than the adjacent portions.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Children's Diseases, London

October-December, 1917, **14**, No. 166-168

1 Ten Years' Experience of Ringworm in Public Elementary Schools. J. Priestley.—p. 241.
2 *Mental Deficiency and Binet-Simon Tests. J. Priestley.—p. 250.
3 *Cervical Glandular Enlargement in Children, as Evidence of Infection. E. B. Gunson.—p. 255.
4 Infantile Paralysis. S. G. Dixon.—p. 260.
5 Two Cases of Meningococcal Infection: Cultivation of Meningococcus from Serum of Vesicle in One of the Cases. A. Netter, M. Salanier and Blanchier.—p. 264.
6 Mongolism Associated with Congenital Cataract. F. P. Weber.—p. 267.
7 Congenital Heart Disease in Mentally Defective Child, with Negroid Mongoloid Facies. F. P. Weber.—p. 269.
8 Congenital Hirsuties in Child. F. P. Weber.—p. 272.
9 Case of Congenital Umbilical Hernia, Ectopia Vesicae and Imperforate Anus. F. C. Pybus.—p. 274.

2. **Mental Deficiency and Binet-Simon Test.**—According to Priestley the Binet-Simon tests have a value as a means of grading mentality especially as a rough-and-ready way of checking from a slightly different angle the opinion of the child's teacher. But, Priestley says, he never would be disposed to press the Binet-Simon results against the considered judgment of an experienced teacher who had had the child under observation for some months. The value of the tests as an aid in detecting mental deficiency is much more open to doubt. The tests certainly afford convenient standardized openings for conversation, during which one can observe the child's method of mental response, and the method of answering is generally a good deal more illuminating than the correctness or incorrectness of particular answers. So far they are useful, but as to considering every child defective who has a mentality three years behind its nominal age, that

would be a highly dangerous rule, and is out of the question. Priestley cannot recall a single case in which the Binet-Simon tests helped him to decide when he was in doubt before; the tests are ineffectual in cases in which they are not superfluous.

3. **Glandular Enlargement as Evidence of Infection.**—The symptoms presented by the adolescent patients examined by Gunson with symptoms suggesting cardiac disease, but who presented no signs of such disease or of disease in other symptoms, apart from the fauces were chiefly lassitude, exhaustion and breathlessness on slight exertion. In the majority of the cases no history of immediately preceding infection was obtained and the children were frequently brought to the hospital because the mother considered that there was something wrong with the child. The chief abnormal signs presented by many of these patients were slight or moderate enlargement of the upper deep cervical glands, associated with tonsillar enlargement in many cases; in others with faucial injection only. Such children not infrequently were poorly developed, with deficient expansion of the upper chest, but no demonstrable signs of pulmonary disease were present.

An investigation into the state of the cervical glands during the course of scarlet fever revealed several points of interest. One hundred consecutive children were observed throughout their stay in the hospital. Ninety-seven cases were mild, three cases were septic. Of the mild cases all patients recovered; one of the septic patients died on the thirty-fourth day. Ninety-one cases on admission presented enlargement of the tonsils and injection of the fauces. In nine cases there was no enlargement of the tonsils and in three cases the fauces were apparently normal. One patient, in whom tonsillectomy had been performed a few weeks before admission, had injected fauces; in this patient the tonsillar glands were enlarged.

Gunson says that while glandular enlargement is evidence of an infective process situated in the lymphoid tissue specifically drained by such glands, simple chronic glandular enlargement in young children is associated with malnutrition and alimentary and respiratory disorders. When the glandular enlargement persists into adolescence, or develops, these patients suffer from apathy, exhaustion, and dyspnea on slight exertion. The symptoms are sufficiently severe to suggest cardiac disease, which careful examination fails to reveal.

### British Journal of Tuberculosis, London

January, 1918, **12**, No. 1

10 Tuberculosis and War: Prevention is Better than Cure. L. Cobbett.—p. 16.
11 Tuberculous Army Recruit. P. J. Gaffikin.—p. 20.
12 Tuberculosis and Ministry of Health. W. H. Dickinson.—p. 22.
13 Future of Antituberculosis Campaign. T. E. Nuttall.—p. 26.

### Dublin Journal of Medical Science

January, 1918, **145**, No. 553

14 Acute Troubles of Bones. J. S. McArdle.—p. 1.
15 Some Preliminary Points in Diagnosis of Amebic Dysentery. J. Speares.—p. 6.
16 Complications of Scarlatina. W. S. Boyd.—p. 12.

### Journal of Laryngology, Rhinology and Otology, London

January, 1918, **33**, No. 1

17 Value of Endorhinoscopic Examination. M. Yearsley.—p. 1.
18 Primary Tuberculosis of Faucial Tonsils in Children. A. P. Mitchel.—p. 8. To be continued.

### Lancet, London

Jan. 19, 1918, **1**, No. 4925

19 Cerebrospinal Fever in Royal Navy. H. D. Rolleston.—p. 87.
20 Grouping of Meningococci into Types. P. Fildes and S. L. Baker. —p. 92.
21 *Study of P. U. O. (Pyrexia of Unknown Origin). W. Pasteur and B. Hudson.—p. 94.
22 Localization and Removal of Foreign Bodies by Combined Method of Radioscopy and Operation. R. Knox.—p. 96.
23 Treatment of Staphylococcal Infections by Stannoxyl, Furunculosis and Acne. A. Compton.—p. 99.
24 Case of Splenomegaly Treated by Splenectomy. G. R. Footner and R. G. Archibald.—p. 101.
25 Muscular Rheumatism; Its Diagnosis and Treatment by Physical Means. F. Radcliffe.—p. 102.
26 Bomb Wound of Abdomen. D. P. D. Wilkie.—p. 103.
27 Case of Threatening Sepsis of Knee-Joint Aborted by Injection of Flavine. W. H. Hillyer.—p. 103.
28 Case of Cutaneous Anthrax in Man Presenting Multiple Lesions. W. T. G. Davidson.—p. 104.

21. **Study of Pyrexia of Unknown Origin.**—Pasteur and Hudson suggest that the featureless aspect of so many cases diagnosed as P. U. O. may be just because they are the clinical expression of smoldering bacterial infections which have failed to become fully alight (active) and thereby more individualized and recognizable in their outward expression.

### Archives de Médecine des Enfants, Paris

September, 1917, **20**, No. 9

29 *Pneumococcus Invasion in Course of Meningococcus Meningitis. A. Netter and M. Salanier.—p. 449.
30 Hair Ball in Stomach of Girl of Thirteen. J. S. Dauriac.—p. 465; Ditto in Girl of Four. A. Broca.—p. 468.
31 Primary Cancer of Liver in Girl of Eleven. De Saussine and Others.—p. 472.
32 Recent Publications on Latent Otitis in Infants. J. Comby.—p. 476.

29. **Secondary Pneumococcus Infection in Meningococcus Meningitis.**—Netter and Salanier have encountered this association in five children among twenty-nine with epidemic meningitis. They have learned of other cases and here analyze a total of 22, with fatal outcome in all but 3 cases. The superposed infection usually developed when the meningococcus seemed to be under control. The pneumococci evidently penetrate from the nasopharynx to the meninges, and they seem to be able to destroy the meningococci already installed. The proper antimeningococcus serum is indicated, and, equally important, antipneumococcus serum should be given when the pneumococcus infection supplants the other. The children who recovered were those who had been given preventive injections of the antipneumococcus serum.

### Archives de Médecine et de Pharmacie Militaires, Paris

June, 1917, **67**, No. 6

33 *Chronic War Osteomyelitis. H. L. Rocher.—p. 717.
34 The Surgical Neurologic Center. C. Villandre.—p. 739.
35 *Crippling of the Hands. Daussat.—p. 763.
36 Fractures of the Crest of the Ilium. V. Planson.—p. 776.
37 *Diphtheria among the Troops. Labit.—p. 779.
38 *Cerebrospinal Meningitis. G. Laroche.—p. 788.
39 The Trapezius Sign in Pulmonary Tuberculosis. M. Loeper and H. Codet.—p. 812.
40 *Test Glycemia. M. Loeper and G. Verpy.—p. 817.
41 Operating and Roentgen Table. A. M. Fabre.—p. 824.
42 Frame for Suspension and Extension of Fractured Limbs. L. Bois.—p. 831.
43 *Test for Occult Blood. Thévenon and Rolland.—p. 850.

33. **Chronic Osteomyelitis.**—Rocher discusses in turn the various conditions liable to be encountered with osteomyelitis early or later after a war wound, and the measures to be applied. The nerve and other possible complications are also reviewed. When the callus is painful, there is great probability that there is latent infection. There is no specific treatment for osteomyelitis. Healing depends not only on a perfect and complete operation but also on the care and vigilance with which the focus is tended until definite healing. In smaller bones, like the ulna and fibula, cicatrization may be complete in two months, but with the femur, tibia and humerus three or four months may be required for this. Bone tissue is very slow in regenerating and seems to have the least power of defense against infection, hence healing is slow and reinfection facile. The dressings after operative treatment of osteomyelitis should be changed only by physicians familiar with bone surgery or nurses trained in the required care and skill. Inexpert change of dressings may undo all that has been accomplished. The chronic fistulas so common in the hospitals are due not only to incomplete and defective operative intervention but also to inexpert after-care.

35. **Crippled Hands.**—Daussat analyzes his experience with 2,750 wounded, of whom 50 per cent. had been wounded in the arms or hands. He discusses how the various degrees of crippling incapacity can be enumerated and classified. A nomenclature is proposed with graphic abbrevations both for anatomic and functional disabilities.

37. **Prophylaxis of Diphtheria among the Troops.**—Labit reports the results of treatment of bacilli carriers among the troops of the "ninth region." Diphtheria has always been endemic in this section, and at the outbreak of the war the troops gathering there soon developed cases. When four laboratories were installed with movable isolation barracks, the infection was brought under better control and the number of cases dropped from 1,450 in 1915 to 463 in 1916 and 110 in the first six months of 1917. The deaths totaled 26, 4 and 2 during these years. The proportion of carriers in the environment of cases of diphtheria averaged 28.9 per cent. but frequently surpassed 50 per cent. He found it impossible in the same building with cases of the disease to free the carriers effectually of bacilli. He consequently rented quarters at quite a distance from the barracks, and the carriers were kept there until three examinations at a week's interval gave negative findings. At Poitiers the men thus isolated were in a building with large gardens which they cultivated for their own profit. In some of the barracks, existing separate buildings were used; and houses where there had been cases of diphtheria were sometimes used for isolation of carriers. The same measures were applied to civilians as well as to the soldiers. Contaminated rooms are left open to the sun and air to the very longest period it is possible to keep them unused. In the diphtheria hospitals, special rooms are set apart for the examination of those entering, for those with mild diphtheria, for the grave cases, for convalescent carriers, and for the convalescent noncarriers. He sends to the hospital for bacteriologic examination every soldier with sore throat, and every man leaving for the front is so examined. He keeps back those with suspicious findings. Despite these precautions, men are occasionally set back from the front with diphtheria, or carriers, as a man may become a carrier at any moment when occasion presents. He found nineteen carriers among the nurses and male attendants at one surgical hospital unit when a case of diphtheria had developed. He regards the prompt sending to the hospital for bacteriologic examination of every man with sore throat of any kind as a most important element of the prophylaxis. Only when the physicians in the section cooperated effectually in this were the desired results obtained in larger measure. He does not mention the technic used for sterilizing the throat, but states that the inveterate chronic carriers impossible to free from their bacilli were kept in the hospitals, some staying there for several months.

38. **Epidemic Meningitis.**—Laroche reviews the experiences that have been published to date regarding the application of local serotherapy directly into the lateral ventricle since Cushing and Slaven ventured this in two cases in 1908. He then reports two cases from his own practice with recovery of one of the two young men. He suggests that the best technic for direct intraventricular injection of the antiserum may be learned on children as the fontanel facilitates puncture of the ventricle. One always hesitates before an operation on the adult skull with the man so sick as with meningitis. Laroche regards Cushing's temporal flap method as complicated and useless. He and Ramond trephine at a point 3 cm. below the median line and 3 cm. in front of the bregma. The needle is one designed for lumbar puncture, with a stout guide. It is pushed in for 4 or 5 cm., the tip pointed toward the opposite ear. If no fluid emerges, he withdraws the needle entirely and introduces it in another direction. Successive punctures do no harm to the brain, he reiterates, but if the tip were worked to and fro or around in the depths, the white fibers of the brain would be lacerated. The danger from puncture of the ventricle is minimal; the point selected avoids large arteries or the sinus. Some arteriole or small vein might be injured, of course; it might be well to use a needle with a rather blunt tip which would push the arteriole out of the way instead of cutting it. The amount of antiserum injected should not be over two-thirds of the amount of fluid withdrawn. A preliminary small injection by Besredka's technic serves to ward off anaphylaxis. Indications of sensitization to the serum call for great caution. If antiserum precipitins are found in the cerebrospinal fluid, it might be wise to vaccinate the patient according to Ramond's method. He mixes in vitro 6 c.c. of the antimeningococcus serum with 3 c.c. of the tyndallized cerebrospinal fluid, and injects the whole subcutaneously two days before he resumes the antiserum treatment. The danger of sensitization is another argument in favor of early trephining puncture before phenomena of sensitization can develop.

40. **Test Glycemia.**—Loeper and Verpy state that in epinephrin we have a means of estimating the power of the liver to transform glycogen into glucose just as we can test with alimentary glycosuria its power of forming glycogen. With epinephrin we can induce as it were an alimentary glycemia. They inject into the thigh 1 mg. of active epinephrin. In half an hour the blood shows, on an average, 0.73 gm.; in one hour 0.43 gm., and in three hours 0.24 gm. In a normal person there is an increase of about 0.40 gm. by the end of the first hour. This is the standard taken for the test. In twenty-two men with acute or chronic liver disease, the epinephrin glycemia was found exaggerated in cases of acute irritation of the liver and notably subnormal in cases of defective liver functioning. The disappearance of the glycemia in the course of liver disease is a sign of aggravation, and may indicate a speedily fatal outcome. If the epinephrin glycemia varies in the course of a stomach, bowel or nervous disease, this shows that the liver functions are becoming depressed also.

43. **Test for Blood in Body Fluids and Stools.**—The test described is based on the change of tint of pyramidon when brought in contact with oxidizing substances. The reagents are (1) a solution of 2.5 gm. pyramidon in 50 c.c. of alcohol (90 degrees), and (2) a solution of 1 c.c. of crystalline acetic acid in 2 c.c. of distilled water. To 3 or 4 c.c. of urine are added the same volume of the pyramidon solution and six or eight drops of the acetic acid solution. To this mixture are now added five or six drops of hydrogen dioxid at 12 volumes. The tint changes instantaneously to violet if there is much blood present, and even if there are only traces the reaction occurs within fifteen minutes, the bluish violet tint reaching its height and then disappearing. In examining feces, a small lump is triturated with 3 or 4 c.c. of distilled water and filtered. To the filtrate are then added 3 or 4 c.c. of the acetic-pyramidon reagent and then six drops of the hydrogen dioxid, and the whole is agitated. The tint changes to a bluish violet in proportion to the amount of blood present. Thévenon and Rolland state that they have applied this test to various body fluids and stools, with parallel phenolphthalein tests according to Meyer's technic. The tests gave invariably the same results. The pyramidon test is thus equally sensitive while it is simpler, the reagents keep well, and the test can be applied indiscriminately to various body fluids.

### Le Nourrisson, Paris

September, 1917, **5**, No. 5

44 Functional Disturbances with Digestive Disease in Infants. A. B. Marfan.—p. 257.
45 *Infant Welfare Work in Belgium. R. van Roy.—p. 267.
46 Calculi in Prepuce of Small Child. Ramaroni.—p. 270.
47 *Modification of Cow's Milk for Infants. A. B. Marfan.—p. 272.

45. **Welfare Work for Infants in Belgium.**—Van Roy states that in no other country is the system of infant consultations so extensively applied as in Belgium. He is convinced, he says, that four-fifths of the pediatrists of Belgium have an office for giving free advice to infants. They usually have two or three rooms equipped for the purpose, apart from their regular office, a waiting room, the room in which the children are undressed and weighed and the consulting room. Each infant has its card, and a nurse helps to weigh the children. This is usually some charitable volunteer. All the hospitals have these free consultations. At Antwerp the "Associated Charities" has five in different parts of the city and prospective mothers are visited and looked after. Milk and gruels are distributed, and the infant mortality of Antwerp is exceptionally low.

47. **Modification of Cow's Milk for Infant Feeding.**—Marfan gives the history of efforts in this line by various pediatrists in different countries. The practice he has found most advantageous is to give milk half and half with boiled water

sweetened to 10 per cent. the first days, and two-thirds milk to one-third sweetened water during the first four months, and after this three-fourths to one-fourth. If the child is thriving, then pure milk sweetened a little can be given. If digestive disturbance develops, he returns to the one-fourth or one-third mixture. When these modifications are well mixed and well sterilized, most healthy infants digest them perfectly. Constipation is less than with pure sterilized milk; the stools are softer and yellow, although not quite like those of the breast-fed. Vomiting is as rare as diarrhea. The children do not gain in weight as fast as the breast-fed, but the difference is not great, and it is soon made up, thanks to the soundness of the digestive tract, when the time comes for the pure milk. The water used is not sweetened at all during the first week; after that it is sweetened with saccharose. The water is boiled for two or three minutes and the sweetening added while it is boiling. If the sterilization is done in a water bath, the milk and the sweetened boiled water can be mixed beforehand. He prefers to have only half the daily quantity of the sweetened water prepared at one time.

### Presse Médicale, Paris

Dec. 27, 1917, **25**, No. 72

48 *Suture after Suprapubic Prostatectomy. V. Pauchet.—p. 729.
49 *The Oculocardiac Reflex. A. Mougeot and Duverger.—p. 730.
50 Transportation with Fractured Femur. E. Pouliquen.—p. 732.

48. **Closure of the Suprapubic Wound after Prostatectomy.**—Pauchet describes his technic with which complete healing within twenty days can almost be guaranteed. A Marion drain is left in the wound for nine days. Then a retention catheter diverts the urine through the urethra for three days. Then the wound is sutured, and the retention catheter introduced again and left for eight days. The twenty-first day this catheter is removed and also the suture threads. He takes two U catgut sutures in the bladder wall, enclosing both lips of the wound but not entering the mucous membrane lining of the bladder. After these are drawn tight and tied separately, he passes three silkworm gut sutures. The needle enters the rectus muscle, skips twice through the outer layer of the bladder wall, and then passes through the rectus muscle on the other side. Then each end of the silkworm gut is crossed back and brought out through the skin on the side of the incision where it first entered. One such suture is taken directly across the suture in the bladder wall, and the two others just above and below this. The skin is coaptated with clips and a roll of gauze is laid over this. Then the ends of the three figure 8 sutures are tied tight separately over the gauze.

The various steps of the suture are illustrated. The urine clears up spontaneously afterward or after rinsing a few times with a silver salt. If there is a diverticulum in the bladder there may be slight pyuria for some time. Removal of the hypertrophied prostate is often surprisingly simple and easy, but sometimes it is difficult to locate the exact plane of cleavage on account of multiple adenomas, or inflammation in and around the prostate. Considerable skill is necessary in such cases to clear out all the débris of the prostate and leave a cavity smooth to the touch. Unless this is done, healing may be delayed. It is difficult to carry through a long series of prostatectomies without such mishaps occasionally. Pauchet has done 477 prostatectomies and has had no death in his last series of 40, although he has widened the indications and operates now in even very grave cases. Almost the only contraindications he now accepts are the clearly insufficient heart (shortness of breath, edema) or much altered kidneys. When there is the least doubt as to the resisting powers, the functional capacity of the kidneys or the asepsis of the urine, he does the operation at two sittings, and the prognosis has been singularly improved since he has been doing this. Between the two steps of the operation the patient leads his usual life, goes out of doors, but restricts his diet to fruits, vegetables, rice, potatoes and butter, avoiding nitrogenous foods as much as possible. After he has been at home for a few weeks or months, and the surgeon estimates that he has regained sufficient resisting powers, then the date of the secondary prostatectomy can be fixed.

49. **Bradycardia and the Oculocardiac Reflex.**—Mougeot and Duverger discuss the paradoxic behavior of the oculocardiac reflex in the wounded. In sixty cases of total sinusal vagotonic bradycardia of nontraumatic origin, the reflex was normal or exaggerated, with one exception. In this exceptional case there was no reaction to amyl nitrite. Their experience has shown further that bradycardia following an accident to the eye, skull or brain is always total, sinusal, and of vagotonic origin . Among 190 men wounded in the eyes, five developed bradycardia, probably from the concussion. The mechanical influence of the hypertension of the cerebrospinal fluid in cases of concussion is sufficient to explain the bradycardia and the abolition of the oculocardiac reflex in such cases. If the oculocardiac reflex appears again after trephining has restored the tension to approximately normal, then the disturbances are probably only functional and speedy recovery may be counted on. But when the oculocardiac reflex is persistingly abolished when tested at once after the evacuating puncture, we must accept some lesion, probably in the anastomosing fibers discovered by Ramon y Cajal between the descending sensory root of the trigeminal nerve and the original intrabulbar fibers of the pneumogastric nerve. This was demonstrated in one of the cases reported.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 22, 1917, **47**, No. 51

51 *The Defensive Ferments. E. Abderhalden.—p. 1745.
52 *Influence on the Heart of Chronic Action of Camphor. H. E. Sigerist.—p. 1748; T. Zangger.—p. 1752.
53 The Cremaster Reflex with Sciatica. A. Rodella.—p. 1753.
54 Exhaust Gas Garage Poisoning. H. v. Meyenburg.—p. 1761.

51. **Present Status of the Protective Ferments and the Abderhalden Reaction.**—Abderhalden declares that thousands of careful tests have confirmed the diagnostic importance of the protective ferments found in the blood after introduction of foreign cell substance. Each kind of cell has certain special functions and hence a special structure, and certain elements in each kind of cell are foreign to other kinds of cells; besides this, each unsplit-up cell getting into the blood is a foreign substance. Ferments are produced to get rid of these cell-foreign and blood-foreign substances, and these protective ferments play an important rôle. We know, for example, that the fibrin in the alveoli of the lung in pneumonia is disintegrated and prepared for adsorption by ferment action, and stout adhesions disappear by the same action. In addition to the polariscope and dialysis methods for demonstration of these protective ferments, the stain or metal method of investigation has been tried. The organ tissue under examination is treated with a stain or with iron—which is not found in normal blood plasma. If iron is found in the blood serum after it has been in contact with organ tissue artificially impregnated with iron, then the assumption follows that the iron has been set free by the action of some ferment. This is the basis of Kottmann's test for pregnancy. He treats protein with iron. Under the influence of ferment action the iron passes into the fluid. When placenta, ovary or testicle tissue is used for the test, the serum of pregnant women causes the appearance of the iron in the fluid while ordinary serum does not. Abderhalden comments on this that it is merely a modification of the previous methods for demonstrating the protective ferments; he says that it is not, as claimed, a "new pregnancy reaction." [In his communication on the subject in the *Correspondenz-Blatt für Schweizer Aerzte*, 1917, **47**, 377, Kottmann stated that patents had been applied for in several countries for this "iron placenta" as a test for pregnancy, and for the method of "iron organs" in general.] On the other hand, Abderhalden says that P. Hirsch's interferometer is based on a new principle for demonstrating the protective ferments, and that it seems to be very promising. It confirms anew the specificity of the protective ferments. [Hirsch's article "Die interferometrische Methode zum Studium der Abwehrfermente" appeared in *Fermentforschung*, 1914, **1**, 33.]

Abderhalden adds that further progress has been realized recently by F. Pregl and de Crinis by their research on the refracting powers of the serum before and after it has been acting on organ tissue. They found that the action of the protective ferments could be clearly and decidedly recognized with the refractometer. They worked out a technic for this which requires only a minimal amount of serum, and the method thus becomes, Abderhalden remarks, "a micro-Abderhalden reaction." A few drops of serum suffice, and they can be used for different proteins. "If this method answers its promise, it is bound to be the technic for the future in all such research." Their communication on the subject is credited to *Fermentforschung*, 1917, **2,** 58. [Both Abderhalden and Kottmann have suggested that active immunization might be realized by administration of serums rich in defensive ferments in treatment of cancer, etc., and each mentions proprietary preparations designed for this purpose.]

52. **Action of Camphor on the Heart.**—Sigerist reports that the long continued administration of camphor to rabbits did not seem to impair in any way the functioning or the structure of the heart, but rather to increase its functional capacity. But it did not render the heart more resistant to phosphorus poisoning or to diphtheria toxin, and did not aid in throwing off the effect of either.

Zangger relates that he has found small doses of camphor very useful in keeping up the tone of the heart with chronic myocarditis. During the acute phases, digitalis or other tonics are needed, but when the heart settled down to a chronic course, ten or fifteen drops of the usual spirit of camphor, two or three times a day for months at a time, seemed to aid materially in keeping up the balance of the heart. He has thus treated more than 100 patients, over 65 with chronic myocarditis, and describes some of the typical cases in detail. He gave the camphor on sugar or in water.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Dec. 9, 1917, **38,** No. 98

55 *Plastic Operation for Wounds of the Superior Longitudinal Sinus. O. Ortali.—p. 1293.

Dec. 20, 1917, **38,** No. 101

56 Cholecystotomy in Typhoid Bacilli Carrier. N. Federici.—p. 1330.

Dec. 23, 1917, **38,** No. 102

57 *Electric Reeducation of the Muscles. L. de Lisi.—p. 1340.

Dec. 27, 1917, **38,** No. 103

58 Paratyphoid Genito-Urinary Lesions. F. Bergolli.—p. 1355.

55. **Plastic Operation on Superior Longitudinal Sinus.**—Ortali gives an illustrated description of a war wound involving the vertex in which he twisted a pedunculated flap from the epicranial aponeurosis around to cover the breach. It proved effectual in staunching the hemorrhage while not obstructing the permeability of the vessels. The man died later and the necropsy showed that the flap had answered its purpose perfectly.

57. **Motor Reeducation.**—De Lisi's method consists in electric stimulation of the antagonist muscles in treatment of contracture and paralysis after war wounds. He uses the faradic current with an interrupting metronome to break the current rhythmically, the whole arranged so that the patient can walk to and fro in a certain space. The aim is to have him step synchronously with the metronome, so that the current reaches the group of muscles and nerves just at the moment when they start to contract and the antagonists start their contrary action. The patient soon learns to step with the proper rhythm, guided by the metronome. The sensation induced by the current aids in giving confidence, while the metronome gives a feeling of reliance. The method is proving very effectual in his service for nervous affections in the wounded.

### Pediatria, Naples

January, 1918, **26,** No. 1

59 *Cholesterol in the Blood. S. di Stefano.—p. 1.
60 *Aspect of the Abdomen in Infants. A. Gismondi.—p. 7.
61 Streptothrix Meningitis. R. K. Marinucci.—p. 11.
62 Present Status of Leukemia. C. Martelli.—p. 15.

59. **The Cholesterol Content of the Blood Serum with the Exudative Diathesis.**—Di Stefano cites recent research which apparently fixes the normal range of the cholesterol content as from 1.40 to 1.80 per cent. in the blood serum of adults. In thirteen healthy infants the range was from 0.80 to 1; after the sixteenth month it approximated the adult figure. He found in twenty children with the exudative diathesis, from 4 months to 7 years old, that in twelve the cholesterol content was abnormally small; in four it was within normal range, and in four was slightly above it. He suggests that the abnormally low cholesterol content may be a factor in the inflammatory reactions in the skin, mucous membranes and lymph glands which form part of the clinical picture of the exudative diathesis.

60. **Abdominal Sign of Undernourishment in Infants.**—Gismondi has noticed that infants getting proper and adequate nourishment usually present on each side of the abdomen, low down, a slight protuberance. This is probably due to the relaxed condition of the abdominal wall in very young infants which allows it to bulge when a filled loop of intestine presses against it. This little bulging is constantly observed in young infants thriving on proper nourishment. The absence of the bulging therefore is an early sign that the child is not getting enough food. Distention of the bowel with gas induces a more uniform and diffuse bulging of the abdominal wall. As the abdominal wall grows more elastic, this bulging disappears, usually at the second or third month. Its absence before this may be due to diarrhea, to pylorospasm or stenosis, habitual vomiting or to inability of the child to suck properly. When these can be excluded, insufficient nourishment must be incriminated.

### Policlinico, Rome

Jan. 6, 1918, **25,** No. 1

63 The Present Tasks of the Medical Clinic. V. Ascoli.—p. 3. To be continued.
64 *Drainage by the Femoral Route for Peritonitis after War Wounds of the Groin. S. P. Allegra.—p. 7.
65 *Tar Treatment of Wounds. Mantovani and Manzini.—p. 8.
66 Retroperitoneal Dermoid Cyst. R. Vigliani.—p. 9.

January, **25,** Medical Section No. 1

67 *Tumors of the Temporal Lobe. P. Ciuffini.—p. 1. To be continued.
68 *Neurotrophic Edema. R. Carnelli.—p. 12.
69 Tardy Localized Tetanus. B. Masci.—p. 24.

December, 1917, **24,** Surgical Section No. 12

70 *Abdominal Wounds. U. Stoppato.—p. 473.
71 *Hypertrophied Prostate. R. Cinaglia.—p. 485.
72 Experimental Lesions of the Pituitary. A. Chiasserini.—p. 505. Continuation.

64. **Drainage of Peritoneum through the Femoral Route.**—Allegra states that in eight cases of war wounds of the inguinal regions he found it simple and effectual to drain the peritoneum by way of the iliopectineal fossa. A buttonhole in the peritoneum is all that is necessary, as the drainage is thus provided at the lowest point. He drained through a No. 28 Nélaton catheter, wrapped in gauze, keeping the dressings moist. The iliac fascia has to be incised but the psoas and iliac muscles are just pushed to one side.

65. **Tar as First Dressing for Wounds.**—Vegetable tar was applied in fifty cases of war wounds, and although it does not pretend to effectually sterilize the wound, yet it seemed to modify the proliferation of the germs without impairing the vitality of the tissues or impeding leukocyte action.

67. **Tumors in the Temporal Lobe.**—Ciuffini gives the clinical and necropsy study of a case of sarcoma in the right temporal lobe of a man of about 30. It had been causing symptoms for nearly four years. The article is continued.

68. **Neurotrophic Edema.**—Carnelli accepts a hysteric element in the case of hard edema described. It covered the entire front of the trunk and neck like a sleeveless sweater, with two patches on the cheeks. The entire right side, besides, showed anesthesia. The patient was a soldier of 40, invalided home. The man had a history of measles, malaria and cholera. The edema developed almost all at once and shows a tendency to a blue tint, suggesting Charcot's *œdème bleu des hystériques.* It is symmetrical and is accompanied by hemianesthesia, lateral hemianopsia and other nervous disturbances, including recurring aphonia.

70. **Preoperative and Postoperative Treatment of Abdominal Wounds.**—Stoppato emphasizes that the treatment of abdominal wounds is essentially medical-surgical, not sur-

gical alone. It would be a great advantage if men wounded in the abdomen could be carried on the litters in a semiseated position when first picked up. General chilliness, cold extremities and nose, and extreme thirst are among the symptoms of shock. Besides camphor, epinephrin and saline, he has found very useful the application of heat in the form of a frame, fitted with six electric bulbs, that is placed over the body. No fluids should be allowed by the mouth. It may be necessary to continue this treatment of shock for one or two hours, but the stimulants must not be given too freely or they will have the reverse of the desired effect. During the operation it may be found useful to keep up the saline infusion all the time. The condition of the circulation should be investigated anew after the operation before the man is moved.

71. **Hypertrophy of the Prostate.**—Cinaglia advocates palliative measures to the extremest limits, moderation in eating and drinking, avoiding long trips in trains and vehicles, horseback riding, and everything else liable to induce congestion in the prostate. No alcohol, no chilling should be allowed, and the bowels should be kept loose. The bladder should be emptied frequently, not allowing the urine to collect and distend the walls, and the functions of the skin should be stimulated with tepid baths, douche, rubbing and massage. Potassium iodid should be given internally for months or a year. Under strict hygiene it may be possible to ward off further trouble, and even if "catheter life" becomes indispensable, this managed properly may keep the man in the best of health for years. Guyon says it can be kept up for ten or twenty years. If operative treatment is unavoidable, the technic indicated by the special indications should be selected, but he warns that prostatectomy should not be attempted if there is severe purulent cystitis. The bladder can be opened and drained, but the temptation to remove the prostate should be controlled until the cystitis has healed. He yielded to the temptation in one case and the patient speedily succumbed to pelvicellulitis, thrombophlebitis and sepsis which followed the prostatectomy done in a field of purulent cystitis. Cinaglia reviews the various methods of treating the enlarged prostate that have been devised, listing fourteen different procedures besides prostatectomy proper.

### Riforma Medica, Naples

Dec. 15, 1917, **33**, No. 50

73 *The Blood Pressure. A. Fulchiero.—p. 1153.
74 *Spasmophiliac Neurasthenia. A. Campani.—p. 1156.

Dec. 22, 1917, **33**, No. 51

75 *Ankylosis of the Elbow. G. Ceccarelli.—p. 1173.
76 *Primary Tumors of Peripheral Nerves. A. Tomiselli.—p. 1180.

73. **The Arterial Pressure.**—Fulchiero refuses to admit that the maximal arterial pressure has any definite significance in itself. Persons with the same maximal pressure may be in widely different conditions as regards the dynamics of their circulation. The minimal pressure, on the other hand, considered in relation to the duration of the heart cycle is an index of the sum total of the peripheral resistance to the circulation. This is what regulates the work of the myocardium, as it has to adapt itself to the resistance it encounters. He adds that the differential pressure bears no proportional relation to the volume of the systolic wave, but knowledge of the elements constituting the differential pressure permits an estimation of the individual conditions in the circulation, as he explains.

74. **Spasmophiliac Neurasthenia.**—Campani has encountered a number of cases of neurasthenia in persons who in youth were inclined to spasmophilia and sluggish metabolism. In twenty such cases the urine was milky, a pseudophosphaturia, but albuminuria was never noted. There was always a special susceptibility to external influences, especially the atmospheric, entailing vasomotor disturbance which in turn induced congestion in internal organs, pains in the joints, and cramps, chronic constipation alternating with diarrhea. The reduction in the acidity of the urine permits the precipitation of the phosphates and carbonates. Campani is inclined to regard the whole as the manifestation of a special state of weakness on the part of the nervous system, probably of sexual origin. All stimulants, caffein, alcohol, belladonna, etc., do direct harm. Purges also aggravate the nervous dyspeptic symptoms when their direct effect is past. Sodium salicylate may relieve joint and rheumatic symptoms. Sodium bromid, in the dose of 3 gm. at evening, is decidedly useful during phases of hyperesthesia, spasms and insomnia. Sexual abstention is of little or no advantage, but abuse is injurious. Preparations of lime mask or improve the pseudophosphaturia but have scarcely any durable advantage. A mixed diet is best. Cases of this kind are classed variously as neurasthenia, arthritism, vasomotor neuroses, intestinal neuroses, and catarrh of the bowel, but he thinks they form a group apart in themselves.

75. **Operative Treatment of Ankylosis of the Elbow.**—Ceccarelli reports complete restoration of function in a case of traumatic ankylosis of the right elbow in a girl of 16. After the parts of the joint had been mobilized, a strip from the patient's fascia lata was interposed and the elbow can now be used normally. The interposed flap prevents the bones from growing again and also prevents formation of new bone, while it answers a useful purpose from the first in preventing pain when the joint is exercised passively and actively. It permits this to be begun from the very first, although extremely gently but perseveringly.

76. **Primary Tumor of Peripheral Nerve.**—A tumor in the posterior tibial nerve in a man of 51 was as large as an egg, but it had its own capsule, and Tomiselli was able to shell it out from between the fibers of the nerve, leaving the nerve intact. There have been no motor or sensory disturbances since.

### Tumori, Rome

October-December, 1917, **5**, No. 4

77 *Histolysis by Leukocytes in Cancer. G. Pianese.—p. 357.
78 Sarcoma of Tonsil. C. Verdozzi.—p. 367.
79 Anatomic Findings and Results in Fifty-Five Cases of Resection of the Stomach. G. Fichera.—p. 380. Conclusion.

77. **Retrogression of Cancers.**—Pianese describes a process of retrogression of malignant growths by the breaking down of the tissues by irruption of leukocytes. The result is an atrophy and final necrosis of the blastoma cells, the outcome a sclerosis of the stroma. In the process to which he refers there is no phagocytic action by the leukocytes, or it is subsidiary to the mechanical injury from the crowding of the leukocytes. He has noted it in sarcomas and carcinomas, in glandular cancers more than elsewhere, and it is most pronounced in the young. It is most instructively studied on mammary cancers in young women. As a tentative hypothesis he suggests that the cholesterol in the leukocytes may disintegrate the lecithin in the cancer cells, and thus aid in their destruction by the mechanical crowding. Hofbauer has reported notable retrogression of malignant tumors under cholesterol general treatment.

### Revista de Medicina y Cirugia Practicas, Madrid

Dec. 21, 1917, **41**, No. 1487

80 Biochemistry of Skin. D. E. de Oyarzabal.—p. 401. Conclusion.

### Revista de Medicina y Cirugia, Havana

January, 1918, **23**, No. 1

81 *Status of Public Health in Cuba. F. M. Capote.—p. 5.
82 Smallpox Vaccination in Cuba. V. de la Guardia.—p. 12.
83 *Abdominal Wounds. J. Carrera and J. O. Cano.—p. 22.

81. **Public Health Problems in Cuba.**—Capote relates that malaria is extraordinarily prevalent in two Cuban provinces at present. These provinces are being brought under cultivation, while the constant stream of immigrants from others of the West Indies renders control of the epidemic very difficult. He says that more than 80,000 Chinese immigrants have been brought in under contract. "First negro slaves, then Chinese under contract, and now free men; all this cheap labor imported for the sugar plantations is an injury to the country. Hundreds of the workers now are incapacitated by malaria while their presence in the country has aggravated the sanitary and economic problems." Typhoid, cancer and infantile enteritis have all shown a slight increase during the last year. He says further, "The war has shut off from Cuba the imports on which it has hitherto mainly subsisted,

as well as the scientific current that fed the minds of the profession. This commercial isolation has forced Cuba to turn to raising and producing more to supply its needs, and I hope that the scientific isolation may in the same way stimulate home scientific production and lead to important achievements in the field of medicine."

83. **Abdominal Gunshot Wounds.**—Carrera and Cano comment on the way in which the experiences of recent campaigns and the present war have modified the old views as to the advisability of abstention in cases of gunshot wounds of the abdomen. A laparotomy should be the rule when there is the least suspicion that the abdomen has been entered. The state of shock may compel some delay, but the operation should not be abandoned on that account.

### Revista Medica del Uruguay, Montevideo

November, 1917, **20**, No. 11

84 *Venereal Diseases and Matrimony. J. P. Orfila.—p. 639.
85 Tardy Cesarean Section for Contracted Pelvis. F. Cortabarria.—p. 705.
86 *Cesarean Section for Eclampsia. H. G. San Martin.—p. 709.

84. **Venereal Diseases and Matrimony.**—Orfila discusses from every angle of the subject the relations between and the bearing of venereal diseases on marriage. If every measure recommended by him could be put into practice there would be a considerable diminution in the number of marriages, but, bit by bit, everything needful for the welfare of the state as well as of the family would be done. He advocates wider diffusion of the prophylactic measures against venereal diseases, and that primary syphilis and acute gonorrhea should be treated more energetically and effectively so as to minimize the severity of the consequences and complications of both diseases. Cooperation between the doctors and the public is very essential. All doctors, specialists and general practitioners, should make common cause of instructing the public that gonorrhea and syphilis must be surely treated from the very first day of the disease with energy and perseverance. One of the means of making this propaganda more effective, Orfila says, is to call the attention of the public in a special way to the dangers of latent syphilis and latent gonorrhea from the viewpoint of matrimony.

86. **Cesarean Section in Eclampsia.**—Martin reports the case of a woman, 30 years of age, over seven months pregnant, who entered the hospital in a comatose state. She had vomited the day before and again during the night when she also had a convulsion which lasted ten minutes. Half an hour later she had a second attack. Two hours later she had a third attack while on the way to the hospital. During the examination she had a fourth attack. She remained comatose all the time. The urine contained 14 gm. of albumin per liter; the pelvis was slightly contracted; the mouth of the uterus was closed. Three hundred grams of blood were withdrawn under ether anesthesia. One hour later she had another convulsion, very severe this time, and shortly afterward she had a sixth. During all of this time the patient was blind, presented a generalized anasarca or edema, and only 100 gm. of urine were excreted. Morphin was injected in sufficient quantity to keep the patient quiet, but in spite of such treatment the patient had another convulsion. Martin then performed a classical cesarean section. A dead fetus was extracted. The uterus was closed in two planes with No. 4 catgut, but in spite of tying three knots, the sutures tore through, which leads the author to prefer No. 3 catgut, or a double strand of No. 2. The abdominal wall was closed in the usual way. The patient became very quiet after the operation; the amaurosis disappeared; respiration became normal. The patient left the hospital on the fifteenth day. The author is of the opinion that this operation is one that should be performed more often in cases such as this, but cautions against using a catgut that is too heavy.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Dec. 1, 1917, **2**, No. 22

87 *Death from Electricity. C. W. G. Mieremet.—p. 1951.
88 Constitutional Eosinophilia. D. Klinkert.—p. 1972. To be continued.
89 Pigmented Urticaria. J. B. S. Schwab.—p. 1977.

87. **Fatal Electric Shock from Incandescent Bulb Light.**—Mieremet gives a comprehensive summary of what is known in regard to electric shock and means for dealing with apparent death from electric shock, and then describes a fatal case. The man was robust and heavily clothed, although it was a hot day. He was engaged in repairing a boiler from beneath and had been at work there an hour or two by the light of an incandescent bulb on an extension wire. Fifteen minutes after returning to his task after an errand elsewhere, the sound of his hammering was no longer heard and he was found dead. The only sign of injury was on a finger of the left hand which showed charred tissue where it lay against the bulb, and on the upper part of the right arm which showed merely a whitish greyish spot about 2 cm. in diameter. It felt hard and the corium seemed a little firmer than in the surrounding tissue but there were no traces of hemorrhage or effusion and the muscles seemed normal. The epidermis over the median side of the belly of the biceps was somewhat raised, as by a blister. The heart was relaxed, filled with fluid blood, and the lungs were edematous, which he interprets as evidence that the passage of the current through the heart had caused the *trémulations fibrillaires* to which the fatal outcome of electric shock has been ascribed by French writers.

He emphasizes the peculiar whitish appearance of the spot on the arm. The microscope showed it to be a coagulation necrosis, the collagen fibrils of the connective tissue having been fused, probably by the heat generated by the current under the resistance offered by the skin. The electric bulb in question had an unusually narrow porcelain ring, the copper projecting beyond it and thus affording a chance for contact with the current. It was an alternating current of 220 volts. Mieremet urges others who have occasion to study cases of electric shock to examine for the whitish greyish patch such as he found in this case, and regards as characteristic of electric injury, and begs them to communicate with him. He is prosector at the Institute for Pathology at the University of Groningen.

### Hospitalstidende, Copenhagen

Dec. 19, 1917, **60**, No. 51

90 *Variations in the Hydrogen Ions in the Blood in Different Diseases. C. Sonne and Jarløv.—p. 1247.

Dec. 26, 1917, **60**, No. 52

91 *Scarlet Fever Epidemic in Greenland. S. Barchalia.—p. 1271.
92 *Stain for Protoplasm of Bacteria. M. Claudius.—p. 1276.
93 Perforating Ulcer of the Rectum in Woman of Sixty-seven. C. E. Uldal.—p. 1280.

90. **Hydrogen Ion Content of the Blood in Different Diseases.**—Sonne and Jarløv found the range between 7.28 and 7.33 in twelve normal persons. The findings in nineteen patients with various diseases are tabulated in minute detail. The range was likewise very small even with pronounced heart and kidney insufficientcy, the reaction of the blood displaying remarkable constancy through the heart and kidney disease and diabetes (three cases), even up to the terminal phase.

91. **Scarlet Fever in Greenland.**—Barchalia reports a mild epidemic of scarlet fever in a Greenland colony with 377 inhabitants. Only children were affected, but at the same time there was an epidemic of infectious sore throat among the adults—a total of forty cases. Except for two cases of scarlet fever in 1877, the disease has never appeared before in this colony. Barchalia gives various reasons for assuming that both epidemics were true scarlet fever only that the adults did not develop the eruption. The child skin is more sensitive.

92. **Stain for Protoplasm and Cilia of Bacteria.**—Claudius describes a chromic acid and anilin oil method which shows up the protoplasm and cilia of typhoid and other bacilli with a wealth of details. It makes the aspect of the bacteria as different, he says, from the ordinary microscopic picture as a roentgenogram differs from the ordinary photograph. The glass on which the specimen rests takes the stain intensely and the protoplasm allows the stain to pass through to the nucleus, but the protoplasm itself does not take the stain.

### Nordiskt Medicinskt Arkiv, Stockholm

October, 1917, **50**, Internal Medicine Section, No. 1-2

94 *The Lungs with Valvular Heart Disease. J. Tillman.—p. 1.
95 Segmental Innervation of the Abdominal Muscles. G. Söderbergh.—p. 32.
96 *Ascites with Cirrhosis of the Liver. M. Simon.—p. 42.
97 *Differential Diagnosis between Large Cavities and Pneumothorax. S. Zandren.—p. 163.
98 The Leukocyte Aposomes. A. Nyfeldt.—p. 182.
99 *Difference in Affinity for Silver Stains between Living and Dead Bacteria. A. Nyfeldt.—p. 184.

94. **The Lungs with Valvular Disease.**—Tillman relates that a young woman with valvular defect in the left heart presented for nine months symptoms on the part of the lungs which were accepted as unquestionable evidence of pulmonary tuberculosis, notwithstanding the negative bacteriologic findings. Then with symptoms of failing compensation the young woman died, and necropsy revealed merely chronic hyperemia in the lungs from stasis plus chronic catarrhal bronchopneumonia, with nothing to indicate tuberculosis anywhere. Roentgen examination would have cleared up the diagnosis during life. Another young woman with similar valvular stenosis was sent to a sanatorium and treated for pulmonary tuberculosis after a moderate hemoptysis, but the roentgen findings suggested that the trouble was only the brown induration of the lung tissue common with mitral stenosis, and necropsy soon confirmed this assumption. Hemoptysis may thus occur from this chronic passive hyperemia in the lungs alone, and nothing but the roentgen findings can be depended on to interpret it. Six other cases are described in which under the influence of mitral stenosis the lungs seemed to be the seat of tuberculous processes, but the roentgen or necropsy findings disproved this or showed extremely attenuated tuberculous infection. No special difference between the right and left lung was apparent in this respect. The symmetrical aspect in the roentgen picture is striking. The more localized, spotty or cloudy aspect of tuberculous changes along with the brown induration are easily recognized. He reviews the literature on the rarity of pulmonary tuberculosis with mitral stenosis and with heart disease in general. With the brown induration from mitral stenosis there may be slight dulness at the apex, with slight modification of the breathing sounds, resembling the findings with incipient pulmonary tuberculosis, and there may be moist râles in one or both apices, or consonating râles at one apex or just below, along with modification of the resonance and the breathing murmurs. These physical symptoms may persist unchanged for weeks, months or years, without apparently direct connection with lost compensation. There is no certain means of distinguishing between the hemorrhage from stasis and the tuberculous hemorrhage, and the most profuse hemoptysis may be induced exclusively by stasis from valvular defect.

96. **Ascites with Cirrhosis of the Liver.**—Simon's long study of this subject fills 121 pages. He aims to draw up the balance sheet for operative treatment of ascites from cirrhosis of the liver, comparing the outcome of the cases with and without omentopexy. Twenty-eight pages are devoted to tabulation of the classified cases, and forty pages to the more typical case histories. His compilation of operative cases includes 212 published by forty-two different operators. He restricts the list to the Talma-Morison operation, that is, to attempts to ensure the development of an adequate collateral circulation. One point brought out by the compilation is the better prospect for success from the operation for Laennec's cirrhosis when the patients are in the thirties, instead of in the fifties, although successful cases are known in patients of 60 or more. Compared with these 212 cases, are 142 cases at the Stockholm hospitals in which there was no surgical intervention. The cases in which syphilis is responsible for the cirrhosis give by far the best prognosis in all cases of ascites, provided the syphilis is treated.

Comparison of all this material shows that the cases of cirrhosis of the liver with ascites fall into two great classes; those in which the ascites is the result of progressing obstruction of the portal system by the encroaching cirrhosis—a purely local trouble, and those cases in which the portal system is not much obstructed but the weakness of the heart action entails the ascites. In the first group, omentopexy to aid in development of collaterals offers great chances for relief and an approximate clinical cure. Without some such intervention the patient is doomed. In the other group, the immediate prognosis is less grave, and omentopexy will have little influence on the course of the case. It should be considered only as the very last resort in this group, after failure of treatment of the heart disease and possible syphilis. Elements which might turn the scale in favor of an operation are a good general condition, integrity of the omentum, age under or near 40, absence of jaundice, and the presence of very little extreme atrophy. It is encouraging to realize, also, he says, that patients in very bad condition, with extreme atrophy and jaundice, and others almost 70 years old have occasionally been successfully treated by operative means. Unfavorable findings with functional tests, etc., are thus not an absolute contraindication. Simon adds that an exploratory laparotomy is the only means to determine the condition of the omentum and differentiate the true nature of the liver disease. He advises it as a routine measure when the abdomen has to be repeatedly tapped. The omentofixation can be extraperitoneal or by Morison's intraperitoneal technic. He suggests that it might be worth a trial to supplement the omentopexy with introduction of a silver button with a passage through the center, leading from the peritoneal cavity into the subcutaneous tissue.

97. **Lung Cavity Simulating Pneumothorax.**—A woman of 44 with bilateral pulmonary tuberculosis was supposed to have a pneumothorax on the left side, with adhesions. This assumption was based on the history of attacks of pain in the side, with dyspnea, fever and chills; and the facts that dyspnea was the predominating symptom during the last few years, with occasional periods of collapse; that percussion gave a metallic tympanitic ring; that the respiration sound was weakly amphoric with râles only at the apex, and that the roentgen findings positively confirmed the physical diagnosis. Necropsy revealed that what had been supposed to be merely pneumothorax was a huge cavity, the entire lung destroyed. There had been very little bleeding from the lung at any time, and comparatively little sputum. Zandren has found three similar cases on record. As the physical findings are so misleading, an exploratory puncture may be necessary if bronchophony and the pectoral fremitus are not decisive.

99. **Silver Staining of Living and Dead Bacteria.**—Nyfeldt gives a colored plate to illustrate his statement that dead bacteria stain prominently with silver nitrate while living bacilli display no affinity for it. He experimented with fifty specimens of streptococci, colon bacilli, etc., leaving the bacteria in a 5 per cent. solution of silver nitrate for twenty-four hours, concluding with neutral red. The killed cultures show black, and only the living bacteria show red.

### Ugeskrift for Læger, Copenhagen

Dec. 20, 1917, **79**, No. 51

100 *Symptom of Internal Ear Disease. S. H. Mygind.—p. 2019.

100. **Diagnosis of Internal Ear Disease.**—Mygind's patient, an elderly woman, had been having suppuration in the left ear for two months, with sudden and extreme dizziness and slight nystagmus. No other symptoms could be elicited until the patient was given Bartels' biconvex glasses. These prevent fixation and accommodation and thus check the nystagmus movements, but they serve as a magnifying glass for the observer. He saw through them that both eyeballs were making small horizontal rotary movements from side-to-side in a regular rhythm synchronous with the pulse in the radial artery. Modifying the circulation in the labyrinth by compressing the left carotid, started powerful nystagmus to the sound ear at first, and then it changed to an opposite nystagmus, accompanied by great dizziness. He accepted these phenomena as indicating the existence of a fistula in the labyrinth, and that this fistula had become obstructed by granulations or other cause, the vascular tissue pulsating and thus forcing the endolymph to and fro through the ampulla. The operation confirmed this assumption in every detail, not only in this but in two other cases in which he could elicit nystagmus by pressure on the carotid artery.

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# LESSONS FROM THE WAR AS TO TUBERCULOSIS

## THE SITUATION IN FRANCE *

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Tuberculosis may be said to be preeminently the disease which interests the philanthropist. It is one of the most curable of chronic diseases, and more or less definite plans for attacking it have been formed which are of interest to the social workers, to students of economics, to those who control the charitable activities of the state and of the municipality, and to the vast number of private citizens who maintain benevolent societies by their contributions of money and of personal effort. We may therefore well hope that the activities of the Surgeon-General's Office as respects the prevention of tuberculosis in the Army will be of interest to the public as well as to the medical profession, and, perhaps, most of all to an assemblage, the members of which are connected with a nation-wide association for the treatment of tuberculous patients.

It was decided by the Surgeon-General, early in the war, that the entire army should be examined for tuberculosis by specially expert physicians. Many difficulties were experienced at first in obtaining examiners; it is not necessary to detail them now. Suffice it to say that examination was made first of the officers' training camps, then of some 105,000 men of the Regular Army, and finally of the National Guard as soon as it was mustered into the United States service. For the last examination, in view of the dearth of examiners for the camps, the expedient was adopted of examining the National Guard troops of many of the larger cities at their armories. This made it possible to utilize at home the services of the large number of patriotic physicians who, on account of various reasons—age, ill health, pressure of other obligations, etc. — were unable to go into the field. After the National Guard came the turn of the National Army, the examination of which is now nearing completion. When this is finished, approximately 800,000 men will have been examined.

The number of cases of tuberculosis detected is somewhat less than 1 per cent. of the total number of men examined. From a financial standpoint the examinations have paid for themselves manyfold, for it has been calculated that each tuberculous patient that is returned from Europe will cost the government about $5,000, and it is a conservative estimate that the tuberculous soldier who never leaves this country will cost on an average $1,000, including pension. If we assume, then, that the total number of cases of tuberculosis detected is, say, 7,000, and that these men were eliminated from the Army before they could justly claim pensions as the result of their Army service, the saving to the government will be at least $7,000,000.

But, you will say, the question of expense is, after all, a minor consideration. How about the efficiency of the examination—have all the cases of tuberculosis been detected? Naturally, I cannot give a categorical reply to this question. We have simply done the best we could to obtain the most skilful examiners. Indeed, we have been remarkably successful in securing men of the very highest class as examiners. Taken as a whole, the boards of examiners have been fair representatives of the best medical skill of the country. That every case has been detected, no one would claim. Some soldiers of the various organizations, sick in hospital, on detached service, on furlough, etc., have not been examined. The individual examiners have been expected to examine at least fifty men a day. Some have averaged a much higher number. Doubtless there have been times when the attention flagged, when noises disturbed, so that the telltale signs of tuberculosis escaped detection. But we can at least be sure that the great bulk of the cases has been disposed of, that such patients as remain in the ranks constitute but a very small proportion of those that were present before the examinations were commenced.

Another question that may be asked is one that might not occur to the reader so readily and that is, Have not the examinations been too thorough, have not men been rejected who were really fit for service? This question, which, as I shall attempt to show, is a very fair question indeed, is one not readily answered. As dead men tell no tales, so men discharged do not come to the attention of the War Department, that is, as a rule; there have been exceptional cases in which we have been obliged to admit that the boards had been too particular, that the men rejected really had no active tuberculosis. This phase of the subject is one of importance, for more reasons than one. Let us consider it more fully. In order to do this I must say a few words as to the diagnosis of tuberculosis, a highly technical subject, to be sure, but one which must be considered, nevertheless, if a correct view of the situation is to be obtained.

### THE DIAGNOSIS OF TUBERCULOSIS

For some years it has been the aim of many writers on the diagnosis of tuberculosis to discover signs which should reveal the presence of tuberculosis at a

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* Read at the annual meeting of the National Jewish Hospital for Consumptives, New York, Jan. 13, 1918.

much earlier date than was possible by resort to the commonly recognized signs of that disease. This was based on the theory that a very early diagnosis would lead to more speedy and certain cure. This striving after new signs, or this giving of a new significance and weight to signs formerly regarded as unimportant, or overlooked entirely, has not been peculiar, by any means, to the profession of the United States. The tendency in this direction has been marked in the medical writings of England, France and Germany as well. It may be said that there is one school of tuberculosis, all over the world, that holds the view that, given acute enough perceptions and close enough attention, it is possible to make the early diagnosis of incipient pulmonary tuberculosis to an extent hitherto undreamed of. The more conservative experts, as a rule, held their peace during this time, so that to one not familiar with the subject it appeared that the new school was unopposed, that its teachings represented the actual facts. Hence the younger men grew up to believe very largely that the diagnosis of tuberculosis was one of extreme difficulty which only the trained expert could compass, and were correspondingly discouraged in attempting such diagnoses themselves, unless the circumstances were such that they could specialize in tuberculosis. If the new school, as I have called it, is correct in its doctrines, well and good. If not, what is the result? Manifestly, that many cases will be called tuberculous wrongfully, and that credit will be given for cures of a disease that did not exist.

### THE SITUATION IN FRANCE

One could hardly have anticipated the momentous effect which this teaching has had on the military efficiency of the armies of the contending nations, and especially on the army of France. Early in the war it was reported, on the authority of Landouzy, one of the most prominent of French physicians, that during the first year of the war 86,000 soldiers were discharged from the French army on account of tuberculosis. This report was received with something like consternation in this country. It was rightly felt that such figures denoted an appalling situation, and the deduction was very naturally made that military service under conditions of modern warfare is extremely harmful, that it favors in a peculiarly fatal way the development and spread of tuberculosis. From this sprang the fear that our troops would likewise be decimated by this so dreaded disease, and the demand that the slightest indications of the existence, present or past, of a minimum amount of tuberculous involvement should be sought for with extremest care, with a view to exclude the bearers of such lesions from the ranks of our army.

Since the pronouncement of Landouzy, however, enough time has elapsed for a revision of these figures. The discharged soldiers composing this army of 86,000 have been reexamined and kept under observation. And with what results? A cablegram has recently been received by our friend Colonel Dercle from the French minister of war, from which it appears that less than 50 per cent. of this 86,000 are now officially recognized to have tuberculosis. The old saying is, "Give a dog a bad name and it is hard for him to lose it." Similarly the diagnosis of tuberculosis once made for a given patient is likely to be sustained. The self-distrustful physician may think the diagnosis to have been made by one of diagnostic ability superior to his own, and there is always the thought, "I shall be disgraced if I say that such and such a patient has no tuberculosis, and he afterward is found really to have the disease." It requires no small amount of courage and independence to reverse findings of this nature. A man of this stamp was found in Major Rist of the Medical Department of the French army, for some time attached to the office of the Surgeon-General of our army. Major Rist examined various groups of men sent back from the front with the diagnosis of tuberculosis, and found the disease present in less than 20 per cent. of the cases. Blümel, in Germany, also has reported that of cases supposed to require sanatorium treatment, examined by him, less than 20 per cent. had active tuberculosis. His figures, arrived at independently, are thus seen to agree singularly with those obtained by Major Rist in his examination of supposedly tuberculous soldiers. Such percentages of active disease, so much smaller than any one would have anticipated, permit a doubt as to the percentage of the tuberculous reported by the French authorities. Indeed, Major Rist[1] expresses the opinion that, of the 86,000 noted, less than 20 per cent. were really tuberculous, thus showing that for him the figures of less than 50 per cent. given by the minister of war are, to say the least, conservative. It appears, then, that the number of 86,000 which so excited our fears represents a number of men which various overworked, perhaps excitable and pretty certainly not especially skilled medical men thought might have tuberculosis, which is a very different thing from really having that disease in a manifest form.

When 3,000,000 men were suddenly mobilized in the face of an enemy who was rapidly advancing on their capital, there was naturally no time for examinations. Every man able to bear arms at all was wanted at the front, sick or well, and, it is said, many a consumptive welcomed the oportunity to lay down his life for his country on the field of battle rather than to die ingloriously a lingering death in his bed. Under these circumstances, it is small wonder if there were many cases of tuberculosis among the French soldiers; the cases among them of really active tuberculosis are probably no more than might have been expected in view of the prevalence of tuberculosis in France before the war. But this is a very different thing from the view that has been so widely held in this country that the conditions of modern military service are such as necessarily lead to widespread extensions of tuberculosis among soldiers who seemed to be, perhaps were, well when they entered the service. Such evidence as we have from other quarters points distinctly to the fact that military service, on the contrary, is beneficial rather than the reverse for men with old, arrested tuberculous lesions. That has been the experience in the British army; and with reference to the German army it has been stated, as I have had occasion to remark elsewhere, that the need for men has made it necessary to accept for enlistment persons with healed or inactive tuberculosis, but many of them have made excellent soldiers; further, that while open cases of tuberculosis, or such as give evidence of an active process, must be exempted, men with old, inactive, cirrhotic forms can, under certain conditions, be regarded as fit for military service. And Goldscheider demands that only men with active tuberculosis from the army should be taken into sanatoriums, regarding as insufficient for a diagnosis various signs frequently adduced as indicative of early tuberculosis. The development of tuberculosis under the stress of war conditions is, of course, a much more serious matter when to fatigue and exposure is added hunger. Soldiers are well fed, but the civil population of the invaded areas, and the half starved prisoners of war, have suffered severely from tuberculosis.

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[1] Rist, E.: Mil. Surgeon, 1917, **41**, 659.

We see, then, that an army like the British, and like our own, which has been carefully examined with a view to the elimination of cases of active tuberculosis, can reasonably expect to remain free of any alarming development of the disease under the conditions of active service. Certain cases there will be; there is what is called the inevitable percentage of tuberculosis arising in men whose low resistance and feeble reactive powers cannot be measured in advance by our methods of examination. We must be prepared for, say, about two cases of this kind per thousand men.

### THE BENEFICIAL EFFECT OF ARMY LIFE

It seems to me quite time to look on the bright side of this question. According to recent teachings, we all have a little tuberculosis. This little tuberculosis, however, in 60 per cent. of the community results only in a beneficent immunity and does not by any means always lead to a fatal issue in the remaining 40 per cent. Those that die of tuberculosis are largely the weaklings, the men of poor development, the dissipated. That any man who enters the service in robust health runs serious danger of developing tuberculosis as a result of the life of a soldier, I do not believe. Indeed, may we not also consider briefly the bright side of another subject — the effect of military service on the health of the soldier? Any one who has observed the effect of the early military training on the average recruit from civil life will have been astounded at the rapidity of his transformation. The regular life in the open air, the abundant sleep and exercise, the strengthening food, lead to a rapid and visible improvement in health in the majority of cases. The untrained boy is rapidly changed into the hardened veteran who returns from his army experience a stronger man for the remainder of his days. Even under the hard conditions of trench warfare, those who escape wounds, when they have become inured to the conditions, enjoy robust health. To be outdoors constantly, even though the life involves much hardship, is the best means for securing a robustness of health which we city dwellers do not know in our luxuriously heated abodes. Therefore, while, in spite of all the efforts of the enlightened sanitary officers, some weaklings will fail and the inevitable epidemics of measles and other camp diseases will disturb, on the whole and in the long run, army life in campaign tends to create and maintain a vigorous and robust army.

I am, as may be seen, an optimist about army life, and I believe that experience justifies this point of view. I am especially optimistic with regard to the effect of army life on those persons who present evidences of an old, slight, healed tuberculosis which, in my judgment, if of small extent, is an evidence rather of an immunizing reaction than of tuberculosis in the sense in which that term is usually employed. After all, what an army most needs is men. It would be a great misfortune if all men with slight indications of old pulmonary lesions were excluded from its ranks, for such minute changes as those I have just mentioned are wellnigh universal among our population. Mistakes in diagnosis cost the French army the services of a division, perhaps two divisions, at a time when men were sorely needed; but perhaps these mistakes will have resulted in good for our army, if we can learn from them the much needed lesson that they bring, the lesson not to make the diagnosis of tuberculosis until adequate reasons exist for forming that diagnosis.

### EXTENSION OF THE BENEFIT

The benefit derived from this clearing-up of the tuberculosis situation need not be limited to the army. I look to see a juster view prevail as to the diagnosis of early tuberculosis in the medical practice of civil life. Perhaps the best idea of what I have in mind may be obtained if we take the question home to ourselves. I feel rather strongly about this, for I myself have spent six months in physically harmful idleness under the diagnosis of an active tuberculosis resting on the erroneous interpretation of normal physical signs. Suppose that you, sir, are told that you must give up your business which so much requires your attention, and spend the winter in Arizona; that you, madam, are required to leave at once your children and your social duties to live in a hired cottage at Saranac; that you, young man, the support of a widowed mother, must lose your position in order to take up sanatorium life. Such changes are trying enough if necessary; how doubly trying if they are not really necessary, if the fateful diagnosis depends only on signs, the importance of which is exaggerated, or the significance of which is misinterpreted. Understand me, I am not attacking the diagnostic ability of your physician. The fact that you are here today is sufficient evidence, perhaps, that he does not hold the views which are questioned by me. I simply give this as an illustration of the untoward results which are to be expected if one yields to the oft-repeated demand that every man showing the slightest evidence of pulmonary change shall be eliminated from the army. If the civilian is wrongly said to have tuberculosis, the evils of the error are largely confined to a narrow circle. If the same mistake is committed in army practice on a large scale, the efficiency of the army is impaired and the safety of our beloved country is threatened.

But perhaps some one will say, Why trouble us about matters over which we have no control? If I have thus taken you into my confidence, it is done in order that you may understand the situation as I see it, and be helpful in another matter. If you are convinced that slightest variations from an assumed normal in the lungs are not necessarily signs of an impending doom, you can do your part to discourage the prophecies of evil, the dark forebodings as to the extreme peril of our troops so far as infection with tuberculosis is concerned. Such prophecies and forebodings are not only unwarranted, they are unpatriotic. One can hardly render better service to our enemies than by discouraging our soldiers. No army has ever been more thoroughly examined than ours, or more carefully watched over by experts along many lines. Many of the best men of the medical profession are sacrificing their private interests, and laboring without cessation, in order that every preventable disease may be kept from our soldiers. I believe that they will succeed in this, so far as it is in the power of modern science to command success. I therefore look forward with confidence to the future and call on you as true patriots to help us by your faith and your optimism.

# A ROLLING CRUTCH

## PRELIMINARY REPORT *

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The present form of crutch, with only slight modifications, has been used since antiquity. At least no change in the mechanical principles involved has been made. When a step is taken, the tip is at a fixed position on the ground, and the crutch, as a radius, revolves about it. As a result, the motion at the shoulder follows the form of an arc, first rising and then falling with each step. Thus, for a man using a 55-inch crutch, if his weight is 180 pounds and he takes a 2½ foot step, he will rise and fall 2 inches, which means that 30 foot pounds of energy are wasted at each crutch step. Again, the crutch step is shorter in one way, than the normal foot step, for in the latter the man lands on his heel and takes off from the ball of his foot about 8 inches further forward, while in the crutch he gains only the width of the rubber tip, or about an inch and a half.

I have devised a rolling crutch which I believe has many advantages over the old form. I reproduce in metal the shoulder curve of the crutch as it rotates, and apply this metal arc in the form of a rocker to the base of the crutch. When such a crutch is used the upper end travels in a straight line. This has been proved both theoretically and practically. This arc or rocker applied to the base of the rolling crutch is the arc of a circle whose radius equals the length of the crutch. In actual practice I have taken as a radius of my arcs a line an inch and a half longer than the crutch so as to have the center of rotation at the middle of the shoulder joint.

The use of the rolling crutch transfers the center of rotation from the ground to the shoulder joint, and thereby procures for the cripple a smooth and efficient wheel-like forward motion instead of the jerky, up-and-down hobble so characteristic of the old crutch. At present the man is stumping along on the spokes of a rimless wheel, but this rolling crutch puts a rim on the wheel, greatly to his advantage.

The rolling motion is just like that of a wheel, and in Figure 1 the successive stage of this are shown. A crutch of the second pair made up, and a very practical one, is shown in Figure 2. This consists of a reinforced crutch fitted with a metal arc made of thin double-flanged iron 14½ inches long. Two quarter-inch steel rods are welded to the ends, and these are attached to the stick as shown. The base of this arc is three-quarters inch wide and is covered with a piece of nonskid bicycle tire which is cemented to it, the ends being bound on with fine piano wire. The curved lines above the crutch are actual tracings of the path of the top as it rotates or rolls. The lower line represents the path of the ordinary crutch of the same length as the crutch here shown. The upper line designates the course of the rolling crutch. The top of this curve is formed by a plateau 14½ inches long, and then the curve of the old crutch begins. It is as if the circular curve of the old crutch were cut at its highest point, the parts pulled 14½ inches apart and joined by a straight line. The metal handle to the left will be discussed later. The stability of these crutches is shown by the fact that they stand alone when leaned together, the weight of the metal handles simply rolling them a little from the vertical. Figure 3 shows a folding crutch with an arc 31 inches long. The folding is accomplished by joints made of portions of hinges welded to the metal arcs and the supporting rods. The curved lines at the top show the actual tracing of the motion of the top of this crutch as compared to that of an old crutch. Here the plateau is 31 inches long. Figure 4 shows this crutch folded for down-town use. The arc at the base is only 12 inches long, but even this adds over 10 inches to each step.

With the ordinary crutches and with the rolling crutch I walked a measured distance of 200 feet, using a moderately long step in each case. With the old crutch seventy-five steps were taken, including both normal leg and crutch steps. With the rolling crutch sixty-four steps covered the distance. This shows a saving of about 14 per cent. in the number of steps taken in favor of the rolling crutch. When we consider that half of the steps taken in each test were normal leg steps and about equal, the distance gained is made by the superior efficiency of the thirty-two rolling crutch steps over the thirty-seven common crutch steps. This virtually amounts to 28 per cent.

The first pair of rolling crutches that I had made had an arc measuring 30 inches (Fig. 5), and folded up to an ordinary crutch with a base only an inch wide. With these opened and folded I paced off the 200 feet. With the old crutch form I took seventy rather long steps, while with the rolling form I made it in fifty-three, using similar steps. This effected a saving of 24½ per cent., including the similar leg steps in each case. By elimination of the latter, virtually an increase of 49 per cent. in the length of crutch step is gained when the roller is used. These rough tests show that the rolling crutch does add to the length of the crutch step in a practical way.

The disadvantages of these crutches are obvious: 1. They are cumbersome and apt to get in the way of other people. 2. They are heavier than the old crutch. 3. They are more expensive. 4. They are more complicated.

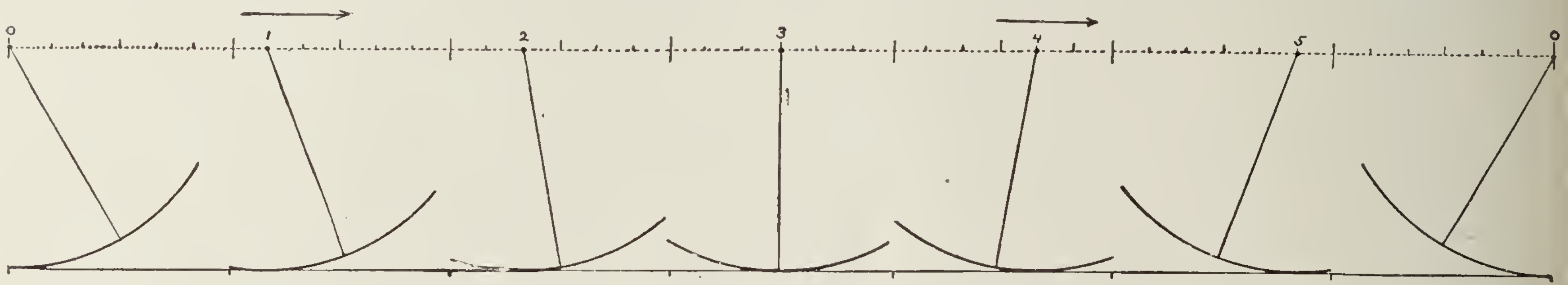

Fig. 1.—A moving-picture representation showing just how the rolling crutch works. The figures at the top represent the position of the shoulder, and show the amount and direction of motion of this part. For purposes of illustration the shaft of this crutch is greatly shortened. The crutch rolls from left to right.

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* Demonstrated Dec. 5, 1917, and Jan. 2, 1918, before the Portland City and County Medical Society.

ADVANTAGES

The advantages are less obvious at first sight, but are numerous and fundamentally important. I shall take these up in order and discuss them briefly.

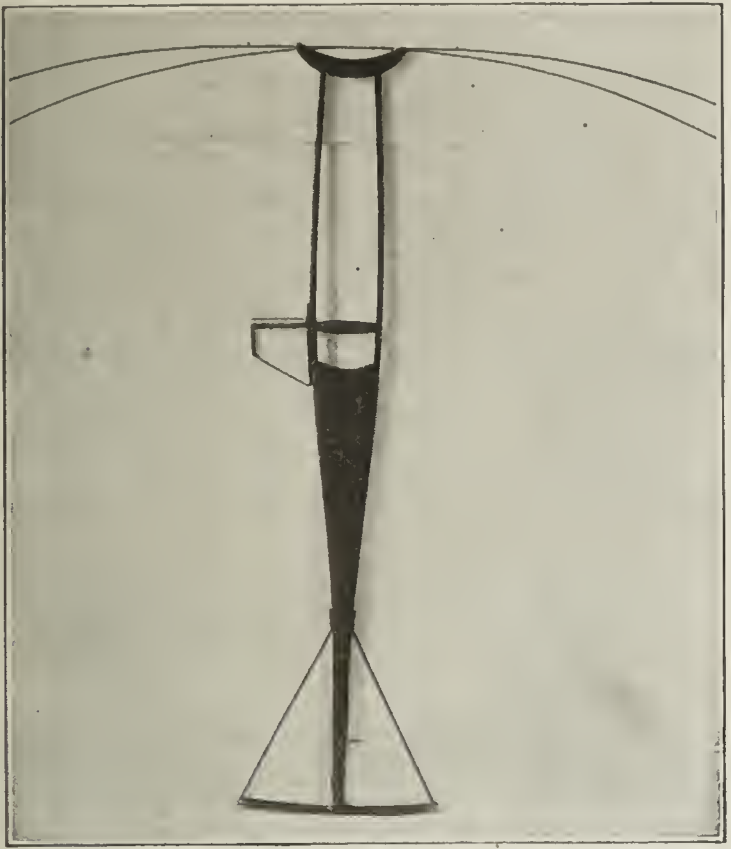

Fig. 2.—A strong, practical crutch 54 inches long, bearing a rim 14½ inches long at its base. The arc of the rim is drawn with a 55½ inch radius. The crutch weighs 3 pounds 13 ounces, whil a similar crutch of the old style weighs 1 pound 10 ounces.

1. The motion at the axilla is all or mostly—depending on the length of the arc—in the direction of progress. The upper curves in Figures 2 and 3 show this.

2. A longer step is possible with the same length of crutch, and this is as much longer than the ordinary crutch step as the rocker used is longer than the rubber tip.

3. A more direct support of the body is provided at all stages of the step. Figure 6 demonstrates this. Here the braced tip of the rocker is seen to be directly under the piece that supports the shoulder. As the crutch is constructed with all parts of the rocker equidistant from the point of rotation at the head of the humerus, it is evident that the user will have an effective, weight-bearing support directly under the axilla at all stages of the roller step.

4. Direct participation of the arms in the entire forward step is possible. If the patient bears his weight on his hands, as most do, and grasps the metal handles in front of the usual ones, his weight alone will cause the crutches to rotate in such a way that he will move forward. This procedure is helpful against a wind, over rough ground, and especially up hill. If the man releases the crutches and turns about 180 degrees, the extra handles will be behind the usual ones, and if he now grasps them, the weight of his body tends to retard the forward rotation of the crutch and helps very much in going down hill. Similar extra handles could be applied with advantage to the common crutch.

5. At each end of the rolling step the crutch acts like an ordinary crutch, but only the most efficient portion of the curve (the nearly horizontal one) is used. Figures 2 and 3 show this best. In these a short line across the upper curves shows where the roller effect stops and the old crutch curve begins.

6. For the same length of step a better angle is obtained with the ground. In Figure 6 the positions of both crutches are compared at the beginning of a step. Measurement shows that the angle of the effective support of the rolling crutch with the ground is 88 degrees, while that of the old crutch is 72 degrees, or 16 degrees more acute. It is obvious that the latter angle tends to cause slipping when the weight of the body is applied to the old crutch. Thus at all stages of the step the rolling crutch is the more secure.

7. Reaching is eliminated largely by the use of the new crutch; instead of this the arc is simply swung forward and the curve does the rest. Figure 6 shows this advantage of the new crutch graphically; for a step 31 inches long the new crutch eliminates a reach of 2 inches. This does away with the limp effect.

8. There is less sinking in the soft earth or snow. I have the tip of an old crutch buried 7 inches in my lawn, but the roller simply cut in a very little in traveling over the same ground. The slight curve of the rocker does not allow it to sink. This point was brought to my attention by a one-legged man who was trying the crutches.

9. The curve of the roller on these crutches is so slight that uneven ground may be traveled over more easily than with any wheel in common use. The diameter of the circle whose arc is used is over 9 feet; the arc, therefore, bridges small depressions in the ground, and thus, as far as it goes, at least, has the advantage over other wheels.

10. Great stability is obtained with these crutches in two ways. First, if all parts of the arc are equidistant from the center of rotation at the shoulder, a man resting on these crutches can no more tip forward or backward than a wagon wheel can roll of itself. Again, stability is controlled very well by the use of the arms when the anterior or posterior metal handles are used.

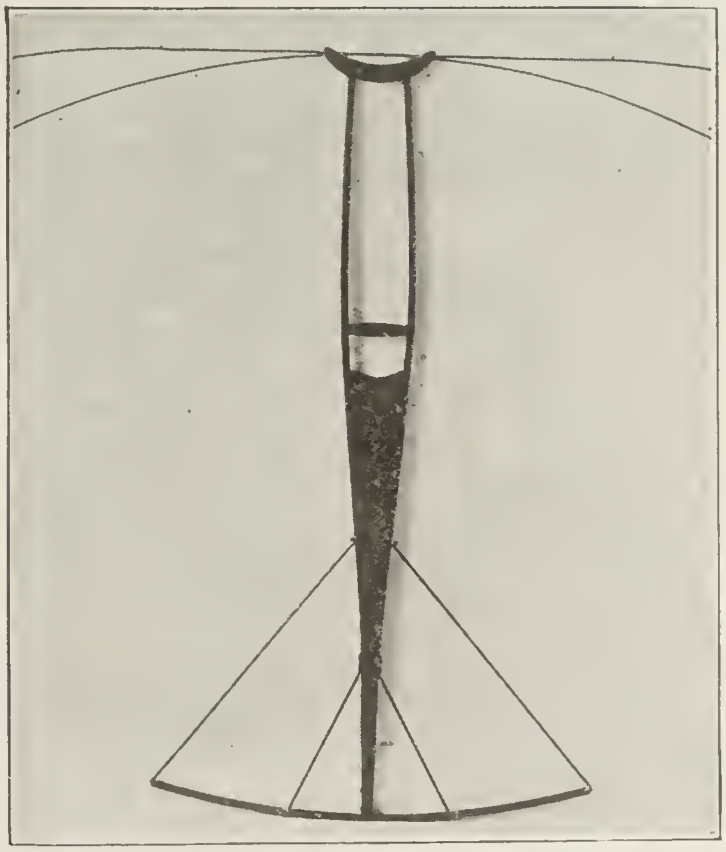

Fig. 3.—The long arc, folding crutch. It weighs 4 pounds 10 ounces. The arc is 31 inches long in this form and 12 inches long when folded.

11. By a simple variation in the curve of the roller or a slight change in the angle that the roller bears to the staff part of the crutch, the crutch step may be converted into a down-hill roll. If the back portion of the rocker is so adjusted that the surface of the arc is an inch farther from the center of rotation than the front end is, this effect will be accomplished. Figure 5 is a diagram of a crutch of this type with the difference in the length of radii exaggerated to bring out the effect more strikingly. The right support is shorter than the left, and this allows the patient to roll down hill to the right with each step. For going down hill the man should face about, and then the slight up-hill roll will in some measure counteract the down-grade effect. In this pair of crutches, further, the handles are curved, and one may grasp them either forward or back, and thus get the effect obtained with the metal handles. The first pair of crutches I made up are like these, but they fold into an ordinary crutch. It may be noted that in Figure 5 these crutches stand in a position as if they were rolled to the right, or toward the shortest radius of their arc.

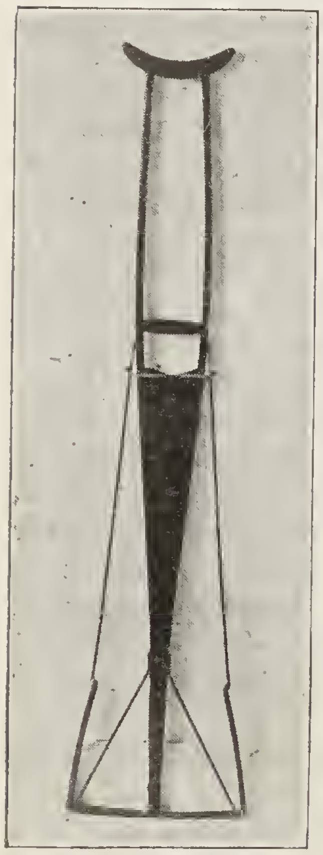

Fig. 4.—The same crutch as in Figure 3 folded up. The arc here is a foot long.

12. The jar occasioned by the crutch step is less. This is due not only to the fact that the reaching is largely eliminated, but more especially to the fact that when the weight of the body first is brought to bear there is a considerable stress on the whole crutch; this makes the latter spring a little and takes up the jar.

13. Going *up and down* stairs is both safer and easier with the rolling crutch. On the stairs the man walks on the tips of the arcs, leaving the arcs themselves projecting over the stair below. By keeping the extra handles on the up-stairs side of the crutch, the arms exert in both ascending and descending a tendency to roll *up*, which is advantageous.

The one-legged men that have tried these crutches assure me that they are a great improvement over the old form. These rolling crutches have been worked out so recently, however, that more actual use by cripples is necessary to test their practicality. To me the motion is a long, gliding one; and from my use of them over rough ground, up hill and down, as well as over soft earth and slippery pavements, the performance fully justifies the long list of advantages described above.

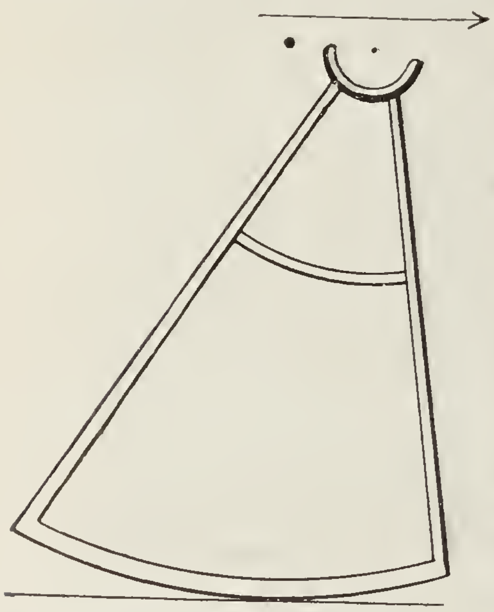

Fig. 5.—Diagram of a crutch showing in an exaggerated form one that rolls forward or to the right. The left arm is longer than the right. The center of curvature of the arc at the base is at the dot to the left, while the center for the handle is the small dot above the shoulder rest.

This rolling step idea can be applied further, and I have now made up a rolling perineal crutch, a foot extension, a leg brace, a plaster cast of the leg and foot, an artificial leg, and even a cane, all made with a roller of varying lengths. All the leg appliances are made up with a curve whose radius is equal to the distance from the hip joint to the under surface of the rolling arc. All these work in the same way that the crutch described does. The limp is eliminated, and a long, easy, rolling, efficient step is taken.

## SUMMARY

By reproducing the curve of rotation of the top of an ordinary crutch in metal, and firmly applying this to the base of the staff, I have made a rolling crutch. This is the sector of a wheel, and changes the motion at the shoulder to a simple straight-line progression in the direction the person is traveling. The crutch-step is made longer, more even, more secure, and far more efficient. In view of the great needs of the near future, I hope that some of these ideas will be tested out by others more competent; for I believe that with life and limb menaced by machinery and war as never before, there will be a place for the rolling crutch.

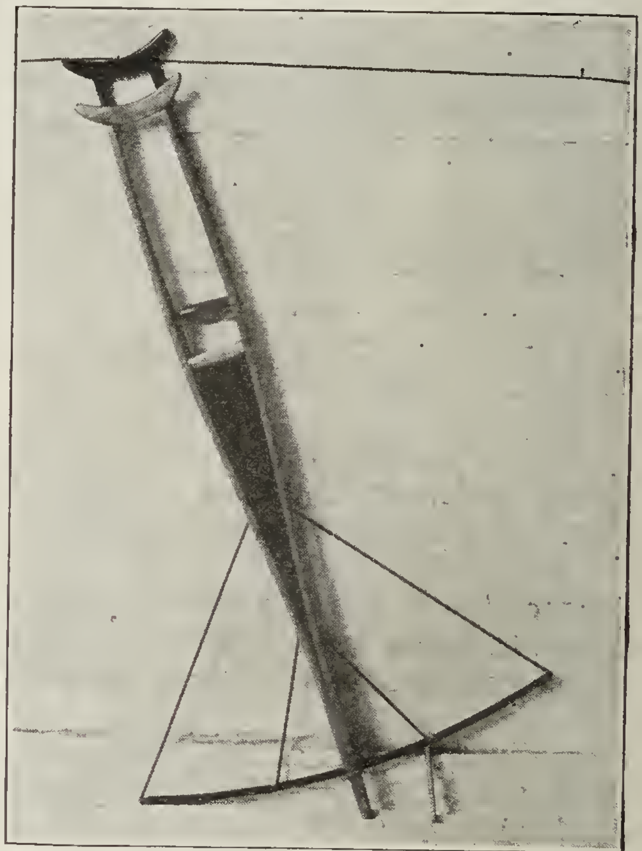

Fig. 6.—The folding crutch, compared with an ordinary crutch of the same length. The advantages of the former in length, angle with the ground, length of step, etc., are apparent. The line above shows a tracing of the path of the roller as the top moves forward.

616 Morgan Building.

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**Urine of Reptilians.**—Vauquelin, in reporting the first analysis of reptilian urine, in 1822, stated that it was composed almost entirely of uric acid, and since that time this fact has been interpreted by various observers as an adaptation of life to the conditions in arid regions, where animals obtain their only external water supply in very limited quantities in the food substances, as this type of nitrogenous excretion involves practically no loss of water. The reptiles of arid regions have been known for some time to excrete practically all of their waste nitrogen in the form of uric acid and its salts, while, on the other hand, birds and aquatic and semiaquatic reptiles may excrete considerable amounts of urea.—A. O. Weese, *Science.*

# DYSTROPHIA ADIPOSOGENITALIS (FRÖHLICH'S SYNDROME)

## REPORT OF CASE

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*History.*—A boy, aged 10, was brought to the Providence Psychiatrical Dispensary for general mental backwardness. He was the first born child. He was followed by a brother born at about the eighth month, who died when 2 weeks old. The next birth was a miscarriage, after which there were no more pregnancies. Venereal disease in the father or mother was denied. The family history of the father was negative. On the mother's side there was a history of various abnormalities. Her father had four brothers and three sisters, two brothers and two sisters being normal, while the other two brothers were described as having deformities of the feet, one of them also having some kind of convulsive seizures; and the other sister went blind at about 30. The mother of the patient was one of seven normal children. She had one maternal aunt and five maternal uncles, all normal.

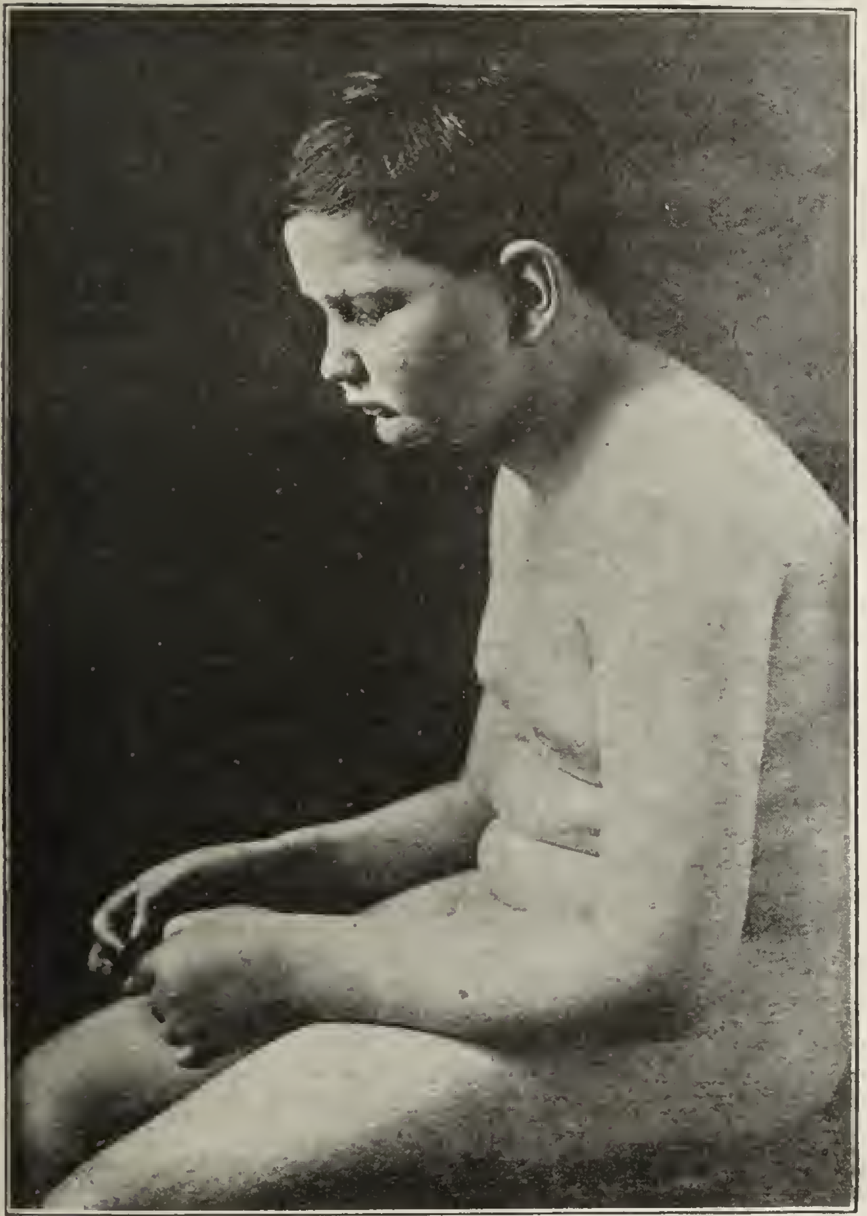

Fig. 1.—Patient, showing the typical adiposity of adiposogenital dystrophy, and the "maxillary prognathism," or, rather, retarded development of the mandible. The upper lip overhangs the lower.

In brief, then, we have a family history which is negative excepting the mother's paternal relatives, suggesting a defect in the germ plasm, which might be a mendelian recessive. This is confirmed by the fact that a daughter of the above mentioned aunt married a man whose ancestry is perhaps suspicious (his father died of "creeping paralysis" at 66), and their only child has had from birth an incurable chorea with spasticity of the legs, and though 8 years old, has never spoken.

The patient was a full term child, with normal delivery. His mother does not remember when he cut his first teeth, but he first walked and began talking at about 5 years of age. He did not stop bed wetting until after his ninth birthday. He had "typhoid pneumonia," as the mother describes it, when 2½ years of age; chickenpox when a baby; measles and whooping cough when 9. The present condition dated back apparently to birth. The child was only 3 or 4 months old when the father noticed the jerky movements of the eyes. He never complained of headache or any pain, and there was no history of vomiting that would lead one to suspect intracranial pressure. He had never been able to see, but played about his home in the county with ease, and at first sight one would not notice that he was blind.

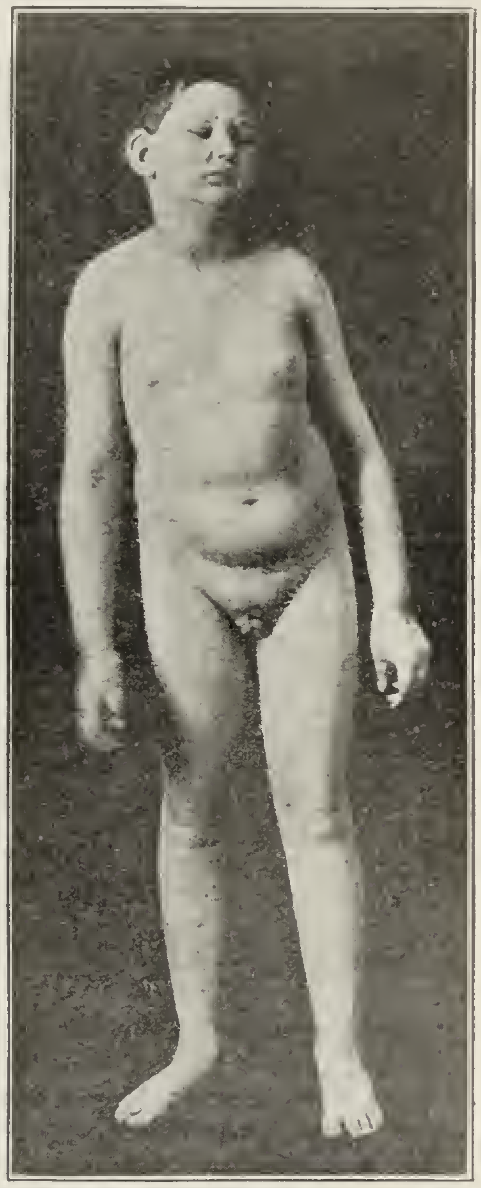

Fig. 2.—Patient, showing the typical adiposity and the genital dystrophy.

*Physical Symptoms.*—What struck the eye on looking at the patient was the general appearance: the excessive fat for a boy of his age, the feminine form and tapering fingers. When we add to that the fact of his blindness and find that he has a genital aplasia, we have the cardinal symptoms of Fröhlich's syndrome—dystrophia adiposogenitalis.

The symptoms are grouped according to Cushing's scheme:

1. Neighborhood Symptoms: There were no subjective discomforts that could be ascertained. Conversation with the patient, owing to defective speech and reduced mentality, was difficult, and there may have been more subjective symptoms than one would suppose.

There was deformation of the sella turcica. The roentgen ray revealed a flattened sella with the posterior clinoid processes destroyed and the anterior pressed down, suggesting a tumor of the hypophysis originating in the sella and growing up out of it and then pressing down on the clinoid processes.

There were evident visual disturbances. Only perception of light remained. The papillae were much reduced in size and very white. Dr. Henning, an ophthalmologist in Washington, made the following note: "Optic nerve presents a gray white atrophy of nerve head with small vessels. Retina has mottled appearance like a terrazzo floor, with small pigment lumps scattered irregularly and sparsely." There was no exophthalmos, but the eyes were deep sunken in the orbits. There was now a slow lateral nystagmus, which had been much more rapid several months before.

Nasopharyngeal symptoms were noted. Cushing mentions cerebrospinal rhinorrhea as an occasional symptom of pituitary tumor. The mother reported, in this case, a constant somewhat excessive discharge of a clear watery fluid, which of late had somewhat subsided. In the absence of laboratory examinations, one cannot lay much stress on this symptom.

2. General Pressure Symptoms: The classic pressure symptoms, headache, vomiting and choked disk, are absent. Taking this in connection with the chronic course of the disease, one would expect a benign tumor, which could probably be removed by operative interference.

3. Glandular Manifestations: The boy was 137.2 cm. (4 feet, 6 inches) tall. This means that he was about 6 cm. above the average height for 10 year old boys. This excess of growth might be due to a hyperfunction of the pituitary at some time in the patient's history.

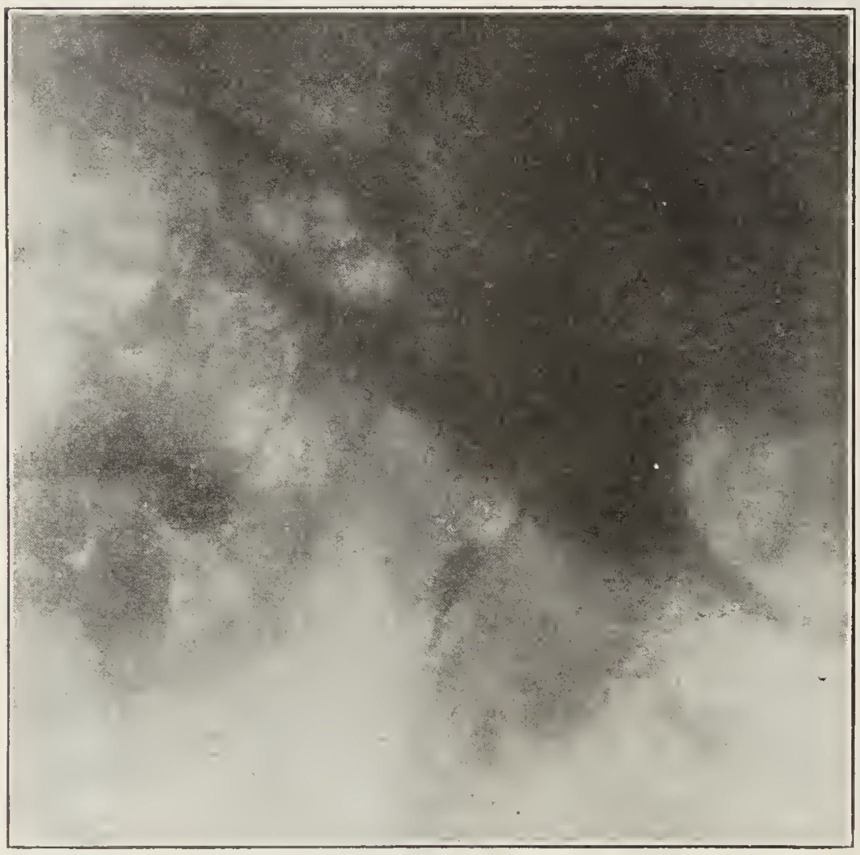

Fig. 3.—Appearance of sella turcica of patient: destruction of posterior clinoid processes, and the anterior process apparently pressed down.

The other symptoms pointed to a hypofunction of the gland—the tapering extremities, the marked and typical adiposity. The features were fine, and the skin was smooth, delicate and dry. The hair was abundant on the scalp, but was elsewhere lacking. The condition of the crines, however, was not of such diagnostic importance in a boy of 10 as it would be in an adult.

Another symptom that pointed to hypofunction of the gland was the *maxillary* prognathism as opposed to the *mandibular* prognathism of acromegaly. If one looked at the patient's maxilla and mandible, it was evident that the condition was not "due to any forward displacement of the sphenoid," as Cushing[1] supposes, but rather to retarded development of the mandible. The circumference of the head was 50.6 cm. (19 9/10 inches)—about 2 cm., therefore, under the normal of 52.6.

The boy was not in the hospital long enough for a sugar tolerance test.

There was a marked polydipsia. A history of polyuria could not be obtained.

The temperature was normal. The blood pressure was 112 systolic, 70 diastolic.

In testing the mentality of the child, it was found that he could recognize many common objects by touch, repeat three numerals, and place the objects of the form board in their proper position by trial and error.

4. Symptoms Referable to Other Glands: There was a marked sexual aplasia that must have originated in a prenatal disturbance of growth. The penis was rudimentary, but rather large for clitoris. The mons veneris was very pronounced. The testicles were not descended, and a kind of scrotal membrane covered an "open space." The breasts were definitely developed, with evident mammae.

The thyroid gland was enlarged, palpable, and of rather firm consistency. The pulse was not accelerated; it was about 80 at the time of the examination.

The suprarenals were not seriously involved, although there was a dirty bronzing of the skin.

Over the sternum, just below the clavicle, there was an area of dulness, extending distinctly to the left, which merged into the cardiac dulness below. This might be due to an enlarged thymus.

There was no evidence of the involvement of other glands.

In 1901, Fröhlich[2] described what he termed "a case of tumor of the hypophysis without acromegaly." The cardinal symptoms that he pointed out were (*a*) adiposity, (*b*) genital dystrophy, (*c*) falling out of the hair after the onset of the disease, and (*d*) atrophy of the optic nerves.

In the later literature, this syndrome became known as dystrophia adiposogenitalis. The condition is associated with a tumor of the hypophysis or one in its neighborhood.

In 1908, Bartels[3] discussed the relation of the changes of the hypophysis to dystrophia adiposogenitalis. He mentions these three theories to explain this relationship:

1. Both tumor and dystrophy are due to inborn, coordinate germinal dispositions (*Keimanlagen*).
2. Changes in the hypophysis, due to the tumor, account for the dystrophy.
3. Not the changes in the hypophysis, but injury of a neighboring center at the base of the brain causes the changes.

Bartels adopts the first of these hypotheses.

The studies of Cushing render it abundantly evident that changes in the pituitary are frequently the cause of the dystrophy. But the cases which produce this evidence have their onset rather late in life.

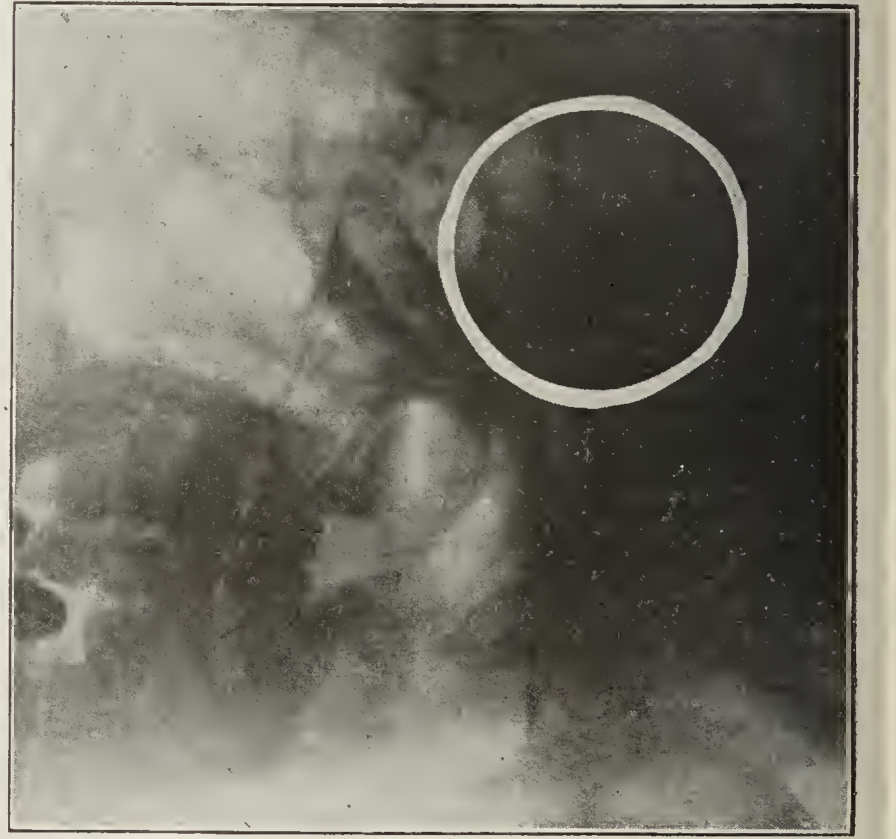

Fig. 4.—Normal sella turcica, with outlines dotted for comparison with Figure 3.

There is perhaps room for a small number of cases whose origin is prenatal, and in which a hereditary factor may be detected. In these, both the tumor and the dystrophy may be due, as Bartels maintains, to an inborn coordinate germinal disposition.

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[1] Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia, J. B. Lippincott Company, 1912, p. 256.

[2] Fröhlich, Alfred: Ein Fall von Tumor der Hypophysis cerebri ohne Akromegalie, Wien. klin. Rundschau, 1901, **15**, 883-886; 906-908 (references to fifty-six articles on the subject).

[3] Bartels, M.: Ueber die Beziehungen von Veränderungen der Hypophysengegend zu Misswachstum und Genitalstoörungen (Dystrophia adiposo-genitalis), München. med. Wchnschr., 1908, **55**, 201-202.

The present case suggests precisely this possibility because:

1. There is a hereditary taint, suggested by the number of deformities in the mother's paternal relatives, and by the appearance of a cerebral defect in one of her paternal relatives who married a man of suspicious ancestry. All this goes to suggest a mendelian recessive.
2. The origin of the case is prenatal. The reasons for this are: (*a*) the assertion of the parents that the child never saw; (*b*) the fact that the father noticed the nystagmus when the child was only 3 or 4 months old; (*c*) the fact that the genital aplasia is such that it must date well back into the prenatal history of the child, and (*d*) the very small optic disks.[4]

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# ANTHRAX

## A CASE OF B. ANTHRACIS SEPTICEMIA WITH RECOVERY

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and
HERBERT K. DETWEILER, M.B. (Tor.)
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Anthrax infection in the human being occurs with considerable rarity; but the instances in which the organisms are demonstrable in the circulating blood are very rare indeed. In this communication we describe in detail a case in which an anthracemia was present, followed by recovery.

The relation of human infection to animal infection has been established for many years. The path of infection lies through the medium of animal products, principally hides, of which those coming from China and Argentina furnish the most prolific source. The sites of the initial lesion in the human being are either cutaneous, pulmonary or intestinal. Of the cutaneous lesions, those arising in the neighborhood of the neck are most serious. In such instances collected[1] between 1899-1904, 40 per cent. led to a fatal issue. This may be explained by the presence of a very marked and far-reaching edema, which characterizes the fourth stage of clinical anthrax. The proximity of the respiratory passages makes the danger from edema in this area obvious.

The tendency of anthrax in man is to remain localized, but penetration may occur into the blood stream at any time and give rise to a fatal septicemia.[1] In searching the literature one is impressed with the lack of definite information regarding the results of blood cultures. No statistics of any value are obtainable on this point. All writers, however, seem to be agreed on one point, namely, that a septicemia is to be regarded as leading to a fatal termination in the vast majority of cases. While we have found[2] in the literature only one instance of anthracemia followed by recovery, we do not consider it likely that this case is the only one successfully treated, particularly in view of the apparent lack of laboratory investigation in many of the cases reported. It is the usual thing to find the various authors dealing only in generalities; and while we meet such statements as "The majority of anthracemias are fatal,"[3] the authors cite no definite cases of recovery.

The course of cutaneous anthrax may be divided into four stages, which are briefly:[1]

1. The presence of an insignificant wound with no sign or evidence of danger, which may remain as such for two or three days.
2. The appearance of a small pimple with a vesicle filled with a clear or blood-stained brownish fluid containing many bacilli, accompanied by the pricking or itching of the vesicle. This stage may last for from twenty-four to thirty hours.
3. Marked induration of the tissue underlying the vesicle, which has become flattened and has a livid color, marking the beginning of necrosis, which is surrounded by an edematous ring on which are formed vesicles which may coalesce. In the central dark eschar there are many bacilli. This stage lasts from one to two days.
4. More or less rapid increase of the dark slough along with the edema. The latter may be extensive and very widely spread. Here, because of secondary infection, it is difficult to demonstrate bacilli. The size of this area is variable, and it bears no relation to prognosis.

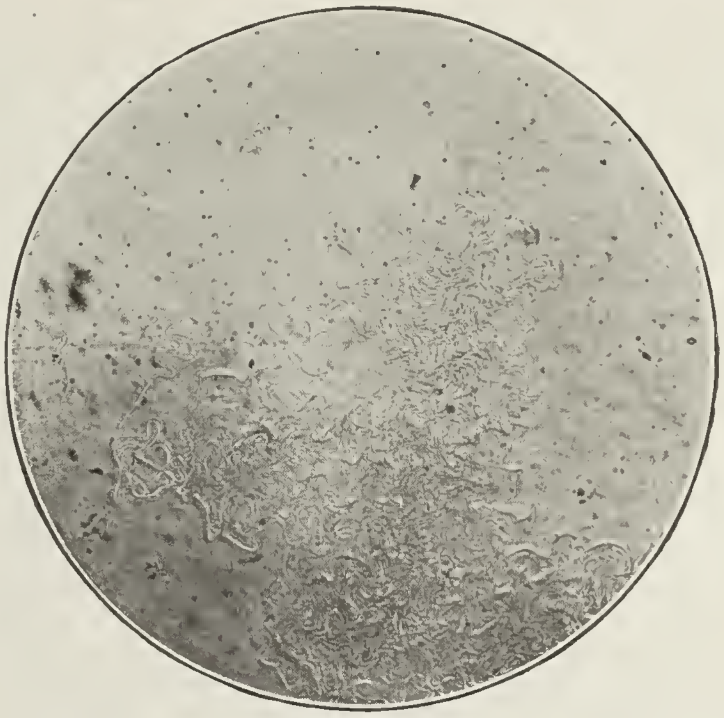

Fig. 1.—Gross picture of growth on agar plate, with typical "doll's hair" margin.

### REPORT OF CASE

E. M., man, aged 36, a tanner, admitted to the Toronto General Hospital under Dr. F. N. G. Starr, 8:30 p. m., Nov. 23, 1916, complained of a sore on the left anterior triangle of his neck, with swelling of the left side of the face and neck, extending down over the front of the chest to the junction of the third rib with the sternum.

November 20, he was working more closely than usual with the hides, and in the soaking process he was exposed a good deal to the dust arising from the handling. In the sweating process he often scraped the hides with his thumbnail to determine the progress of the separation of the hair. He also had a habit, when worried, of stroking his neck with his left hand. On the night of the 20th he shaved, and on the morning of the 21st he noticed a ridge half an inch long at the midpoint of the anterior border of the sternomastoid muscle, the surface of which was intact. The skin around it seemed a little thickened, and when he squeezed it between his fingers a little serum escaped. On the morning of the 22d, it had a hard top as large as the end of his thumb, and it began to feel sore. In the afternoon, when the top was removed by his physician, a little hard, dead tissue was found, but no pus. In the evening he had an elevation of temperature, pain in the back and a headache. On the morning of the 23d the area was more painful, and the ridge extended down to the thyroid cartilage. There was no swelling on his chest or his cheek. In the afternoon he left for Toronto and, on his way down, the swelling extended down over his chest and up over the side of the face.

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[4] In addition to the references already given, the following will lead one to the rather extensive literature on this syndrome:
Mattiolo, G.: Contributo alla conoscenza della distrofia ipofisgenitale, Riv. di Patol. nerv., 1914, **19**, 513-529 (reports of three cases; a good bibliography).
Strauch, August: Infantilism, Am. Jour. Med. Sc., 1914, **148**, 247-266 (general article with good bibliography).
Waltzfelder, Eduard: Implantation of Pituitary Gland in a Case of Congenital Genital Adiposity (Dystrophia Adiposo-Genitalis), New York Med. Jour., 1914, **100**, 1002-1004.

[1] Encyclopaedia Medica, 1915, **1**.

[2] Bromet, E. A.: Case of Anthracaemia with Three Separate Points of Inoculation on the Right Arm; Recovery, West London Med. Jour., 1901, **6**, 129.

[3] Kolmer: Infection, Immunity and Specific Therapy, 1916.

*Condition on Admission.*— The patient's temperature was 99, and the pulse 105. A sloughing area the size of a quarter was present over the midpoint of the sternomastoid muscle. The skin was hard and brawny, which condition extended well down on the chest and up on the face. Forty c.c. of anti-anthrax serum were given subcutaneously, and the tissues surrounding the sloughing area were injected with 40 per cent. alcohol. A culture was also made from this area. Considerable mucus in the throat, the result of the widespread edema, caused a good deal of irritation.

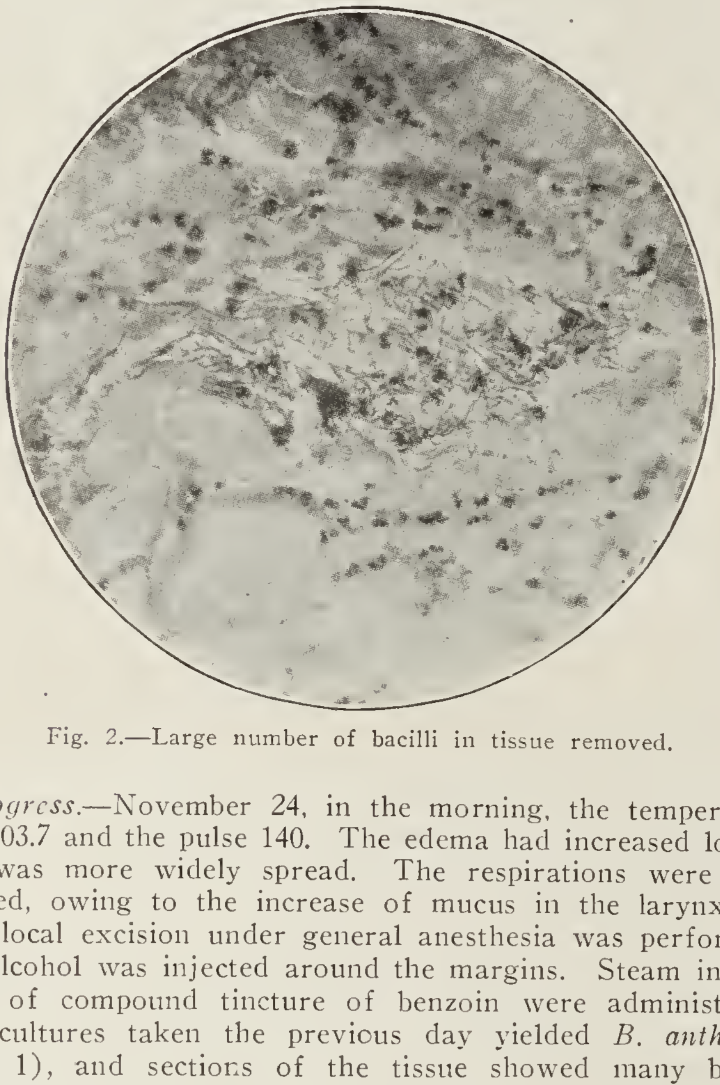

Fig. 2.—Large number of bacilli in tissue removed.

*Progress.*—November 24, in the morning, the temperature was 103.7 and the pulse 140. The edema had increased locally and was more widely spread. The respirations were very labored, owing to the increase of mucus in the larynx. A wide local excision under general anesthesia was performed, and alcohol was injected around the margins. Steam inhalations of compound tincture of benzoin were administered. The cultures taken the previous day yielded *B. anthracis* (Fig. 1), and sections of the tissue showed many bacilli (Fig. 2).

November 25, the pulse was from 132 to 146, and of very poor volume. The temperature ranged from 102.3 to 104. Twenty c.c. of anti-anthrax serum were administered subcutaneously.

November 26, the pulse and temperature remained about the same. Respirations became more labored. The patient became very restless and nervous, and could not sleep. A blood culture was taken.

November 27, the general condition had not improved. The edema became much worse over the face, neck and chest, and had extended to the upper part of the left arm, the whole area looking very red and acutely inflamed. The blood culture revealed the presence of the bacilli in the circulating blood. At 1 p. m. we gave 100 c.c. of chloramin-T (Dakin) along with 80 c.c. of anti-anthrax serum, intravenously. At 1: 30 p. m. the patient had a severe chill which lasted fifteen minutes; the pulse was 130, and the temperature 104.2. At 5: 30 p. m., the patient was sleeping with a pulse of 114 and a temperature of 101. At midnight the pulse was 100 and the temperature was 99.4.

November 28, another blood culture was found to be negative. The evening pulse rate was 98; temperature was 100.

November 29, the maximum temperature was 98.4, the pulse 92. The patient slept a great deal, and his breathing was much more comfortable. A blood culture proved to be negative.

From this date the patient's convalescence was uneventful, no untoward symptoms manifesting themselves. The wound was exceedingly slow in healing, a black, leathery eschar having formed over the wound which did not disappear for seven weeks and then only when digested with a papain preparation. It was impossible to separate it by means of forceps. The edema persisted for even a longer time before it disappeared.

### COMMENT

The points of interest in this case are:

1. The way in which the disease exhibited the characteristic four stages of cutaneous anthrax.
2. The persistent increase in symptoms, and the presence of *B. anthracis* in the circulating blood, despite local excision and subcutaneous injection of serum.
3. The sudden response to intravenous use of chloramin and serum in large doses, resulting in negative blood culture in thirty hours, and remaining negative despite the fact that no further specific therapy was used.
4. The persistence of the edema of the skin and the slow healing of the wound.

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# NONROTATED ILEUM WITH FATAL INTESTINAL OBSTRUCTION

## DUE TO OCCLUSION OF THE ILEUM BY THE OVERRIDING COLON

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The unique anatomic relationship of the terminal ileum and the cecum and ascending colon is the reason for reporting this case of fatal intestinal obstruction. The condition present resembled in a general way the condition found in mobile colon, except that the ascending colon had overridden and become secondarily adherent on a coil of the terminal ileum. Still other coils of the ileum lay to the right side of the ascending colon and cecum. Or, conversely, this part of the ileum failed to rotate and descend, whereas the cecum did so to the usual extent.

The dominant features of the anomaly were as follows: About 30 inches from the termination of the ileum in the ileocecal valve, the ileum passed under the posterior parietal peritoneum and ran upward and outward to a point 2 inches below the hepatic angle of the colon. There it turned sharply outward under the colon and emerged on its lateral side, acquiring a mesentery, and then coursed downward, describing several loops to the outer side of the ascending colon, and passing around to the left of the cecum, entering the ileocecal valve in the usual way. The head of the cecum was normal and free from adhesions, and the appendix was free and normal in color and size. A Meckel's, or true, diverticulum, 3 cm. long, with free end, lay parallel to the colon. It was given off from the ileum an inch and a half after its emergence from under the colon. The diverticulum was constricted at its base and again at a point half way to its tip, which tapered to a blunted end. There was no band or other connection with the umbilicus. There were redness and swelling, and there were some adhesions of the diverticulum to the surrounding structures. The caliber of the ileum on the proximal side of the diverticulum was smaller than just beyond it. The ileum, after passing beneath the posterior parietal peritoneum, was collapsed, whereas the remaining or free portion was dilated to about the diameter of the colon. The retroperitoneal portion was crossed by a number of fibrous bands, which may have caused the obstruction. At any rate, the bowel on the proximal side of these bands was tremendously dilated, whereas the terminal portion was collapsed. The vessels carrying the circulation of the ascending colon could also be seen crossing the ileum.

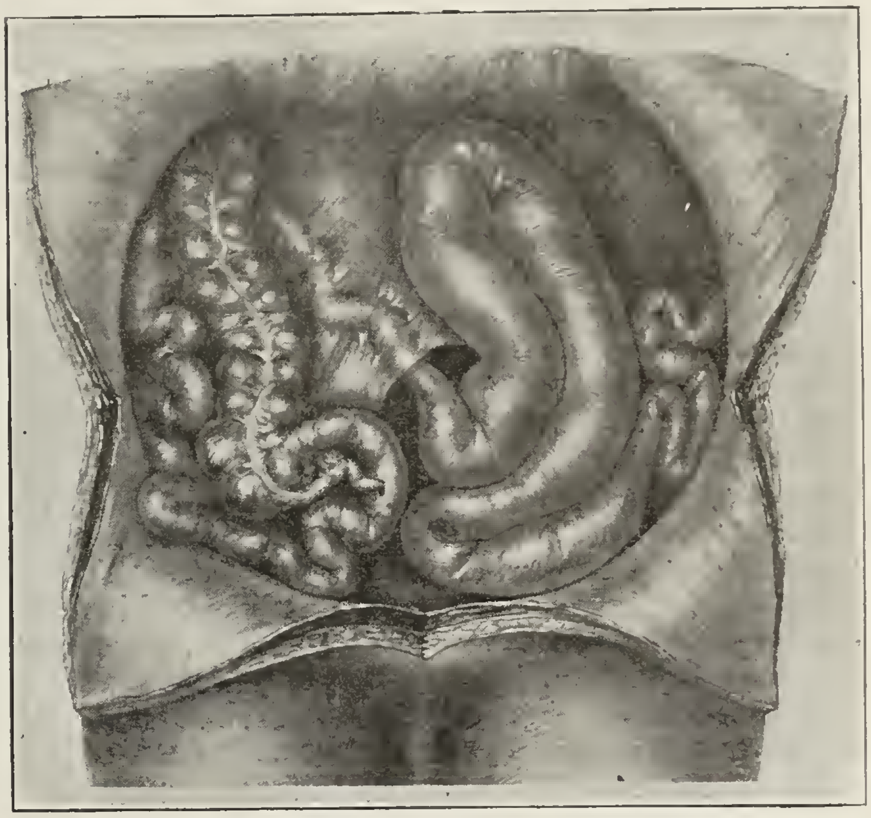
### REPORT OF CASE

*History.*—Mr. V., aged 54, referred through the courtesy of Dr. J. W. Robertson, and presenting a negative family history, was the father of three healthy children. He had never been a well man, but had suffered much from some chronic digestive disorder. He had to be particularly careful that his food should not be bulky, and frequently had to take cathartics. He was thin, morose and distrustful, a hard worker, and had spent all of his life on a farm. In addition to his "indigestion," as he called it, he had had several attacks of diarrhea following periods of constipation. After these attacks he complained of abdominal tenderness. There was no history of a serious illness.

The last attack began with a diarrhea, which persisted all of one night, and was attributed by the patient to a dietetic indiscretion. There were griping pains, which increased in severity. There was some gaseous distention. By morning, vomiting of a serous yellowish material began. The stools were at first productive, but soon became thin with mucus and blood. Occasionally, after severe straining, the vomitus was of a more stercoraceous odor and appearance as the illness progressed. In the morning, on arrival of medical assistance, the diarrhea was temporarily checked, and the pain was relieved by treatment; but the vomiting continued and the distention increased.

The vomitus exceeded the amount of fluid ingested by a considerable amount, and as a consequence the patient was burning with thirst. The pulse finally became small, weak and rapid, and later almost imperceptible. Returns from enemas in the latter part of the day were nil, and some castor oil which had been given failed to act. The mentality became cloudy and the tongue dry and shrunken. It was in this condition that I found the patient on the afternoon of the day following the onset. On account of the history it was considered likely that the obstruction was due to a congenital cause. There appeared to be a massing or difference of rigidity over the right upper rectus muscle. After removal to the hospital the patient was given 1,000 c.c. of Hogan's solution (1 per cent. sterile gelatin in physiologic sodium chlorid solution) intravenously. The blood pressure rose in five minutes from 60 mm. of mercury to 110 mm., and inside of an hour to 140 mm. The tongue became moist, and the mentality clearer. The stomach was washed every two hours, as recommended by Jackson,[1] and an attempt was made to carry out his plan for deferring operation. Later in the evening, physiologic sodium chlorid solution was given subcutaneously. Solutions of sodium bicarbonate and glucose were given by continuous drop proctoclysis. At first the pulse increased in strength and volume, and the rate fell. The vomiting stopped temporarily, and the tongue became more moist. Toward morning, however, the same serous vomiting began again, and the tongue became dry and parched. In the morning, after consultation, it was decided to perform an exploratory operation. In a preliminary discussion of the procedure the patient definitely refused to have an enterostomy. He cared little for life in any case, and not at all at the cost of a fecal fistula.

*Operation and Result.*—A right rectus incision was made, and the condition described in the introduction was discovered. It was at once apparent that the resection or untangling of such a condition was a measure not suited to the serious condition of the patient. A side to side anastomosis of the ascending colon above the ileac crossing was hurriedly made with the ileum proximal to the obstruction. This was performed with less difficulty than usual, owing to the fact that the thickness of the two intestine walls was about the same. The abdominal wound was closed without drainage. The stomach was washed out and 6 ounces of olive oil injected into it and allowed to remain. On the patient's return to bed, Hogan's solution was again injected. The bowels at once began to move frequently and copiously, and the distention decreased. The condition of the patient at first appeared encouraging, but by a gradual loss of strength he sank into coma and died at the end of twenty-four hours. Death appeared to be due to toxemia. The distention had subsided and the vomiting had stopped, but the pulse flagged and the tongue dried up again. The sodium chlorid solution was not retained, but was excreted by the skin, bowels and kidneys. Permission to perform a postmortem was refused by the family.


Condition found in case of nonrotated ileum.

### COMMENT

The primary cause of a condition like this probably lies in a miscarriage of the usual embryonal shiftings of the intestinal tract. It is strange that a man could have had such a condition for fifty-four years and not have an obstruction before. It seems likely that there existed a partial obstruction due to the many bands that crossed the ileum in its retroperitoneal course, and that this obstruction became absolute by reason of the swelling of the intestinal coats from an inflammatory reaction that caused the diarrhea, and the redness and swelling of the Meckel's diverticulum. The bands in the peritoneum were also probably shortened thereby. Byron Robinson[2] argues the probability of appendicitis in the fetus causing the adhesive tendencies responsible for the nonrotation of the colon. The Meckel's diverticulum need not be discussed other than to suggest that previous inflammatory attacks may have accounted for the patient's previous attacks of diarrhea. An adhesion of this organ may have occurred, fixing it in the right hypochondrium at a certain stage in the rotation of the intestine. This would have prevented its further descent and that of the terminal ileum. If, then, the rotation of the colon and the remainder of the small intestine progressed normally, a condition such as was described in the opening paragraph would have been produced. It would only remain for the colon, which must have descended as a mobile colon, to adhere to the posterior parietes and to the small intestine, which it had overridden.

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[1] Jackson, J. N.: Intestinal Obstruction; Review of Experimental Observations, with Practical Suggestions, Jour. Missouri Med. Assn., 1917, **14**, 377.

[2] Robinson, Byron: Unusual caeca in One Hundred and Thirty Autopsies, Gaillard's Med. Jour., 1895, **61**, 307.

The rotation of the large and small bowels in the human fetus has been accurately described by Huntington,[3] Kelly,[4] Mayo,[5] and others, and many cases of nonrotation have been reported. In these descriptions the movements and positions of the small bowel have been regarded as secondary to those of the colon, and given only perfunctory notice. However, it can be readily seen that the small bowel must also describe the same arc that the colon does in order to come to lie to the left of the colon. In the complete nonrotation cases the fetal condition persists, that is, the small intestine lies entirely to the right of the colon, the duodenum is entirely uncovered, and the omentum is missing from the small bowel.

Kelly and Huntington give the impression that the so-called cecum mobile, or, more accurately, mobile colon, is the usual state of affairs until the cecum has fully descended, whereupon a fusion takes place between the visceral peritoneum on the back of the ascending colon and the parietal peritoneum beneath it; and an obliteration of the same takes place and the usual type of unmobile cecum is produced.

Dr. A. E. Hertzler holds a different view. He demonstrated to me ten hardened fetuses of various ages and stages of rotation, stating that they were the same as a much larger number that he had collected. In all of these except one, the fusion or fixation of the colon to the posterior parietal wall had taken place before the cecum had reached the iliac fossa, some as high as the subhepatic position; and descent was evidently proceeding with the colon in this condition, as respects fusion with the posterior wall, that is, in the adult state.

It is evident that some other explanation of the observed facts must be sought in the case under consideration, or else that descent as a mobile cecum with later fusion of the layers actually did take place. Indeed, Hertzler showed me one fetus in which all the conditions of this case were fulfilled, excepting the secondary fusion. The mobile colon actually overlay the small intestine in the same manner. Dr. Jabez N. Jackson mentioned a similar finding in a case seen at operation. It is evident, therefore, that both methods of descent and fixation occur, whichever may be the usual manner.

In so brief a paper as this, it is not possible to discuss nonrotation in general. Judging from a perusal of the literature,[6] nonrotation cases appear to fall into the subjoined groups, an arrangement which is offered tentatively as comprehending the reported facts.

1. Nonrotation complete, of both large and small bowels.
2. Nonrotation, partial or incomplete, of both bowels.
3. Overrotation, causing pelvic position of cecum and appendix.
4. Malrotation, which may be normal in extent, but abnormal in that the colon comes to overlie or underlie some of the organs or membranes in a manner differing from the normal.
5. Nonrotation of the small intestine, or a part of it (that of the colon and the remainder of the small bowel having been normal in extent).

In the fifth group comes the case herein reported, as yet an isolated instance.

### SUMMARY

This case tends to support two theories previously advanced, and illustrates a new phase of intestinal nonrotation:

1. Inflammatory adhesive processes in the peritoneum may occur in utero.
2. At least in some cases, fusion of the peritoneum on the back of the ascending colon to the posterior parietal wall does not occur until after full rotation and descent have taken place.
3. Nonrotation of a part of the small bowel alone may occur, a phase of intestinal nonrotation not previously reported in the literature available to me.

406 Waldheim Building.

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[3] Huntington, Anatomy of the Peritoneum, New York, Lea & Co., 1903.

[4] Kelly and Hurdon: The Vermiform Appendix and Its Diseases, Philadelphia, W. B. Saunders Company, 1905.

[5] Mayo: Failure of the Colon to Rotate, Med. Rec., New York, 1912, **81**, 401.

[6] In addition to the references already given, a list of the articles consulted during the preparation of this paper is appended. It is probably not a complete list of the literature on the subject, as the cases reported are numerous, and are scattered under different titles. A case of nonrotation of the small bowel may thus have been overlooked.

Armstrong: Abnormal Positions of the Duodenum, Tr. Am. Surg. Assn., 1910, **28**, 299.

Cunningham: Human Anatomy, New York, William Wood & Co., 1915.

Delatour: Persistent Embryonal Types of Large Intestine, Ann. Surg., 1915, **61**, 73.

Des Comps: Rev. de chir., 1916, **51**, 109; Internat. Abstr. Surg., 1916, **8**, 388.

Fowler: Persistent Developmental Anomalies of the Position of the Large Intestine, Especially the Ascending Colon and Cecum, Med. Rec., New York, 1916, **89**, 353.

Malcolm: Two Rare Abnormalities Observed in the Course of Operations, Lancet, London, 1911, **2**, 1401.

Maylard: A Treatise on the Surgery of the Alimentary Canal, London, J. and A. Churchill, 1896.

Mayo: Removal of the Right Colon: Indications and Technic, Collected Papers, Mayo Clinic, 1916, **89**, 353.

Prince: Transposition of the Stomach and Duodenum; Concealment of the Colon Behind the Duodenum; Strangulation of the Colon, Rapidly Fatal, Am. Jour. Med. Sc., 1853, n. s., **25**, 558.

Smith: A Statistical Review of the Variations in the Anatomic Positions of the Cecum and the Processus Vermiformis in the Infant, Anat. Rec., 1911, **5**, 549.

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**Effects of Heat, Cold and Fatigue in Encouraging Infections.**—Frogs ordinarily do not become sick if injected with anthrax germs, a very deadly germ which readily kills cattle and also men. If such frogs, however, are kept in a warm room at blood-heat temperature, they will rapidly become sick and die of anthrax. In the case of chickens, which also do not readily take anthrax, sickness and death follow the injection of anthrax germs provided the chickens are chilled by keeping them standing in cold water. White rats ordinarily are quite resistant to anthrax germs. Yet they rapidly become sick and die after being injected with anthrax germs provided they have first been fatigued. It is a simple matter to fatigue a rat in the laboratory by making the animal run a treadmill. Various animals can be readily infected with disease germs, to which they are ordinarily resistant, if their resistance is reduced by alcohol.—Circular, Bureau of Public Health Education, to Soldiers in the Army Camps Regarding Pneumonia, etc.

# SUBCUTANEOUS INJECTIONS OF OXYGEN IN THE TREATMENT OF BALANITIS GANGRAENOSA

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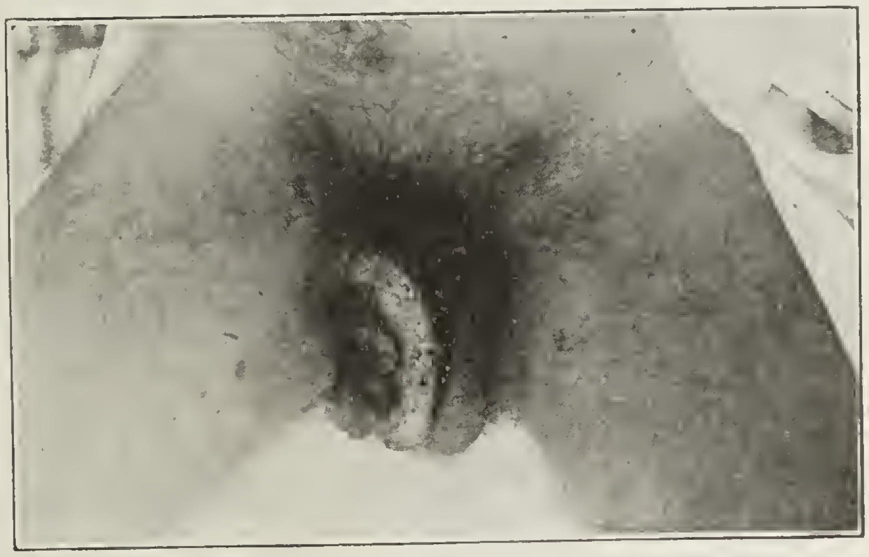
KANSAS CITY, MO.

Erosive and gangrenous balanitis, the *balanoposthite érosive circinée* of Berdal and Bataille,[1] is a fairly uncommon affection, even in large venereal clinics, but its serious character when unrecognized entitles it to more frequent and extended notice in medical literature than it has received up to the present time.

The disease is due to the symbiosis of a fusiform bacillus and a spirochete, which structurally resemble those found in Vincent's angina. The causative organisms were originally described by Müller and Scherber.[2] Culturally, they are anaerobic, and both stain readily with dilute carbolfuchsin, a tinctorial reaction which distinguishes the vibrio from the *Spirochaeta pallida* of Schaudinn and Hoffmann.

The lesions, which develop quickly on the glans or foreskin, usually are single, in contradistinction to chancroid, and do not give rise to inguinal adenitis. The pus is of a characteristic, foul odor. The local and constitutional symptoms vary with the severity of the infection. Owing to the acute character of the inflammatory process, phimosis is an early and annoying complication. Extension of the disease commonly is rapid, and the amount of tissue destruction may be very great.



Separation of slough following oxygen injections into the subcutaneous tissues, in balanitis gangraenosa.

Of the various constitutional remedies, arsphenamin (salvarsan), as a spirocheticide, holds first place. Locally, oxygen-bearing preparations, such as hydrogen peroxid, are the most efficient.

Examples of gangrenous balanitis occurring in this country have been described by Corbus and Harris,[3] Corbus,[4] Pusey,[5] and Owen and Martin.[6]

The following case is a fairly typical one:

F. B., real estate promoter, aged 54, referred by Dr. Frank B. Ellis, of Garden City, Mo., had visited the city a fortnight before his call on me, and at that time had indulged in a prolonged debauch; consequently his recollection regarding the train of events that had led up to the infection was somewhat indistinct. He strongly denied exposure of any kind to venereal disease.

Twenty-four hours after the patient's return home following the debauch, he first noticed a small ulcerated area on the dorsum of the foreskin, at a point overlying the corona. This lesion rapidly increased in size, the central portion becoming blackish, and the entire foreskin became swollen and edematous. In addition to the phimosis, there was a considerable discharge of foul-smelling pus from beneath the inflamed skin covering the glans.

When I first saw the patient, five days after the onset of the disease, almost the entire dorsum of the penis was involved, the skin and subcutaneous tissues being soft and gangrenous. During the following thirty-six hours the infection continued to spread, despite the frequent and liberal use of hydrogen peroxid, by irrigation and by moist packs.

At this time subcutaneous injections of oxygen were begun, by means of an ordinary hypodermic needle connected to an oxygen tank through a small rubber tube, and repeated every four hours. The normal tissue surrounding the affected area was first treated, the flow of gas being regulated by means of a small screw clamp encircling the outlet tube. Afterward the involved structures also were thoroughly impregnated with the gas. Within six hours the progress of the disease was checked, and within twelve hours it was completely under control. Shortly afterward the slough began to separate, and recovery, aside from the deformity resulting from loss of tissue, was prompt and uneventful.

726 Lathrop Building.

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1. Berdal and Bataille: Méd. mod., 1891, **2**, 340, 380, 400, 413.
2. Muller and Scherber: Arch. f. Dermat. u. Syph., 1905, **77**, 77.
3. Corbus, B. C., and Harris, F. G.: Erosive and Gangrenous Balanitis, The Journal A. M. A., May 8, 1909, p. 1474.
4. Corbus, B. C.: Erosive and Gangrenous Balanitis, The Journal A. M. A., June 7, 1913, p. 1769 (with good photomicrographs).
5. Pusey: Principles and Practice of Dermatology, New York, 1917, p. 532.
6. Owen and Martin: Jour. Lab. and Clin. Med., 1917, **2**, 862 (with good photomicrograph).

# ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF BILATERAL CASES OF PULMONARY TUBERCULOSIS

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The use of artificial pneumothorax in the treatment of tuberculosis has received much attention in the last few years.

At present there are many institutions which do not make use of this valuable remedy in the treatment of pulmonary tuberculosis. This is apparently due in part to the belief of many physicians that it is not applicable to patients who have an infection in both lungs. Furthermore, as most of the patients who have pulmonary tuberculosis have a lesion in both lungs, this reason would seem plausible to a certain extent.

If a patient is not doing well, however, and if both lungs are involved, the one more than the other, the physician must resort to radical measures.

Some time previous to the writing of this article, a patient at the state sanatorium, in whom the disease was far advanced in both lungs, left us, after being told that we could not help her. She went to Colorado, where she was given the artificial pneumothorax in the left lung, which was very active, with fine and surprising results.

Since this patient did so well, I have tried many bilateral cases with good results, and I am confident that a more careful study of the remedy in this type of cases will result in a more general use of it in institutions as well as in private work.

Beggs[1] says, "A last resort is a lost resort." Therefore, patients in an advanced stage of the disease should be treated after a very short observation.

After reviewing the percentage of cases found suitable for pneumothorax, which ran from 5 to 10 per cent., Riviere says:

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[1] Beggs, W. N.: Am. Rev. Tuberc., 1917, **1**, 509.

These figures of suitable cases, however based on mixed material, necessarily take no heed of past or future—ignore, in other words, the fact that most progressive phthisis cases at some time in their course must reach a stage when pneumothorax treatment might be used with advantage, and that a case unsuitable today might have been suitable yesterday, or may become so tomorrow.[2]

The following reports show what can be done in these bilateral cases:

Case 1.—Mr. J. J. entered the institution, Aug. 31, 1917. His entire right lung was infected, there was a cavity at the top, and the râles were very large, being heard on both inspiration and expiration. The breathing in the left lung was abnormal at the apex, with a few scattered râles throughout, heard only after coughing. Three months later a cavity had developed at the base of the right lung, and a pneumonic condition was present in the entire right lung, with the same condition in the left as at the time of entrance. Temperature in the evening ranged from 99 to 101 F., and the amount of sputum varied from 6 to 8 ounces. Pneumothorax has been given every week for two months previous to the time of writing. Meanwhile, the patient has gained 10 pounds in weight, his temperature is normal, and expectoration is practically absent. The left lung remains unchanged.

Case 2.—Mrs. E. J. entered the institution, Aug. 18, 1917, with her entire left lung infected and with a cavity at the top. The râles were very large and moist, and were heard on both inspiration and expiration. They were of a fine character, being scattered throughout the upper two thirds of the right lung, but they were heard, for the most part, after coughing. The sputum was purulent, averaging 4 ounces a day, and the temperature ranged from 99.6 to 101.6. The lung condition was unchanged two months ago. The patient has taken pneumothorax for the last two months. The sputum is very slight, the temperature has been normal during the treatment, and the right lung is in the same condition as before.

Case 3.—Mr. J. B. entered the institution, Oct. 31, 1917. The upper two thirds of the left lung was full of large, moist râles on inspiration and expiration. The cough was very disturbing and the sputum, which seemed to come from the left side, was purulent, varying from 4 to 7 ounces a day. The right lung was infected as far as to the second rib. The râles were somewhat moist, and were heard on both inspiration and expiration. The patient has been taking pneumothorax every week for the last six weeks, and at present has a normal temperature, whereas before the treatment, he maintained an average of 100.5. There is an absence of sputum. The right lung is in the same condition as before the treatment.

In all patients treated, there has been an improvement similar to that observed in the foregoing cases, and also a great improvement in appetite, color and general condition.

In most cases the patient could tell from which side the expectoration was coming. This knowledge is a great help to the operator.

If a patient with a bilateral tuberculosis is not doing well, and there is evidence enough to show that one lung is very active and the other quiet, artificial pneumothorax "will, in a number of cases, prove a great help and cannot do harm if patients are observed very carefully."

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[2] Riviere, Clive: Pneumothorax Treatment of Pulmonary Tuberculosis, New York, Oxford University Press, 1917.

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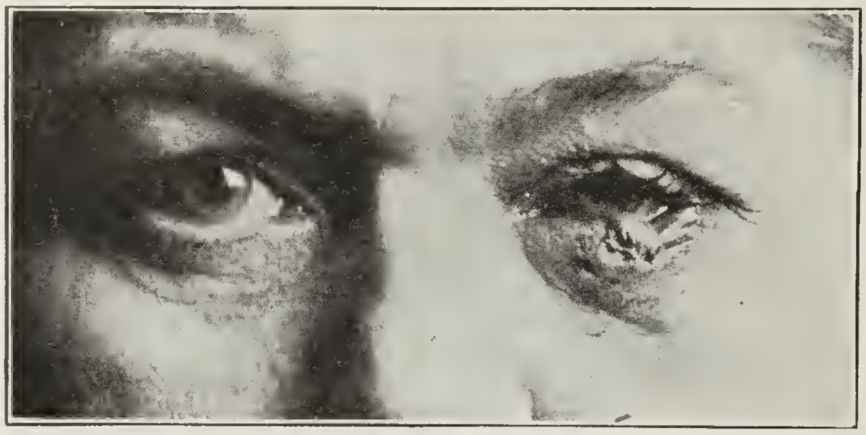
# CHANCRE OF THE EYELID

PHILIP F. SHAFFNER, B.S., M.D.
Attending Dermatologist, Michael Reese Hospital, Post-Graduate Hospital, and House of Correction; Associate, Department of Dermatology, University of Illinois College of Medicine
CHICAGO

A widow, aged 58, Irish, referred by Dr. Leigh E. Schwarz, consulted me for a lesion of four weeks' duration, situated on the left lower eyelid. In addition to the ulceration on the lid, a large, painless, hard, freely movable gland could be palpated under the angle of the left jaw. A clinical diagnosis of primary syphilis, which was confirmed by demonstration of the *Spirochaeta pallida* with the dark field illuminator, was made.

After prolonged questioning of the patient as to the possible mode of infection, it was learned that a member of her family had had a "sore throat" for some months. Examination of that person revealed a typical syphilitic angina, mucous plaques on the cheek, a fading roseola and a generalized lymphadenopathy. This patient finally volunteered the information that she had employed the tongue to remove a foreign body from the victim's eye. This was unquestionably the mode of transmitting the infection to the eyelid.

Extragenital lesions of the eye are extremely rare, the ratio of incidence[1] being 1 : 67.


Chancre of the eyelid.

They occur mostly in physicians, usually through patients coughing contaminated saliva into their eyes. This brings up the interesting fact that a single lesion in the mouth may contaminate the saliva to such an extent that a drop of the contaminated saliva may produce a syphilitic lesion without the lesion of the donor coming in actual contact with the recipient of the disease. Touchaleaume[2] says that 25 per cent. of eye chancres are due to kissing, and enumerates other means of infection, as by contaminated napkins, soiled fingers, etc. He further states that mothers can produce chancres on their children's eyelids by moistening crusts of eyelid eczema with their contaminated saliva.[3]

I had not heard of the procedure of the use of the tongue in removing foreign bodies from the eye, but several of my colleagues have known this custom to be a fairly common one, especially with the peasants of Europe. One of my colleagues recalls having known, some years ago, of an instance in which syphilis was contracted in exactly the same manner as in the case here reported. Another queer practice employed in the lay treatment of inflammatory conditions of the eye is the use of fresh urine dropped between the lids, and it seems to me that this method might also be productive of the transmission of syphilis. Max Joseph[4] mentions the tongue as a possible factor in inoculating the disease in the eye.

104 South Michigan Avenue.

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[1] Montgomery: Jour. Cutan. Dis., 1905, **23**, 342.
[2] Touchaleaume: Thesis, abstr., Ann. de dermat. et de syph., Series 2, 1889, **10**, 991.
[3] Quoted by Montgomery (Footnote 1).
[4] Joseph, Max: Geschlechtskrankheiten, 1909.

# Clinical Notes, Suggestions, and New Instruments

## A RUBBER ENVELOP ABDOMINAL PAD

Dougal Bissell, M.D., New York
Fellow of the American College of Surgeons; Attending Surgeon, Woman's Hospital in the State of New York

At a meeting of the New York Obstetrical Society, Dec. 11, 1917, I made a preliminary report on a device I am now using in abdominal work, for the purpose of keeping the intestine away from the field of operation without inflicting injury to the peritoneal covering. It may be of interest in this connection to recall that the first material popularly adopted to prevent the intestines from protruding from the abdominal wound and from entering the field of operation was the elephant ear, or flat sea sponge. Next in order was gauze, the introduction of which encountered much opposition. Gauze was used in the form of pads or strips, first dry, then wet, and more recently, gauze pads dipped in melted wax. The sea sponge was soft and supposed to be nonirritating to the peritoneum; but in reality it was irritating, as it held in its interstices innumerable silicon needles which were very sharp and constantly in action and being dislodged. The particular reason for the sponge holding its sway for so many years was its power of absorption; but when it was discovered that complete sterilization of it was not always possible without destroying its usefulness, it was abandoned, and gauze was substituted. Although gauze has not the same absorptive capacity as the sea sponge, it can be sterilized without injury, and for that reason, chiefly, it was substituted for the sponge and has ever since been in vogue. Its roughness, however, has long been recognized as acting injuriously to the peritoneum; gauze, therefore, is objectionable. Many efforts have been made to eliminate this objection; one of the best is the wax gauze pad mentioned before. Though this pad possesses some advantage over the plain gauze pad, it has no power of absorption, and when it is manipulated in the abdomen, particles of wax may break off and, as foreign bodies in the peritoneal cavity, may become disturbing elements.

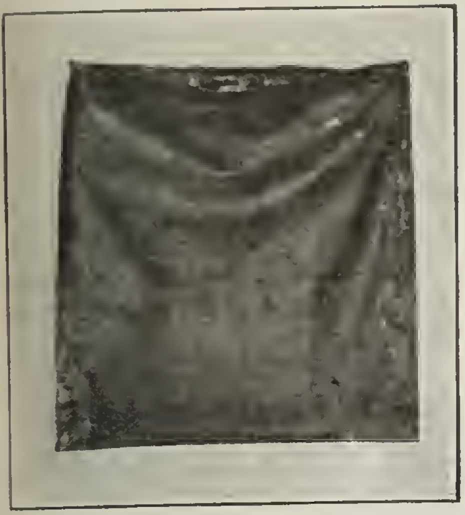
Fig. 1.—A rubber envelop, 8 by 8 inches, with two openings in the middle of its reinforced free borders.

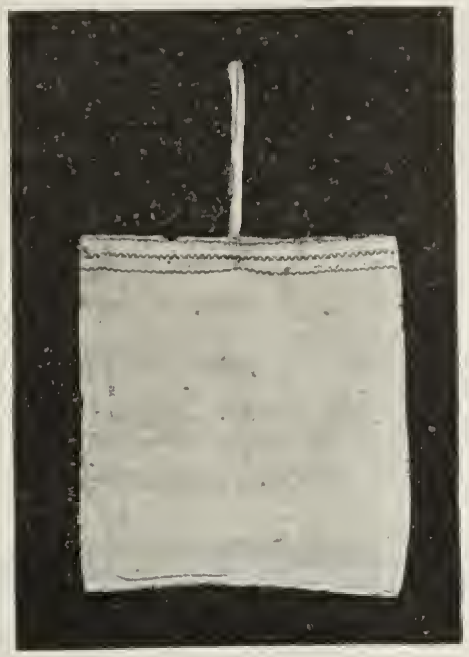
Fig. 2.—A cotton towel pad of four thicknesses, measuring a little less than the envelop, with a 10-inch loop of tape attached.

There is a striking similarity in the evolution of the technic for protecting the peritoneum from infection and injury by the hand, and that of protecting it by means of the rubber envelop to be described. The hand was first used uncleansed, as was the sea sponge. Next it was washed and further cleansed in a mild solution of phenol (carbolic acid), as was the sea sponge. The cotton glove was then introduced, at about which time the gauze pad was substituted for the sponge. Next followed the only positive and practical protection, namely, the rubber glove, and now the rubber envelop, in which there is a resisting and an absorbing pad.

This rubber envelop is made from ordinary rubber dam cut into sheets of 16 by 8 inches and folded so as to measure 8 by 8 inches. The lateral borders of the larger size envelop are glued together with rubber cement, the remaining free edges are folded on themselves to an extent of one-half inch or more and thus cemented, and through the middle of each reinforced border, an opening is made sufficiently large to permit the passing of the tape attached to the pad within.

The material out of which the pad within the envelop is made should possess considerable resistance and pliability. As the result of experiments, I have found that four thicknesses of a cotton towel best meet these requirements. The edges of these four layers are sewed together, and a tape 10 inches or more in length is doubld on itself and sewed to the middle of one border. The measurements of these pads are just a little less than those of the envelops. After being placed in the envelop, the pad is kept in position, and the envelop is closed by the passing of the tape through one and the other opening in the free borders of the envelop. Although the pad is in this manner prevented from coming in contact with the intestines, the envelop is not completely closed, with the result that fluids of the abdomen can in part enter the envelop and be absorbed by the pad.

This rubber envelop pad possesses every advantage over all forms of gauze. Any woven material like gauze, coming in contact with the peritoneum, must injure it more or less; but the rubber envelop pad may remain in contact, and under considerable pressure, for an indefinite time without occasioning an appreciable injury to the peritoneum.

When gauze pads are used in intra-abdominal work, particularly in a prolonged operation, it is not an uncommon experience to find them adherent to the peritoneal surfaces of the intestine and field of operation. The rubber envelop pad, even under the most trying conditions, with respect to length of time and severity of operation, does not adhere to the peritoneum, and leaves the peritoneal surfaces showing the same color and gloss they possessed before operation. Two of these larger pads, or at the most three, are sufficient to keep the intestines away from the field of work. If the operation is of the character that demands absorptive material, that is, one in which pus escapes or a considerable amount of blood is lost, gauze pads to any number required can be placed in front of the rubber envelop pads and used as sponges without injury to the peritoneum.

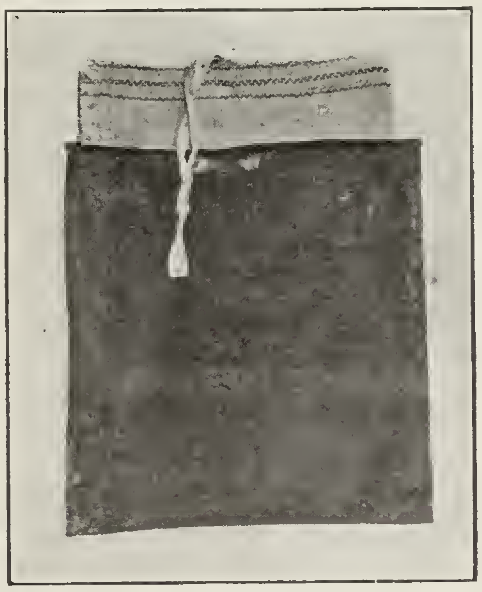
Fig. 3.—The pad entering the envelop.

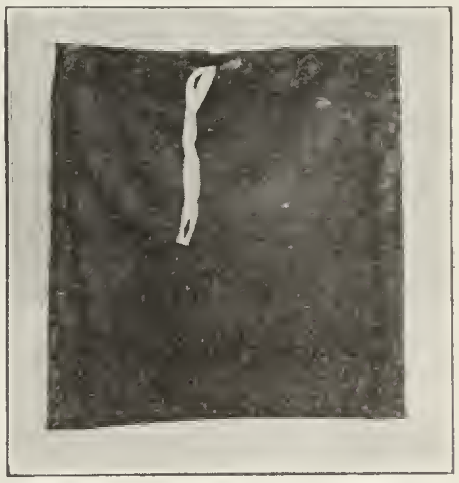
Fig. 4.—The envelop completely covering the pad and its free borders partly closed by the passing of the tape through the openings.

Before the rubber pad is handed to the surgeon during the operation, it should be dipped in warm sterile water, then folded on itself, and grasped at its distal border with a ring probang or sponge forceps.

In pelvic work, if Trendelenburg's posture is used, the intestines are removed from the pelvic cavity and the rubber envelop pads are placed first in the cecal region, then in the sigmoidal region, and a third, if necessary, is placed deep in the pelvis, its upper border meeting at the middle the other two pads previously inserted. If Trendelenburg's posture is not used, the pads are so placed as to surround the immediate field of operation.

No instrument that has rough or cutting surfaces should be used on the envelop. The pads should be removed from the abdominal cavity by means of the tapes and never with the forceps. The longevity of the envelops depends on the way they are handled. For sterilization they require only ordinary boiling in water five or six minutes, and during the interval between operations they can be sterilized again, and used in successive cases, provided a sufficient number of sterilized towel pads have been prepared to meet the demand.

The narrow envelop pads are particularly adapted to operations in which small incisions are used, such as for the removal of the appendix, gallbladder operations, and operations in which the peritoneal cavity is entered through the vagina. The pad used within the narrow envelop should consist of two thicknesses of towel. To facilitate the placing of the pad, a small opening is made in the closed distal border through which forceps are passed to adjust the pad.

In the smaller envelop a long strip of gauze 4 inches wide may be inserted in place of the towel pad if desired, to which is attached a 10 inch loop of tape. In this way a rubber bolster is formed, which would act practically the same as does the larger rubber envelop with towel pad, if folded once or rolled on itself.

Six envelop and twelve or more towel pads are sufficient for active work in any operating room.

219 West Seventy-Ninth Street.

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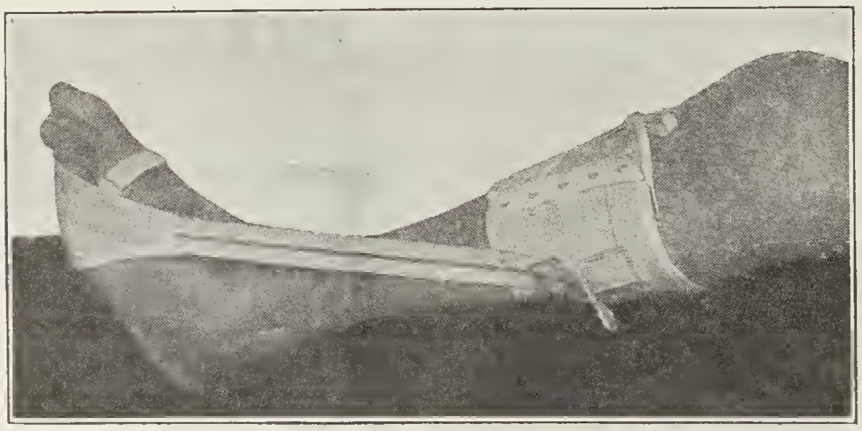
## AN APPARATUS FOR HOLDING THE FOOT IN FLEXION AND INVERSION

John A. Vietor, M.D., New York

A certain number of cases are presented to the surgeon in which there is stiffness or limitation of motion about the ankle joint that will show a tendency to improve under ordinary routine treatment, but in which, nevertheless, it would be an advantage to have constant traction in the position of dorsal flexion and inversion. For this purpose I have devised and used with good advantage an apparatus that will keep the foot in the position desired day and night if necessary.



One cuff apparatus in position in a case of infected compound Pott's fracture.

The apparatus consists of two main parts: 1. A canvas cuff with a lacing up the front that fits firmly over the patient's calf. To this cuff two buckles are attached obliquely, one on each side. 2. A stirrup made of moleskin elliptically shaped that fits under the ball of the patient's foot. To the ends of this stirrup are attached two elastic bands one-half inch wide and about 18 inches long made of good strong material. To keep the stirrup firmly on the foot and prevent lateral sliding, an elastic strap and buckle is sewn to the inner side of the stirrup, which buckles over the dorsum of the foot.

By simply buckling the elastic straps in the buckles of the cuff, one may apply and maintain the proper degree of traction. In order to hold the foot in inversion, a greater degree of traction is exerted on the internal strap. In one case in which there was a considerable amount of atrophy of the calf muscles, the cuff would tend to slide down the leg. Here I found that by adding an additional cuff fitting above the knee and attached to the calf cuff by lateral adjustable straps, this sliding would be overcome and the degree of traction would not be altered on flexion and extension of the knee.

The practical advantages of this apparatus besides the above mentioned ones are the low cost of the apparatus, the ease of its application and the simple adjustment by the patient himself.

161 East Seventy-Ninth Street.

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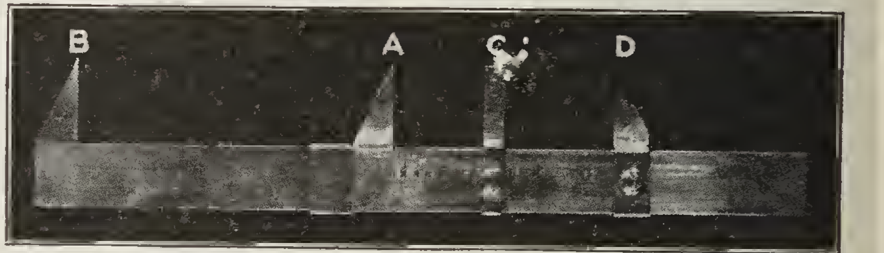
## AN IMPROVED CALIPER METHOD FOR ROENTGEN-RAY LOCALIZATION OF FOREIGN BODIES

H. C. Kariher, M.D., Champaign, Ill., and R. D. Brown, M,D.,
Mobile, Ala.
First Lieutenant and Captain, Respectively, M. R. C., U. S. Army

The caliper method requires much calculation, and is subject to error. We have devised a slide rule that enables one to read the depth without calculation.



Slide rule for measuring the depth of foreign bodies.

Metal pins are placed, like the rungs of a ladder, 1 cm. apart, and the ladder is placed perpendicularly between the table and the screen with the tube beneath the table, and the target 60 cm. from the screen. The tube is so placed under the ladder that the shadows of the pins are as but one in the central day; the screen is replaced by a plate, and a brief exposure is made with the diaphragm closed to admit only the central ray, to obtain 0. The tube is then shifted 12 cm. and a roentgenogram made on the same plate. This scale is transferred to the instrument illustrated, and thus the one minute depth measure is secured.

The point 12 cm. to the left, marked *B*, indicates the distance of tube shift. This replaces all tube locks on the table. The second slide registers the foreign body and skin marker at once. These improvements enable the operator to make all measurements at one lighting of the tube.

This instrument is used in the following manner: The foreign body is located by use of the screen; the tube and the screen are shifted so as to bring the foreign body into the central ray; a skin marker is placed in the central ray over the foreign body. Point *A* is placed in the central ray over the foreign body and the skin marker, the tube is shifted until point *B* appears in the central ray, and we know the tube has been shifted 12 cm.; now the diaphragm is opened, *C* is placed over the shadow of the skin marker, and point *D* over the shadow of the foreign body; the reading at *C*, which represents the distance from the skin marker to the screen subtracted from the reading at *D* gives the exact depth of the foreign body in centimeters. This instrument can be used equally well on plates, provided the distance is 60 cm. and the shift 12 cm.

The principal advantages of this instrument over other instruments used in the triangulation method of localization are: No plate is needed; no calculation except the simple subtraction is required; there is no locking of the tube, as the shift indicator point indicates the exact shift of the tube, and all measurements are taken at one lighting of the tube.

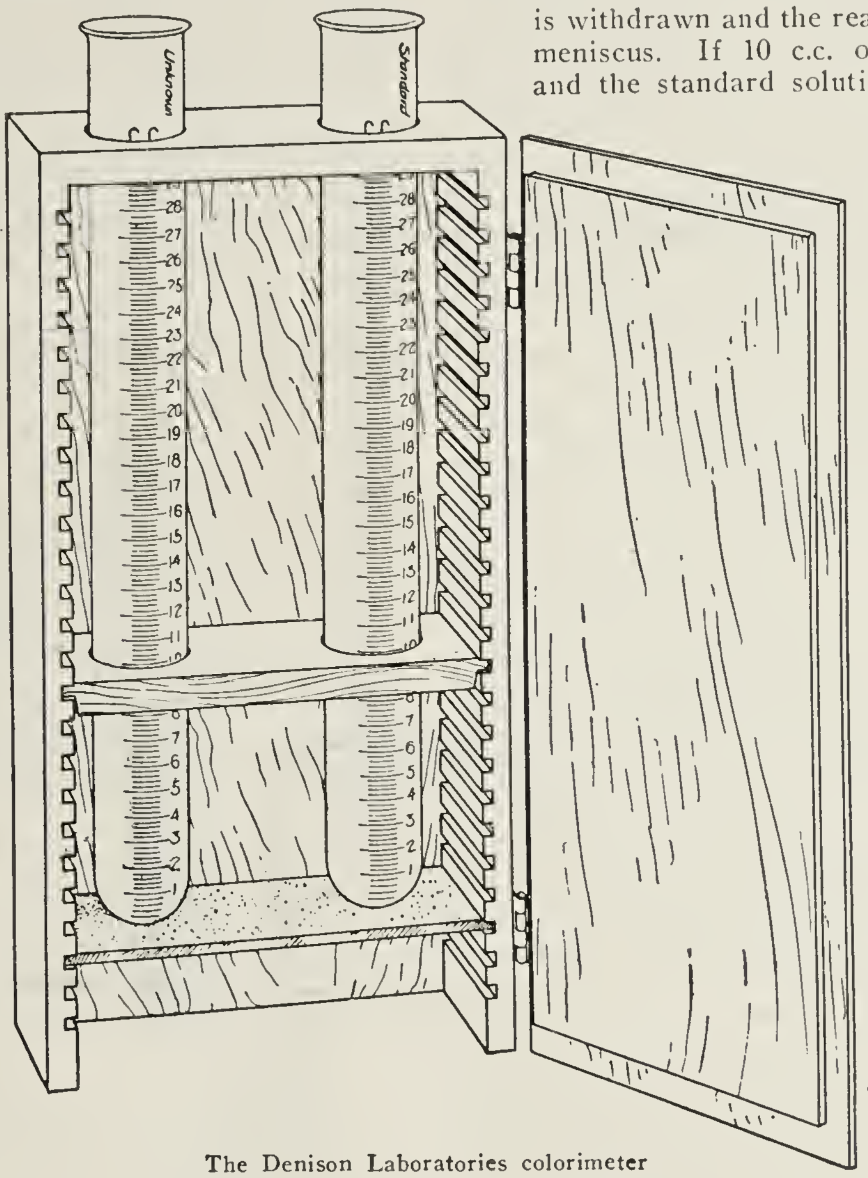
## A SIMPLE AND ACCURATE COLORIMETER FOR CLINICAL USE *

Alvin R. Peebles, M.D., and Robert C. Lewis, Ph.D., Boulder, Colo.

Professor of Preventive and Experimental Medicine, and Professor of Physiology and Biochemistry, Respectively, University of Colorado School of Medicine

The colorimeter here described, which we have chosen to call the "Denison Laboratories colorimeter," has been in constant use in the Henry S. Denison Research Laboratories and in the Laboratory of Biochemistry of the University of Colorado for a period of more than a year. It was designed in an attempt to devise for the use of the clinician a simple instrument which does not lose, because of its simplicity, any great degree of accuracy. As the number of students who have used the colorimeter is now quite large, it seems best, in order to establish the identity of the instrument, to describe it without delay and without relation to other papers on methods and technic which are now in preparation.

The materials out of which the colorimeter is constructed consist of an ordinary Pillsbury slide box designed to hold twenty-five microscope slides, two test tubes graduated to 30 c.c. in fifths, and a small piece of ground glass. One end is entirely removed from the box, and in the other end are drilled two holes large enough to admit the two test tubes. Best results are obtained when the adjacent edges of the two holes are about three-fourths inch apart. A small wooden piece with two holes corresponding to those in the top of the box is made to fit into the grooves designed for slides, and is placed a little below the middle of the box, as in the illustration. This serves to hold the tubes in place in a vertical position. The inside of the box and lid are blackened with a dead finish paint, and the lid is hinged to the box. The ground glass should have a fine-grained, smooth surface,[1] and should be so cut that it will fit into the slots provided for the microscope slides, and at the same time completely fill the aperture between the top and the bottom of the box when the lid is closed. The glass, when in its place near the end of the box from which the wooden end piece has been removed, serves as a base on which the test tubes rest and also acts as an illuminating and diffusing screen. Ordinary stock test tubes graduated to 30 c.c. in fifths are used; these must be selected and paired so that the 30 c.c. graduation mark on the two tubes will come within 1 or 2 mm. of one another when the tubes are made to stand upright on a level surface. One tube should be marked "Standard"; the other "Unknown." Wax pencil marking will do, but acid etching is preferable. A small mirror or a bit of bright tin, or, in good light, a piece of white blotting paper will serve to reflect the daylight up through the tubes. In using the instrument, one looks vertically downward through two tubes equally and evenly illuminated from below.



The Denison Laboratories colorimeter

### TECHNIC FOR USING THE COLORIMETER

The tube marked "Unknown" is filled with the solution to be tested until the bottom of the meniscus comes exactly to the 10 c.c. mark, and into the tube marked "Standard" some of the standard solution of known strength is poured. Both tubes are put into the colorimeter box and the colors compared while the instrument is held some distance from the reflecting surface and about 2 feet from the eye. If the colors do not match, and there is hardly a chance that they will, the standard solution is to be added to or withdrawn from the standard tube until a match is obtained. Additions to or withdrawals from the tube may be made with a Wright or opsonic pipet, that is, a medicine dropper drawn out to a capillary tube. When the colors in the two tubes seem to match perfectly, the eye is rested a moment, and they are compared again after the box has been turned round so that the tube which was formerly on the right will be on the left. If the colors still match perfectly, the standard tube is withdrawn and the reading taken at the bottom of the meniscus. If 10 c.c. of unknown solution are used and the standard solution is brought to a match, the strength of the unknown solution, expressed in terms of percentage of strength of the standard solution, may be obtained by multiplying the reading of the standard tube by 10. For example, if the reading of the standard is 8.4, the strength of the unknown solution is 84 per cent. of the strength of the standard; or, if the reading is 11.4, then the unknown is 114 per cent. as strong as the standard solution. Greatest accuracy is obtained by alternately working from dark to light and from light to dark. In other words, one begins with too much standard and withdraws the solution to a match for a first reading; then for the next reading one begins light and adds standard solution to a match. The average of three or four successively consistent readings should be taken as the figure on which to base calculations.

### RESULTS

When three or four readings are taken in the manner described by one with ordinary color sense, it is most unusual for the average to show an error as great as 2 per cent. That this statement is conservative may be seen from the results of the following test: A picramic acid solution prepared as a standard for the blood sugar method of one of us with Benedict[2] was diluted so that 10 c.c. were equivalent to 0.1 mg. of glucose. Some of this solution was placed in the unknown tube, and students, who had no idea of the amount of solution in this tube, were asked to add the same solution to the standard tube until a match was obtained. The results of this test are shown in the accompanying table. Students B and F had had no previous colorimetric experience beyond that of the determination of ammonia in water by the use of nesslerization tubes; Student M had used the colorimeter at intervals for a period of three months, but had had no previous colorimetric experience.

About the only source of error that has come to our attention is the illumination. The ground glass must be clean and

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* From the Henry S. Denison Research Laboratories of the University of Colorado.

[1] Ground glass may be prepared very easily by rubbing together two plates of glass with carborundum (or emery) powder and a little oil between them. In the colorimeter described, glass ground on both sides has been used.

[2] Lewis, R. C., and Benedict, S. R.: Jour. Biol. Chem., 1915, **20**, 61.

dry, and the colorimeter must be held far enough from the reflecting surface to insure even illumination. Naturally, the test tubes must be clean, but there is far less trouble from dirty glass in this instrument than in other colorimeters.

The instrument offers certain advantages over other colorimeters. To mention only a few of these, it costs only about a dollar to make; it is possible to read accurately much paler colors than with the Duboscq or Hellige colorimeters; and, as no cement is used in its construction, strongly acid or alkaline solutions can do the instrument no harm. Another point of interest worthy of note is the fact that with this instrument subjective error is reduced to a minimum, because the scale to be read is hidden completely during the matching of the colors.

ACCURACY OF THE COLORIMETER

| Student | Amount of Solution in "Unknown" Tube, C.c. | Readings of "Standard," C.c. | Average Reading of "Standard," C.c. | Error of Average Reading, Per Cent. |
|---|---|---|---|---|
| B | 13.6 | 13.5, 13.8, 14.0, 13.8 | 13.775 | +1.29 |
| F | 13.6 | 14.0, 13.8, 13.4, 13.5 | 13.675 | +0.55 |
| F | 9.2 | 9.3, 9.3, 8.6, 9.3 | 9.125 | —0.82 |
| M | 10.0 | 9.9, 10.0, 10.0, 10.0 | 9.975 | —0.25 |
| M | 15.0 | 15.0, 15.2, 15.2, .... | 15.133 | +0.89 |
| M | 20.0 | 19.8, 19.9, 20.1, .... | 19.933 | —0.33 |

We have used the instrument repeatedly and with perfect satisfaction for the determination of phenolsulphonephthalein, ammonia, urea, creatinin, and total nitrogen in urine; urea, nonprotein nitrogen, uric acid, creatinin and creatin, and sugar in blood; and protein and lactose in milk.

## DEATH FROM PRESSURE ON LARYNX BY EXTREME ANTERIOR CURVATURE OF CERVICAL SPINE

Alfred H. Noehren, M.D., Buffalo
Fellow of the American College of Surgeons

Miss U., aged 66, was admitted to the Lutheran Church Home as an inmate about twenty years ago. Since that time, she had been in fairly good health, except that she had experienced constant difficulty in swallowing. Thus she had been unable to eat her oatmeal without picking out any lumps that might be in it. She had also been markedly hunchbacked ever since she had been in the institution. The cause of this deformity could not be ascertained.

I saw her for the first time, the morning of Jan. 5, 1918. During the two previous days, her difficulty in swallowing had markedly increased, and for twelve hours she had been unable to swallow anything.

Only a very superficial examination was possible, as the patient was in great distress and could not breathe except when curled up on her left side. The most obvious symptom was her extreme dyspnea, not a rapid breathing as in pneumonia, but a labored and rather slow breathing, as though there were some obstruction in the respiratory tract. Examination of heart and lungs showed them to be normal, but very little air was entering the lungs. On looking into her mouth, I saw a bulging on the posterior pharyngeal wall, which felt hard to the palpating finger.

Further examination was made impossible by her condition but a diagnosis of pressure on some part of the respiratory tract was made. Death occurred about six hours later.

Postmortem examination, made by Dr. Mueller, pathologist of the Deaconess Hospital, revealed the cause of the dyspnea and dysphagia. The marked kyphosis in the dorsal region caused a compensatory lordosis in the lumbar and cervical regions, the most anterior portion of the latter consisting of the third and fourth cervical vertebrae. This anterior curvature came forward directly above the larynx and the opening of the esophagus, and pressed the epiglottis down on both of them, thus practically shutting them off. It occupied so much of the usual pharyngeal space that when the finger was introduced into the mouth, it felt like a large osteoma filling the mouth and pharynx. A thorough examination of the interior of the chest revealed nothing abnormal except a reddening of the mucous membrane of the trachea, with a moderate amount of semipurulent exudate.

The sequence of events which led to the patient's death was probably somewhat as follows: With the settling of the vertebrae, which occurs in old age, the abnormal curves in the spine were exaggerated, until the cervical convexity came forward to such an extent that it almost shut off the glottis and the esophagus, causing an edema of the larynx that quickly caused her death.

If an exact diagnosis had been possible before death, a tracheotomy might have been indicated, but probably would not have saved the patient's life on account of her age and poor condition when first seen.

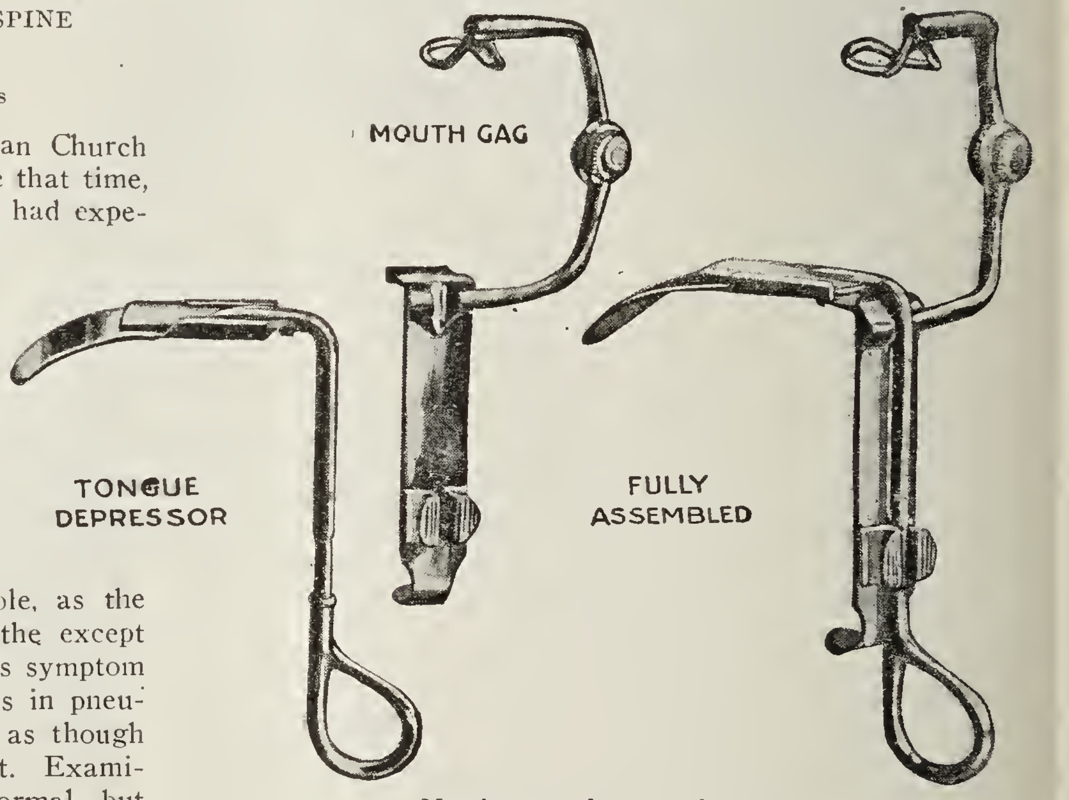
1196 Main Street.

## IMPROVED MOUTH-GAG AND TONGUE-DEPRESSOR

J. J. Moyer, M.D., Oakland, Calif.

This invention relates to improvements in mouth specula and more particularly to an improved tongue-depressor. Its object is to provide a tongue-depressor which is instantaneously removable from the mouth-gag. This tongue-depressor may be adjusted for depth to suit the mouth, and has an oscillatory mounting, leaving the operator free to move the tongue-depressor from side to side without affecting the adjustment of the gag or removing the depressor from its holding means.

The particular advantage of the device is the ease with which the tongue-depressor is manipulated, in and out or from side to side in an instant.



Mouth-gag and tongue-depressor.

The ratchet on the gag affords adjustment of the mouth to any desired opening. By the pressing of a button on the side, the ratchet is released.

In the hands of my associates and myself, this instrument gives great satisfaction.

Fourteenth and Jefferson Streets.

**First American Book on Military Medicine.**—John Jones (1729-1791), who had been a surgeon of French troops in the war of 1758 and afterwards rendered worthy service in the Revolution, published a treatise on wounds and fractures in 1775, which was the first surgical work published in this country, and, through its appendix on camp and military hospitals, the first American book on military medicine.—Lieut.-Col. C. C. McCulloch, Jr., U. S. Army: The Scientific and Administrative Achievement of the Medical Corps of the United States Army, the *Scientific Monthly*.

## *Military Medicine and Surgery*

# TETANUS

KENNETH TAYLOR, M.A., M.D. (ST. PAUL)
Director, Robert Walton Goelet Research Fund, the American Red Cross Hospital of Paris
PARIS, FRANCE

Among the anaerobic infections, the two that deserve special consideration are tetanus and gas gangrene. Fortunately, modern prophylaxis with antitoxic serum has controlled the former to a very large extent; the latter still continues to be the scourge of the armies.

Most shell and shrapnel wounds are probably infected by both the tetanus and the gas bacillus. The same type of wound is favorable to the development of the two—a deep wound of the muscles showing considerable trauma,[1] the presence of débris, foreign bodies and clothing, and especially comminuted fractures. Tetanus infection is not, however, limited to wounds of this type. Instances of acute tetanus have been reported following frostbite, and these cases should receive the same prophylactic treatment as wounds.

### ACUTE TETANUS

At present this is a comparatively rare disease in the base hospital. Its incidence averages, perhaps, two or three cases in a thousand. This is due largely to the general systematic use of antitoxin at the receiving or field hospitals, where every wounded man receives at once a prophylactic injection. The amount given is usually from 750 to 1,500 units in the French army and 500 units (U. S. A.) in the British forces. It is recommended that in severe cases, especially in fractures, a second injection of 1,500 units within six days should always be given.[2] It should be remembered that the immunity afforded by one inoculation generally lasts for only about ten days. Thus, if the bacilli persist for a longer period than that in the wound, acute tetanus may subsequently develop in spite of the primary inoculation. These cases are not rare. They are seen especially among some of the amputations which have been performed at the front and in which devitalized tissue was enclosed within the amputation flaps.

Perhaps the early débridement of the wound is as important a prophylactic measure against tetanus as is the administration of serum. Such treatment is as effective in preventing the growth of the tetanus bacilli as it is the growth of the gas-forming anaerobes. It must never be considered, however, as a substitute for prophylactic serum treatment.

Acute tetanus also occurs after secondary operations, especially those that entail considerable trauma of the soft tissues. These cases have been frequent enough for general orders to have been issued by the French medical service advising the routine administration of a prophylactic dose of 1,500 units of serum before every secondary operation.

Anaphylactic reactions from secondary inoculations of tetanus serum are of very rare occurrence, and the danger can probably be entirely obviated by the employment of the desensitizing dose. This consists in subcutaneous injection of from 0.5 to 1 c.c. of the serum, followed, after three or four hours, by the remainder.

"Serum sickness" may occur, in spite of this precaution, at any time between three and eight days after injection. It is characterized by edema, local or general urticaria, joint pains, and occasionally fever, vomiting and general malaise. The duration is usually from one to five days. The prognosis is good.

The diagnosis of acute tetanus requires no discussion. The picture is too characteristic to be mistaken for any other condition. The search for tetanus bacilli in the wound is usually an unprofitable procedure, and even if they can be identified (which is unusual), their presence is of little significance.

The treatment of acute tetanus is highly unsatisfactory and the prognosis bad. Large injections of serum, from 10,000 to 20,000 units daily, given subcutaneously, intramuscularly,[3] intravenously, or especially intrathecally,[4] or all three simultaneously, are usually instituted, but seldom appear to have much effect once the symptoms are established. The same may be said of injections of phenol (carbolic acid), from 1 to 20 grains injected daily. Injections of magnesium sulphate also have proved ineffectual.[5] Immediate débridement of the wound, or amputation practiced at the onset, may result in an occasional recovery if too much of the toxin has not already been fixed in the nerve cells. A dark room, rest, sleep and food are always valuable. Morphin should be administered, but has slight effect on the contractions.

About 80 per cent. of the cases with an onset within ten days of injury terminate fatally. A rapid onset and severe tetanic spasms at frequent intervals usually mean death. The longer the incubation period the better the prognosis.

### CHRONIC TETANUS

Various chronic and more or less local forms of tetanus are not uncommon.[6] Local tetanus developing in the limbs or other isolated groups of muscles is ascribed to an insufficient amount of serum in the prophylactic inoculation or to the gradual lowering of the state of passive immunity. Cases are reported as occurring more than three months after the last operative procedure and more than a year after injury, and in cases with wounds completely healed.[7] Pure local tetanus is a rare occurrence. The disease tends to become general, though irregular in distribution. Among the most common conditions from which a chronic tetanus may develop are the infected fractures with a long continued, low grade, bone infection.

The diagnosis of chronic tetanus is not easy. It is usually gradual in onset and tends to become chronic. Trismus is frequently absent. The muscles about the wound may show first clonic spasms or a tonic contracture. Reflexes, deep and superficial, may be increased. It must be carefully distinguished from hysteria, and if symptoms are local, pressure on some nerve trunk by a scar or a bone displacement must be excluded. Rheumatism, diseases of the brain and meninges, and low grade bacteremias are sometimes confused with chronic tetanus. A high pulse rate with little or no fever is fairly characteristic. Pain in the muscles of the back or neck, general restlessness, profuse sweating, sore throat with difficulty in swallowing, and congestion of the sublingual veins may add to the certainty of diagnosis.

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[1] Taylor, Kenneth: Am. Surg., 1916, **64**, 641.

[2] Official recommendation, Service de santé, France.

[3] Leishman, W. B., and Smallman, A. B.: Lancet, London, 1917, **1**, 131.

[4] Andrewes, F. W., and Horder, T. J.: Lancet, London: 1917, **1**, 682. Golla, F.: Ibid., 1917, **1**, 686.

[5] Bruce, D.: Lancet, London, 1916, **2**, 929.

[6] Courtois-Suffit and Ciroux, R.: Les formes anormales du tetanos. Paris, Masson & Cie, 1916.

[7] Dean, H. R.: Lancet, London, 1917, **1**, 673. Bruce, D.: Ibid., 1917, **1**, 986.

The treatment of chronic tetanus is largely surgical. The wound should be explored, the dead tissue resected, bone fragments curetted, and sequestrums removed. Occasionally, if the symptoms become more severe, amputation may be necessary, especially if the local conditions make preservation of a useful limb doubtful. This is probably rarely necessary, and chronic tetanus alone should seldom be accepted as an indication for amputation. In addition to the operative treatment, sedatives may be administered and antitoxic serum injections instituted. Quiet and a sustaining diet are as important as in the acute cases.

The prognosis of chronic tetanus is usually good. Nearly all patients who live for two weeks or more after the appearance of the first symptoms recover. Bruce reports a mortality of 17 per cent. in cases occurring after operation when no prophylactic dose of antitoxin was administered. In the local forms, the greater the time since the last injection of antitoxin the worse the prognosis. The gradual involvement of the higher centers is, of course, a bad sign.[8]

# THE SERVICE IN GENITO-URINARY DISEASES AT CAMP DIX

WILLIAM WARREN TOWNSEND, M.D.
Major, M. R. C., U. S. Army
CAMP DIX, WRIGHTSTOWN, N. J.

The work of the urologic and dermatologic departments in the base hospital at Camp Dix has been one of organization as well as therapeutics.

Starting September 13 in one two-story building, our progress has been rapid. In October we moved to the base hospital, and at present have, exclusively for genito-urinary and dermatologic patients, six wards, one of which is used for outpatients only.

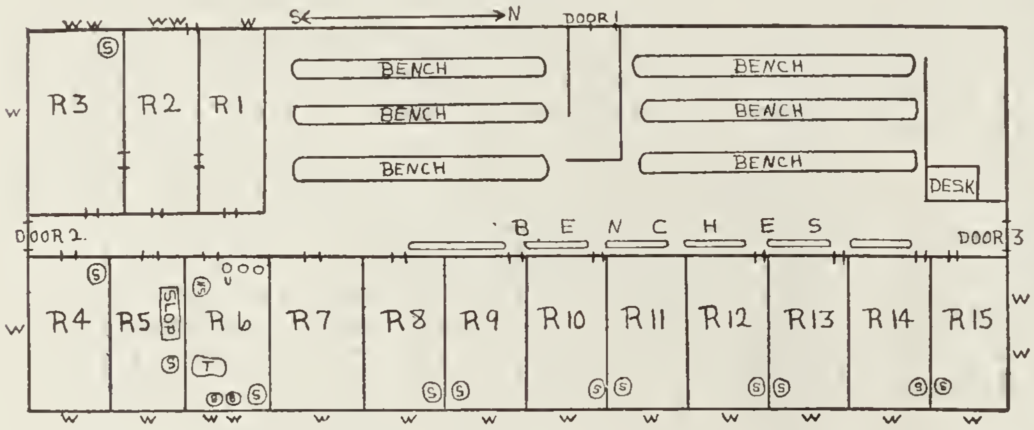

Fig. 1.—Dispensary floor plan.

Our medical staff consists of fourteen officers. A major is the chief of both the genito-urinary and dermatologic departments. The genito-urinary staff consists of ten lieutenants. The dermatologic staff consists of one captain and two lieutenants. Each member of the staff does work in the dispensary in addition to ward work. The junior members of the staff receive instruction from the chief of the department in the diagnosis and treatment of urologic and venereal diseases.

Each ward has a ward surgeon and an assistant ward surgeon. The ward surgeon is responsible to the chief for everything that transpires in his ward. In the absence of the ward surgeon, his assistant automatically becomes ward surgeon and assumes the duties and responsibilities of the ward surgeon.

In addition to ward duty, each officer has a position in the outpatient department. Here, as far as duties are concerned, our system is one of rotation. In order that a man may become familiar with every phase of our outpatient work, he is assigned to the various stations for a week at a time. As yet we have not made the position of director of treatment one to which every man is assigned. For obvious reasons it is considered most practicable to keep this for about three experienced men.

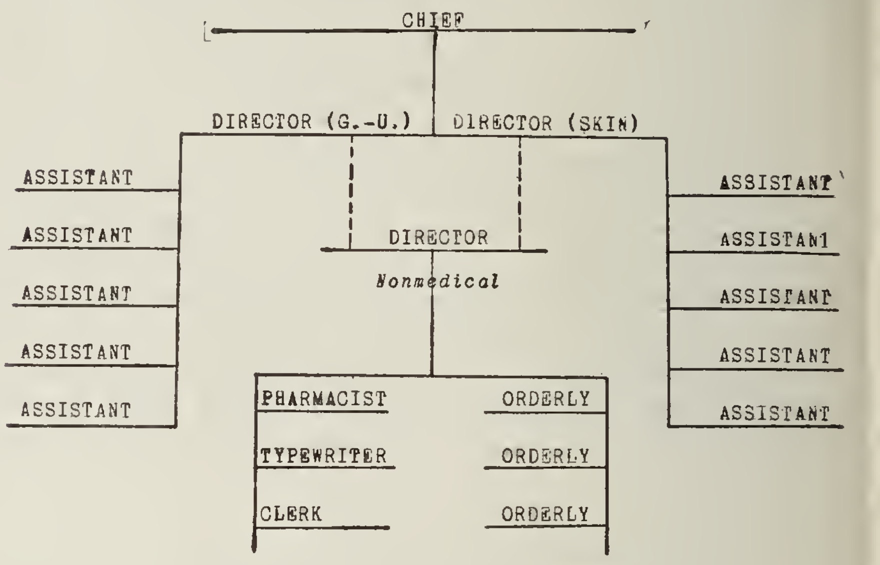

Fig. 2.—Hospital and outpatient organization.

RANGE OF WORK

In October, 1917, with the cooperation of the Surgeon-General's Office and the commanding general and the division surgeon of the Seventy-Eighth Division, we took over the treatment of all genito-urinary and dermatologic cases in Camp Dix. In this movement we have received the cooperation of regimental surgeons and regimental commanders. Prophylactic treatment has, however, been administered at the regimental infirmaries. In assuming control of all genito-urinary and syphilis work, our organization plans had to be greatly altered to accommodate the extra amount of work put on them. At present we can easily handle 300 dispensary patients in a day in addition to treating all of our hospital patients. As a result of the splendid cooperation of regimental commanders and surgeons, we have not been burdened with follow-up letters.

Our plan of distribution and assignment of patients, either to our hospital wards or to the outpatient department, is as follows:

Every new patient sent to this department for advice is thoroughly examined and a *complete* history taken at his first appearance. If he is deemed a case for hospital care, Form 1 is filled out and sent to the regimental surgeon. In this form it will be noted that the patient must be sent with his mess kit. In our entire department we have no dishes except those that the patients bring with them. He is further instructed to bring any toilet articles he may need, because he cannot again leave the hospital buildings until discharged. In the event of his being a dispensary case, Form 2 is sent to his regimental surgeon.

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8. Montais: Ann. de l'Inst. Pasteur, July, 1916.

If, on discharge from the wards of the department, the patient is to receive further treatment as an outpatient, Form 3 is filled out. If discharged, a personal note is sent the regimental surgeon in addition to Form 4.

### DISPENSARY TREATMENTS

Our plan of procedure in handling cases in the dispensary is as follows:

The patient enters Door 1 (Fig. 1) and his name is taken by a clerk. He then takes his place on a bench as near as possible to Room 1. (We endeavor to seat the men and treat them in the order in which they arrive.) The records are then sorted out by the record clerk and given to an orderly, who calls out the patient's name and sees that he gets into Room 2 to the director of treatment. After receiving treatment, the patient takes his record and the treatment slip, which has been signed by the officer administering the treatment, and deposits them in a basket at Door 3. At 3 we have a clerk stationed whose duty it is to see that no patient leaves the building without his record or without having had treatment.

The direction of treatment of hospital patients is carried out in our dispensary building, and each ward surgeon directs the treatment of his own patients. The routine work is carried out, however, by other members of the staff. We wish to emphasize the fact that *all* treatments are administered by members of the medical staff and not by orderlies.

In our work we have impressed the fact on members of the staff that there can be just as much decorum and professional dignity connected with a urologic and dermatologic hospital as in any other branch of medicine. This seriousness of purpose, we believe, automatically impresses the venereal patient with the gravity of his disease.

In the wards, bedside talks on sexual hygiene are given by the staff. While attendance is not compulsory, we find that general interest is manifested by the patients.

### OUTPATIENT DEPARTMENT

For this work we have a well equipped converted ward building which has fifteen small rooms for treatment and one large room for a waiting room (Fig. 1).

Room 1 is used as a record room. All records of outpatients and discharged patients are kept in files. The records are kept in order by a record clerk whose duty it is to keep the records and to enter on the treatment sheet the treatment each patient receives. It is also the duty of this clerk to check up the names of such outpatients as fail to appear for treatment. The regimental surgeon is then informed of any men in his command who have failed to appear.

Room 2 is the station of the director of treatment. Each patient receives his record on entering this room. The director examines the patient, that is, takes a smear weekly, examines the urines clinically by the glass test, makes note of anything the patient may complain of, and with his treatment slip assigns him to one of the several rooms where treatment is given.

Room 3 is used exclusively for endoscopic, cystoscopic and urethral examinations, and passage of sounds under the direction of the chief of the service.

Room 4 is the laboratory in charge of a lieutenant trained in laboratory work He examines smears for gonococci, and the urines of both ward and outpatients. He also examines specimens for *Spirochaetae pallidae*.

Room 5 is the patients' toilet.

Room 6 is a lavatory for officers and the hospital personnel.

Room 7 is the pharmacy in charge of a trained man. Here all solutions and drugs used in this department are in stock, and drugs necessary for treatment are dispensed.

Rooms 8 to 15 are treatment rooms for genitourinary patients.

Room 15 is used as a dermatologic and syphilitic treatment room.

FORM 1

Urological Department Base Hospital Camp Dix, N. J.
PLEASE RETURN THIS SLIP WITH PATIENT
January, 1918.
From: G.-U. Dispensary.
To: Regimental Surgeon.
Subject:
Diagnosis:
Advise: Admission to this hospital for treatment.
Patient should have mess kit and either transfer card or nominal list, as applies to this case. Your signature to either necessary.
.................................
First Lieut., M. R. C.

FORM 2

Urological Department Base Hospital Camp Dix, N. J.
PLEASE RETURN THIS SLIP WITH PATIENT
January, 1918.
From: G.-U. Dispensary.
To: Regimental Surgeon.
Subject:
Diagnosis:
Advise: That he return to this dispensary ....................
and ........................... each week for treatment at 8 a. m.
.................................
First Lieut., M. R. C.

FORM 3

Urological Department Base Hospital Camp Dix, N. J.
PLEASE RETURN THIS SLIP WITH PATIENT
January, 1918.
From: G.-U. Dispensary.
To: Regimental Surgeon.
Subject:
Diagnosis:
Advise:
.................................
First Lieut., M. R. C.

FORM 4

Urological Department Base Hospital Camp Dix, N. J.
January, 1918.
From: G.-U. Dispensary.
To: Regimental Surgeon.
Subject: Discharge of
Diagnosis:
Remarks: The above named patient is discharged from treatment in this department.
.................................
First Lieut., M. R. C.

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**Health of New York in 1917.**—The health department has recently published a résumé of its statistics for the year 1917, which shows that the death rate last year was 13.78, the lowest ever recorded in the city. The death rate for 1916 was 13.89 and for 1910, 16.00. The respiratory diseases as a class are still responsible for a large number of deaths annually; the death rate from pneumonia was 1.93, the same as in 1913. The death rate from tuberculosis shows an increase over that prevailing in 1916, the rate being 1.55, as against 1.50 for 1916. While the prevalence of the common infectious diseases is known to fluctuate from year to year, there has been a gradual reduction as compared with ten or twenty years ago. Heart disease, Bright's disease and cancer fail to show any decrease. Last year there were 529 deaths from sunstroke, the largest number in New York City since 1901. There has been a marked increase in violent deaths the past few years. In 1917, the rate of deaths from automobile accidents was 9.07 per hundred thousand, as against 5.64 in 1913. In 1917, there were 768 deaths from suicide as compared with 836 in 1916. The marriage rate was 10.49 in 1917, as against 9.78 in 1916 and 9.68 in 1910.

# CULTIVATION OF THE MENINGOCOCCUS INTRACELLULARIS (WEICHSELBAUM) FROM THE BLOOD

## PRELIMINARY REPORT *

F. W. BAESLACK, M.D. (DETROIT)
A. H. BUNCE, M.D. (ATLANTA, GA.)
Captains, M. R. C., U. S. Army
G. C. BRUNELLE, M.D.
J. S. FLEMING, M.D. (PHILADELPHIA)
G. F. KLUGH, M.D. (CROSS HILL, S. C.)
E. H. McLEAN, M.D. (OMAHA)
AND
A. V. SALOMON, M.D. (NEW YORK)
First Lieutenants, M. R. C., U. S. Army
CAMP JACKSON, COLUMBIA, S. C.

The recent epidemic of meningitis at this camp afforded excellent opportunities for studying the disease, and brought out certain phases in its onset and course which, heretofore, have not received the attention that their importance warrants. The unusual severity with which the disease manifested itself no doubt accentuated those phases so that they stood out more prominently in its syndrome.

While it is generally accepted that the meningococcus is carried in the secretions of the nasopharynx of patients and contacts, its mode of reaching the sites of the body where its presence gives rise to the pathologic manifestations are as yet to be definitely settled. Whether the meningococcus passes directly to the nervous system by way of the lymphatics between the nasopharynx and the meninges, or indirectly by way of the blood, has not been established.

The nature of the onset and course of the disease in some cases pointed to the probable existence of a systemic infection before the meninges were affected. The course of the disease seemed to divide itself into two periods, the premeningeal and the meningeal. The premeningeal was characterized by chills, severe toxemia and petechiae. The spinal fluid drawn during this interval was frequently clear, free from polymorphonuclear leukocytes, and contained few or no organisms. During this stage Noguchi's butyric acid test for globulins was either very faint or negative. Fehling's solution was reduced.

The progress of the disease in these cases, showing symptoms of a general toxemia previous to or coexistent with those of meningeal involvement, suggested that as in other infectious diseases, as typhoid and pneumonia, we were dealing with a bacteremia which in its later course involves the meninges.

That the meningococcus occasionally gets into the blood is borne out by the occurrence of lesions in various parts of the body from which we have recovered and identified the meningococcus. These lesions have always been regarded as late systemic manifestations of the disease; and the occurrence of the organism in the blood, even though it has frequently been recovered by blood culture, was considered as exceptional. The early appearance of these lesions and the characteristics of the disease mentioned above lead us to believe that it is essentially systemic, and caused us to advise the intravenous administration of serum, which in the hands of the clinicians has shown such promising results. An occasional blood culture taken in the course of the epidemic confirmed us in the belief that the organism, in the early stages of the disease, invades the blood; and as the stress of routine work permitted, further cultures were made.

While the series reported here is small (twenty-five cases), it is very suggestive. When it is considered that the meningococcus, under the most favorable circumstances, is an extremely difficult organism to grow artificially at first from the cerebrospinal fluid, and that a blood organism is highly parasitic, the percentage of positive cultures obtained would point to a much higher incidence than the actual figures would indicate.

As large amounts of a vigorous growth have to be transferred to obtain successful transplants, so a large quantity of blood is necessary for the inoculation of the first culture. In the milder cases the number of micro-organisms even in a large amount of blood is necessarily small; for this reason it is in the relatively severe cases, in which the number of organisms is large, that the positive culture is obtained.

The fact that the organism has been isolated from lesions in which the meningococcus infection has not been suspected points to the probability that even in the milder cases the disease is general, rather than a local infection confined to the meninges.

Up to the present the stress of work has prevented us from taking more than a single culture from each patient, excepting in two cases, one of which was twice positive and the other twice negative. If repeated cultures were taken they would probably show an even higher percentage of positives.

At present a culture is taken as soon as the patient is admitted and the provisional diagnosis made, and before any serum has been given. A member of the laboratory staff is always on call at any hour to get the blood. At the same time sufficient blood is obtained for agglutination tests, the results of which will be reported later.

The occurrence of the meningococcus in other sites of the body has been pointed out. That this metastatic localization may follow the meningeal involvement must be granted; it is equally possible that the occurrence of the organism in other regions than the meninges is due to the systemic invasion occurring in the early stages of the disease.

### REPORT OF CASES

Case 1.—Private E. S., aged 26, admitted, Dec. 2, 1917, complained of sore throat of two days' duration. He began feeling chilly on the morning prior to admission. He complained of headache, and pains in his bones and muscles. The provisional diagnosis was acute pharyngitis. December 8, 40 c.c. of slightly cloudy fluid were removed by lumbar puncture. The fluid contained many pus cells and intracellular and extracellular gram-negative diplococci. December 19, the patient developed arthritis of both knees; 45 c.c. of gelatinous purulent fluid were removed from the left knee, and 40 c.c. of a similar fluid from the right knee joint. Bacteriologic examination of these fluids was negative. December 25, a second puncture of the knee joints revealed fluids of a character similar to that removed by the first aspiration. Jan. 6, 1918, the patient developed panophthalmitis of the left eye, which was enucleated. Smears from the interior of the eye revealed numerous gram-negative, intracellular and extracellular diplococci. January 8, the patient was discharged. The bacteriologic examination of the knee fluids gave a gram-negative diplococcus which was identified as a meningococcus of the regular type.[1]

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* From the pathologic laboratories, base hospital, Camp Jackson, S. C.

[1] Final identification of the meningococcus is made by agglutination with serums supplied by the Rockefeller Institute and the Department of Health of New York City. Types are determined by serums furnished by the Army Medical School.

CASE 2.—Private J. M. F., aged 25, admitted, Jan. 5, 1918, was in very poor condition; there were marked tremor, and cyanosis of the lips and finger tips. The provisional diagnosis was bronchitis following measles. January 11, bronchopneumonia developed. The patient died, January 15. Cultures of pus found at necropsy in the sphenoid sinus gave a gram-negative diplococcus which was identified as the meningococcus of the regular type.

CASE 3.—Private S. R., aged 23, admitted, Nov. 15, 1917, complained of cold and pain in the chest, and pain in the eyes and the back. The provisional diagnosis was measles. November 24, bronchitis developed on the left side. November 28, there was pleurisy on the left side. Next day a diagnosis of bronchopneumonia was made. Jan. 15, 1918, an intercostal incision for left empyema was made, and a large amount of slightly cloudy serous fluid removed, which was sent to the laboratory for bacteriologic examination. A meningococcus of the regular type was isolated.

TABLE 1.—CASES ON WHICH THIS REPORT IS BASED

| Case | Date | Initial Chill | Headache | Vomiting | Rash | Temperature on Admission | Cerebration | Kernig's Sign | Rigidity of Neck | Microscopic Examination of Spinal Fluid | Culture of Spinal Fluid* | Culture of Blood | Culture of Nasopharynx | Treatment Before Admission | Outcome of Case | No. of Times Spinal Fluid Was Cultivated |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. R. S. B. | 12/14/17 | + | + | 0 | ++ | ? | Cloudy | ? | ? | + | 0 | + | — | 0 | L | 1 |
| 2. W. B. W. | 12/14/17 | 0 | 0 | 0 | + | 100.8 | Unconscious | 0 | 0 | + | 0 | 0 | — | 0 | D | 1 |
| 3. J. D. D. | 1/ 7/18 | 0 | ++ | 0 | 0 | 101.4 | Dull | + | + | + | 0 | + | — | 0 | D | 1 |
| 4. P. B. | 1/13/18 | + | ++ | ++ | ++ | 104.2 | Stupor | + | + | + | + | + | — | 0 | D | 1 |
| 5. J. P. C. | 1/14/18 | 0 | + | 0 | + | 100.0 | Clear | + | + | + | + | + | — | 0 | D | 2 |
| 6. C. W. L. | 1/15/18 | 0 | + | + | 0 | 104.0 | Stupor | ++ | + | + | 0 | 0 | — | — | L | 12 |
| 7. O. J. B. | 1/16/18 | 0 | + | ++ | + | 103.0 | Normal | ++ | + | + | + | + | + | 0 | D | 2 |
| 8. A.P. | 1/17/18 | 0 | + | 0 | 0 | 103.0 | Unconscious | + | ++ | + | + | 0 | 0 | 0 | L | 1 |
| 9. B. L. B. | 1/20/18 | + | ++ | ++ | 0 | 101.4 | Normal | sl | sl | + | 0 | 0 | 0 | 0 | L | 4 |
| 10. H. A. | 1/21/18 | + | + | + | 0 | 100.2 | Clear | sl | sl | + | 0 | 0 | 0 | 0 | L | 5 |
| 11. M. L. | 1/21/18 | 0 | + | + | 0 | 98.0 | Conscious | ++ | + | + | + | + | 0 | 0 | L | 2 |
| 12. R. L. T. | 1/21/18 | + | + | + | + | 105.0 | Conscious | + | + | + | + | + | + | 0 | D | 2 |
| 13. A. S. | 1/22/18 | 0 | + | + | 0 | 103.0 | Unconscious | + | + | + | + | 0 | 0 | + | L | 4 |
| 14. H. C. L. | 1/23/18 | † | + | 0 | 0 | 99.0 | Conscious | sl | sl | + | 0 | 0 | 0 | 0 | L | 4 |
| 15. W. F. M. | 1/23/18 | + | ++ | 0 | ++ | 105.0 | Clear | + | + | + | + | + | 0 | 0 | L | 3 |
| 16. J. W. W. | 1/23/18 | + | + | + | + | 103.0 | Delirious | + | + | + | + | + | 0 | 0 | L | 1 |
| 17. D. W. | 1/23/18 | 0 | + | 0 | 0 | 101.0 | Prostrate | + | sl | + | + | 0 | 0 | 0 | L | 2 |
| 18. Lt. D. | 1/24/18 | 0 | + | + | ? | 98.6 | Clear | 0 | 0 | + | + | 0 | 0 | 0 | D | 2 |
| 19. R. F. | 1/25/18 | + | ++ | + | 0 | 100.0 | Unconscious | + | + | + | 0 | 0 | 0 | + | L | 4 |
| 20. H. F. J. | 1/25/18 | 0 | + | + | 0 | 101.0 | Cloudy | + | + | + | 0 | 0 | 0 | 0 | L | 6 |
| 21. L. C. | 1/26/18 | 0 | + | + | 0 | 99.2 | Dull | ++ | + | + | 0 | 0 | 0 | 0 | L | 4 |
| 22. R. B. | 1/26/18 | + | + | + | + | ? | Delirious | ++ | + | + | 0 | 0 | 0 | 0 | L | 4 |
| 23. D. S. | 1/28/18 | 0 | 0 | 0 | ++ | 102.0 | Unconscious | + | + | + | 0 | + | 0 | 0 | L | 2 |
| 24. L. A. H. | 1/28/18 | + | + | + | 0 | 102.0 | ........ | sl | + | 0 | + | 0 | 0 | 0 | L | 3 |
| 25. J. W. J. | 1/28/18 | + | + | + | 0 | 100.0 | Clear | + | + | + | 0 | 0 | 0 | 0 | L | 4 |

* Number of spinal fluid cultures positive, 12, or 48 per cent. The comparatively low percentage of positive cultures from the spinal fluids is probably due to the fact that the spinal fluids became chilled during the interval, as very often an hour or more elapsed between the time of puncture and final delivery at the laboratory; while on the other hand, the blood cultures were carefully guarded against chilling.

† Sweats.

COMMENT

While Case 1 permits the conclusion of metastatic involvement during the course of the disease, Cases 2 and 3 indicate that the meningococcus infection may occur as a generalized bacteremia without causing noticeable meningeal symptoms.

The mediums as well as the method of carrying on this work are given in greater detail, because they can be followed under field conditions, and furthermore, on them depend in a large measure the results obtained in this series of cases.

*Mediums Employed.*—From 80 to 100 c.c. of meat infusion bouillon, salt free, are sterilized in 6-ounce medicine bottles. The advantages in the use of these containers lie in the facts that they are easily obtained, and that the narrow mouth reduces the chances of contamination.

To this bouillon are added 1 per cent. glucose and 10 per cent. serum water. This medium is stored in the incubator to be thoroughly warm at the time of inoculation. Two bottles are inoculated by the placing of from 15 to 20 c.c. of the patient's blood in each. A culture is made at the same time from the patient's nasopharynx on a glucose-blood-agar plate. The plates are examined the following day for suspicious looking colonies and these are transferred to a glucose-blood-agar slant for identification.

The blood cultures are incubated at 37 C. and subcultures are made at twenty-four hour intervals on 1 per cent. glucose-blood-agar plates. Positive cultures are obtained in from forty-eight to ninety-six hours. Negative cultures are kept under observation for an additional five days before being discarded.

*Appearance of Positive Bouillon Culture.*—Red blood cells lie free on the bottom of the flask unchanged. The supernatant fluid is slightly cloudy and has a faintly greenish opalescence. As the culture ages, the color of the medium deepens.

*Method of Making Subcultures.*—From the bottom of the flask just above the sedimented blood cells, about 1 c.c. of the culture is withdrawn, poured over each of a series of 1 per cent. glucose-blood-agar plates, and incubated with the cover up. (A 2 per cent. agar plus 0.2 phenolphthalein, to which 1 per cent. of glucose and 15 per cent. of laked human blood is added.)

In from sixteen to twenty-four hours, the liquid has evaporated from the plate, and the growth appears as either a grayish-white gelatinous coat or as discrete colonies. At the time of transfer from the bouillon culture to the plates, a transfer is also made to a slant of the same medium by allowing 0.2 c.c. of the bouillon culture to run over the slant. This frequently gives sufficient growth for agglutinating purposes.

The colonies on an eighteen to twenty-four hour growth, with the employment of the foregoing medium, are from 0.5 to 3 mm. in diameter, and are round, with an even, circular, smooth edge and a smooth surface. By reflected light the colony appears gray and glistening, with a soft, velvety tone. By transmitted light it has the general appearance of a drop of honey, though faintly hazy. When touched procedure frequently gives sufficient growth for agglutinating purposes.

## SUMMARY

In this series of twenty-five cases, we have included only those cases in which, in the spinal fluid, organisms were found having the morphology of the meningococcus.

The findings in the three early cases induced us to make routine cultures.

The remaining twenty-two cultures were taken in consecutive cases, giving 36.3 per cent. of positives.

## CONCLUSIONS

1. Systemic infection by the meningococcus is more frequent than previously suspected.
2. This systemic infection may occur without appreciable or with no meningeal localization.
3. Systemic infection may be previous to, or coexistent with, meningeal involvement.
4. Consequently the intravenous administration of antimeningococcic serum is rational, and is indicated in conjunction with the intraspinal treatment.

For the histories quoted in this communication, we are indebted to Major Herrick, M. R. C., chief of the medical service.

TABLE 2.—AGGLUTINATION OF STRAINS OF MENINGOCOCCUS

| Case | Serum | 1:50 | 1:100 | 1:200 | 1:400 | 1:800 | N-H | N-S | 1:1,600 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 1* | .. | .. | .. | .. | .. | .. | .. | .. | .. | Meningococcus from blood culture not typed |
| 2* | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 3 (202) | R. P.† | ++ | ++ | ++ | + | ± | — | — | — | Cerebrospinal fluid culture |
| | 1 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 10 | + | + | ± | — | — | — | — | — | |
| | 30 | ++ | + | ± | — | — | — | — | — | |
| | 60 | + | ± | — | — | — | — | — | — | |
| 4 (212) | R. P. | ++ | ++ | + | ± | — | — | — | — | Cerebrospinal fluid culture |
| | 1 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 10 | ++ | + | ± | — | — | — | — | — | |
| | 30 | ++ | + | + | ± | — | — | — | — | |
| | 60 | + | — | — | — | — | — | — | — | |
| (252) | R. P. | ++ | ++ | + | ± | — | — | — | — | Blood culture |
| | 1 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 10 | ++ | + | ± | — | — | — | — | — | |
| | 30 | ++ | + | + | ± | — | — | — | — | |
| | 60 | ± | — | — | — | — | — | — | — | |
| 5 (264) | R. P. | ++ | + | ± | — | — | — | — | — | Cerebrospinal fluid culture |
| | 1 | ++ | ++ | + | ± | — | — | — | — | |
| | 10 | ++ | + | ± | — | — | — | — | — | |
| | 30 | ++ | + | + | ± | — | — | — | — | |
| | 60 | + | — | — | — | — | — | — | — | |
| (253) | R. P. | ++ | ++ | + | ± | — | — | — | — | Blood culture |
| | 1 | ++ | ++ | ++ | ++ | + | — | — | — | |
| | 10 | + | ± | — | — | — | — | — | — | |
| | 30 | + | + | ± | — | — | — | — | — | |
| | 60 | — | — | — | — | — | — | — | — | |
| 6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | Culture cerebrospinal fluid and blood negative |
| 7 (257) | R. P. | ++ | ++ | ± | — | — | — | — | — | Nasopharynx culture |
| | 1 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 10 | ++ | + | ± | — | — | — | — | — | |
| | 30 | ++ | — | — | — | — | — | — | — | |
| | 60 | — | — | — | — | — | — | — | — | |
| (254) | R. P. | ++ | ++ | — | — | — | — | — | — | Cerebrospinal fluid culture |
| | 1 | ++ | ++ | ++ | ++ | + | — | — | — | |
| | 10 | ++ | ± | — | — | — | — | — | — | |
| | 30 | ++ | + | — | — | — | — | — | — | |
| | 60 | ± | — | — | — | — | — | — | — | |
| (265) | R. P. | ++ | ++ | + | ± | — | — | — | — | Blood culture |
| | 1 | ++ | ++ | ++ | ± | — | — | — | — | |
| | 10 | + | — | — | — | — | — | — | — | |
| | 30 | ++ | ± | — | — | — | — | — | — | |
| | 60 | — | — | — | — | — | — | — | — | |
| 8 (267) | R. P. | ++ | ++ | ++ | ± | — | — | — | — | Cerebrospinal fluid culture |
| | 1 | ++ | ++ | ++ | ++ | + | ± | — | — | |
| | 10 | + | ± | — | — | — | — | — | — | |
| | 30 | ++ | ++ | + | ± | — | — | — | — | |
| | 60 | + | ± | — | — | — | — | — | — | |
| 9 | .. | .. | .. | .. | .. | .. | .. | .. | .. | Culture cerebrospinal fluid and blood negative |
| 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | Culture cerebrospinal fluid and blood negative |
| 11 (281) | R. P. | ++ | ++ | + | ± | — | — | — | — | Cerebrospinal fluid culture |
| | 4 | ++ | ++ | ++ | + | — | — | — | — | |
| | 10 | — | — | — | — | — | — | — | — | |
| | 30 | + | — | — | — | — | — | — | — | |
| | 60 | ± | — | — | — | — | — | — | — | |
| (283) | R. P. | ++ | ++ | + | ± | — | — | — | — | Blood culture |
| | 4 | ++ | ++ | ++ | ± | — | — | — | — | |
| | 10 | — | — | — | — | — | — | — | — | |
| | 30 | ± | — | — | — | — | — | — | — | |
| | 60 | — | — | — | — | — | — | — | — | |
| 12 (282) | R. P. | ++ | ++ | ++ | ++ | ++ | — | — | — | Nasopharyngeal culture |
| | 4 | ++ | ++ | ++ | ++ | ± | — | — | — | |
| | 10 | ++ | + | ± | — | — | — | — | — | |
| | 30 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 60 | ++ | ++ | ± | — | — | — | — | — | |
| (277) | R. P. | ++ | ++ | ++ | ++ | + | — | — | — | Cerebrospinal fluid culture |
| | 4 | ++ | ++ | ++ | ++ | ± | — | — | — | |
| | 10 | + | ± | — | — | — | — | — | — | |
| | 30 | ++ | ++ | ++ | ± | — | — | — | — | |
| | 60 | ++ | + | ± | — | — | — | — | — | |
| (284) | R. P. | ++ | ++ | ++ | + | ± | — | — | — | Blood culture |
| | 4 | ++ | ++ | ++ | ++ | + | — | — | — | |
| | 10 | ++ | ++ | + | ± | — | — | — | — | |
| | 30 | ++ | ++ | + | ± | — | — | — | — | |
| | 60 | ++ | ++ | ++ | — | — | — | — | — | |
| 13 (297) | R. P. | ++ | ++ | ++ | ± | — | — | — | — | Cerebrospinal fluid culture |
| | 4 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 10 | ++ | ± | — | — | — | — | — | — | |
| | 30 | + | ± | — | — | — | — | — | — | |
| | 60 | ++ | + | ± | — | — | — | — | — | |
| 14 | .. | .. | .. | .. | .. | .. | .. | .. | .. | Culture cerebrospinal fluid and blood negative |
| 15 | R. P. | ++ | ++ | ++ | ± | — | — | — | — | Cerebrospinal fluid culture |
| | 4 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 10 | — | — | — | — | — | — | — | — | |
| | 30 | ++ | ± | — | — | — | — | — | — | |
| | 60 | ++ | + | — | — | — | — | — | — | |
| 16 (278) | R. P. | ++ | ++ | + | ± | — | — | — | — | Cerebrospinal fluid culture |
| | 4 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 10 | ++ | ++ | ± | — | — | — | — | — | |
| | 30 | ++ | ++ | — | — | — | — | — | — | |
| | 60 | ++ | ++ | ± | — | — | — | — | — | |
| (285) | R. P. | ++ | ++ | ++ | ± | — | — | — | — | Blood culture |
| | 4 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 10 | ++ | ++ | ± | — | — | — | — | — | |
| | 30 | ++ | + | ± | — | — | — | — | — | |
| | 60 | ++ | ++ | ± | — | — | — | — | — | |
| 17 (280) | R. P. | ++ | ++ | + | ± | — | — | — | — | Cerebrospinal fluid culture |
| | 4 | ++ | ++ | ++ | + | ± | — | — | — | |
| | 10 | + | — | — | — | — | — | — | — | |
| | 30 | ++ | ++ | ± | — | — | — | — | — | |
| | 60 | ++ | + | — | — | — | — | — | — | |
| 18 (313) | R. P. | ++ | ++ | ++ | + | ± | — | — | — | Cerebrospinal fluid culture |
| | 4 | ++ | ++ | ++ | ++ | ± | — | — | — | |
| | 10 | ++ | ± | — | — | — | — | — | — | |
| | 30 | ++ | ++ | + | ± | — | — | — | — | |
| | 60 | ++ | ± | — | — | — | — | — | — | |
| 19 | .. | .. | .. | .. | .. | .. | .. | .. | .. | Culture cerebrospinal fluid and blood negative |
| 20 | .. | .. | .. | .. | .. | .. | .. | .. | .. | Culture cerebrospinal fluid and blood negative |
| 21 | .. | .. | .. | .. | .. | .. | .. | .. | .. | Culture cerebrospinal fluid and blood negative |
| 22 | .. | .. | .. | .. | .. | .. | .. | .. | .. | Culture cerebrospinal fluid and blood negative |
| 23 (304) | R. P. | ++ | ++ | + | ± | — | — | — | — | Blood culture |
| | 4 | ++ | ++ | ++ | + | — | — | — | — | |
| | 10 | — | — | — | — | — | — | — | — | |
| | 30 | ++ | ± | — | — | — | — | — | — | |
| | 60 | ++ | ++ | + | — | — | — | — | — | |
| 24 (305) | R. P. | ++ | ++ | ++ | + | ± | — | — | — | Cerebrospinal fluid culture |
| | 4 | ++ | ++ | + | + | — | — | — | — | |
| | 10 | + | ± | — | — | — | — | — | — | |
| | 30 | ++ | ++ | — | — | — | — | — | — | |
| | 60 | ++ | — | — | — | — | — | — | — | |
| 25 | .. | .. | .. | .. | .. | .. | .. | .. | .. | Culture cerebrospinal fluid and blood negative |

* Blood culture negative.

† R. P. in this table refers to Rockefeller polyvalent serum. Nos. 1, 10, 30 and 60 are the Rockefeller type serums as furnished by the Army Medical School. These were furnished in two lots. The No. 60 of one lot has a cross agglutination titer of 1:400 with No. 10. The No. 4 serum was kindly furnished by Capt. Harold L. Amoss, M. R. C. Nos. 1 and 4 are representative of the normal or regular type. Nos. 10 and 30 are intermediates. No. 60 is a parameningococcus. It will be noted that these cultures belong to the normal or regular type.

# STREPTOCOCCAL INFECTIONS FOLLOWING MEASLES AND OTHER DISEASES

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We have recently had opportunity to study the incidence and symptoms of streptococcal infections following measles, tonsillitis and other conditions associated with lowered resistance in soldiers, and to make observations on their pathology and symptomatology that are of assistance in diagnosis and in determining treatment.

During the fall and early winter up to the middle of December, 1917, approximately 200 cases of measles and fifty cases of rubella were treated, with complications in only three cases, otitis media in each instance, in one of which a mastoid infection required operation.

With the advent of "colds," acute bronchitis, pharyngitis and tonsillitis in the cantonment in late December and early January, a number of more serious complications appeared in measles patients as well as in soldiers in the hospital for other causes. The first one was a soldier convalescent from measles who was being held in quarters for the prescribed two weeks following his discharge from the hospital. The onset with chill, pain in the side, and fever suggested pneumonia, and pus was discovered by exploratory puncture only after several days of illness. Operation was attempted, but the patient died. Necropsy revealed that the entire process was not in any sense a true lobar pneumonia, but rather a lobular pneumonia followed by streptococcus pleurisy and empyema. Since the first case, all patients presenting pulmonary symptoms have been studied with the special object of detecting empyema early and instituting drainage. Without the frequent and careful use of the exploring needle, a number of these cases would undoubtedly have passed for lobar pneumonia, or "pneumonia following measles." Indeed, we have been led to maintain a specially close watch on cases of supposedly frank lobar pneumonia, especially those showing organisms classed as Type IV, and have repeatedly detected empyema in such cases.

## PATHOLOGY AND BACTERIOLOGY

The necropsy findings have been quite constant. Mathers has studied and reported a similar group of cases from civil practice. While the pleura is most frequently involved, other serous membranes, pericardium, endocardium and peritoneum, have also frequently been affected. In general the pathologic findings are those of septicemia with serofibrinopurulent pleurisy, pericarditis, mediastinitis, endocarditis or peritonitis, and in one case coincident arthritis. In early cases the inflammation is fibrinous, and there is much clinical evidence that the accumulation of fluid is a late and very rapidly developing process. In one case, occurring in the second week of measles, a primary peritonitis with initial symptoms referred to the right lower abdomen led to the drainage of a supposed atypical appendical abscess. At the necropsy an intact appendix, extensive pelvic, retrocecal and subphrenic peritonitis, recent general peritonitis, and secondary right empyema were found. In another case of general streptococcal infection with positive antemortem blood cultures following diphtheria, necropsy revealed terminal bronchopneumonia, acute purulent bronchitis, acute fibrinous pleurisy and left suppurative cervical lymphadenitis and gluteal abscess.

In the fourteen cases coming to necropsy, general serofibrinopurulent pleurisy, either primary or secondary, was present in all except one. The exudate was similar in all, lemon tinted serous fluid more or less turbid containing pus cells and enormous numbers of streptococci. Most of the pus cells were attached with fibrin to the pleura, forming a thick adherent matlike layer on the pleural surfaces. In some cases in addition to the main pleural involvement, smaller interlobar pockets of thicker yellowish green exudate were found, some having the appearance of a somewhat older lesion in which granulations could be demonstrated. Bronchopneumonia, more or less extensive, sometimes almost lobar in distribution, was present in all. Compression atelectasis often made difficult the interpretation of the macroscopic examination. Mucopurulent bronchitis was present in all cases, and in many cases tonsillitis and laryngitis with edema were made out. As Mathers has pointed out, general lymphatic enlargement, peribronchial, mediastinal, cervical and mesenteric, is generally present. The spleen, however, was only slightly enlarged, and in some there was no appreciable enlargement.

It is perhaps a debatable question whether the course of events is bronchitis, bronchopneumonia and finally empyema, or whether the lesion is primarily a serous membrane infection with, in the pleurisies, secondary invasions of the lung. Certainly we have sometimes found such a rim of infiltrated lung lying next to the infected pleura. Possibly a middle ground may be taken, that in many cases the primary infection reaches the pleura by extension from a bronchopneumonia more or less extensive, but that in other cases the origin is hematogenous, as in the case of septicemia following diphtheria. Further evidence in favor of the direct hematogenous infection of serous membrane is found in the fact that in two instances the infection occurred first clinically in the peritoneum, pus being demonstrated by operation in one, and in both at necropsy; in one, peritonitis was evidently as old as, and in the other much older, than the accompanying empyema. In the latter a recent vegetative endocarditis was also present.

In all fourteen cases coming to necropsy, streptococci (usually hemolytic) were obtained by culture from the heart blood or spleen and from the pleural or pericardial or peritoneal exudates. In three cases, streptococci were recovered in blood cultures antemortem. In several cases also of the group of convalescent drained empyemas, streptococci were obtained in blood cultures during the height of the infection.

The sputums have been typed, some by the use of mice, some by direct culture in blood glucose broth. None of the organisms thus cultivated from these cases has agglutinated with antipneumococcic serums of Types I, II or III.

During the latter part of the period of acute respiratory infections, large numbers of throat cultures of selected companies were being made for other purposes on blood agar plates. Hemolytic streptococci were observed in these cases in about 70 per cent. of the men examined, showing the widespread distribution of streptococcal infection in soldiers apparently healthy.

### CLINICAL COURSE

In the majority of the thirty cases studied, the chief symptoms were pulmonary, with a history in most of these of "cold," and of severe cough in many. In several the history was that of a sudden onset with chill and pleural pain; but even in these a more careful inquiry elicited the statement that there had existed an antecedent bronchitis. In the case of primary peritoneal infection following measles, the first symptom was lower abdominal pain.

The physical signs are frequently misleading, especially in the cases in which the early course is that of pneumonia. In these, signs of consolidation, perhaps irregular in distribution, may be made out; and without marked alteration in physical signs, the more serious condition of the patient indicates an extension of the process. This extension may of course be due to additional lung involvement, or increase in severity of the septicemia; but not infrequently, exploratory puncture yields a streptococcus-laden pleural exudate. In other cases in which the physical signs have been carefully observed and recorded from day to day, the rapidity with which the empyema develops, with displacement of the apex beat and other coincident signs within a few hours has been repeatedly remarked. The puzzling physical signs have been in part explained in some of the cases in which operation has been performed, and in some at necropsy by the finding of extensive adhesions both old and recent, which prevented the distribution of pus, characteristic of fluid in a chest in which the pleura is free.

In some fatal cases in which pulmonary signs were of only four or five days' duration, the pathologic findings indicated that pleurisy, often interlobar, must have been present previously, at a time when the patient was in relatively good physical condition with little or no fever.

In addition to frequent examination and the careful use of the exploring needle, the fluoroscope has been of assistance. Repeated leukocyte counts also have helped to determine an increase in the extent of the infection.

In the care of these cases it is important to bear in mind that this type of empyema is entirely different in its clinical course from the empyema that follows true lobar pneumonia. The exudate usually contains enormous numbers of streptococci, and on early operation and thorough drainage depends the chances of recovery. Even when early drainage is obtained, the infections of other portions of the pleura not accessible to drainage by reason of adhesions, the simultaneous infection of the pericardium, and the severity of the blood infection, preclude the possibility of recovery in some cases. In four of the fatal drained cases, vegetative endocarditis was found.

### SUMMARY

Of the thirty cases, including fourteen fatal cases, twelve followed measles; and in eight, the physical signs of consolidation (in the cases examined at necropsy, bronchopneumonic in distribution), which preceded the demonstration of the empyema, led to a primary diagnosis of pneumonia. Our experience with these streptococcal infections suggests that while measles is an important predisposing factor, other infections, as bronchitis, tonsillitis, diphtheria, and other conditions, such as exposure and excessive fatigue, must be included—in short, anything that may reduce resistance to infection by an organism quite generally distributed during the epidemic of colds and bronchitis, in the noses and throats of the apparently healthy as well as the sick.

## *Special Article*

# SYNTHETIC DRUGS II *

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(*Continued from page 537*)

It has been suggested that the new official names for licensed synthetic drugs be kept prominently before physicians until they have become by repetition familiar to the profession. They are:

Arsphenamine, introduced as "salvarsan."
Procaine, introduced as "novocaine."
Barbital, introduced as "veronal."
Barbital-Sodium, introduced as "veronal-sodium."

### SELECTION OF SYNTHETICS

One of the most impressive lessons taught by the stoppage of importations of synthetic drugs as a result of the war is the fact that only a comparatively small proportion of the synthetics still protected by patents and introduced into this country and widely advertised before the war has been found essential for the proper medical care of the people. Of this small proportion, only a very few have been in such urgent and widespread demand that manufacturers have been glad to undertake their preparation without feeling that they were entering on the enterprise simply as an act of patriotic sacrifice. There has been a rush for licenses for the manufacture of arsphenamine, procaine and barbital, the eagerness of would-be licensees falling off for these drugs in the order in which they are named. In the case of other patented synthetics, with the sole exception of phenyl cinchoninic acid (introduced as atophan) which will be discussed below, there has been manifested considerably greater reluctance on the part of manufacturers to embark on their preparation. This situation has been due primarily to the fact that the demand for the drugs mentioned is a very large one and offered a good market, while for other synthetic drugs the demand has not been as attractive from the point of view of quantities of supplies needed.

In view of the situation and because the committee of the National Research Council felt that the wise course would be to concentrate its efforts to interest manufacturers in the most essential of the long list of synthetic drugs, eminent physicians have been consulted in regard to what synthetic drugs were most important. The result of this inquiry will now be given, together with such information concerning the status of each drug mentioned as is at hand. The list includes, besides synthetics protected by patents, for the preparation of which licenses are required, also synthetic drugs which are not protected by patent and for the manufacture of which no licenses are required, as well as, in one or two instances, drugs which are not synthetic preparations but which have been included on account of their specific importance.

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* The information conveyed in these articles is based on the latest reports to the writer: it is probably not complete as to all details, but is published now to avoid further delay in bringing the main facts before the medical profession. The writer will be glad to receive information to be used later according to his best judgment.

### THE STATUS OF SYNTHETIC DRUGS CONSIDERED ESSENTIAL

1. *Anesthetics* (local). — The subject of licensed local anesthetics was discussed in the first article.[1]

While there has been considerable demand for *orthoform-new* (methyl meta-amino-para-oxybenzoate $(NH_2)(OH)C_6H_3CO_2CH_3$), the supplies of the drug were reported to the committee as exhausted. Anesthesine (see below) is an excellent substitute for this drug; it is said in some respects to be superior to it,[2] presumably on account of the absence of the phenolic hydroxyl group and perhaps also because of the presence of an ethyl rather than a methyl alcohol group.

Anesthesine, ethyl para-amino-benzoate $(H_2NC_6H_4.CO_2C_2H_5)$ is easily prepared, for instance, in the course of the manufacture of procaine, from para-nitrobenzoic acid. It may be obtained from the Farbwerke Hoechst Company, 122 Hudson Street, New York. The Abbott Laboratories, Ravenswood, Chicago, holders of a license to manufacture procaine, are also preparing to make anesthesine.

Holocaine hydrochloride, acet-di-para-oxyphenyl-amidine hydrochloride $CH_3C:(NC_6H_4OC_2H_5)(NHC_6H_4OC_2H_5).HCl$, especially needed for the work of oculists, has only recently been brought to the attention of the committee. It is closely related to acetphenetidine, which may be converted into holocaine by a comparatively simple process. A manufacturer in possession of large stocks of acetphenetidine has been urged to meet the demand for holocaine, and there is no question that the drug can be supplied.

2. *Antipyretics.*—Acetanilid, acetphenetidine (introduced as phenacetine) and acetylsalicylic acid (introduced as aspirin) are being manufactured now by a long list of American firms. Pyramidon, dimethyl-aminoantipyrine, is available from the Farbwerke Hoechst Company, 122 Hudson Street, New York. Any manufacturer of antipyrine can easily extend his process to include the preparation of pyramidon.

3. *Antisyphilitics.*—Arsphenamine and neo-arsphenamine were discussed in the previous article.

4. *Diuretics and Uric Acid Eliminants.*—Phenyl-cinchoninic acid (introduced as atophan): The patents for the manufacture of this drug are claimed to be invalid. The question as to the issuance of licenses for its manufacture is now under consideration by the Federal Trade Commission. It may be obtained from Schering and Glatz, 150 Maiden Lane, New York, the former agents for the German product. It is reported that it is being manufactured by the Calco Chemical Company, Bound Brook, N. J., for Schering and Glatz. The Abbott Laboratories, Chicago, also have planned to manufacture phenyl cinchoninic acid.

Theophyllin, dimethyl-xanthin. (Theocin is a brand name applied to the product of the Bayer Company, Inc., New York.) Merck & Company are prepared to furnish small quantities of theophyllin. Bayer & Company, when last heard from, had no more theocin and did not expect to have any in the immediate future. Thus far the committee has been unable to interest any other manufacturer in the preparation of this article. It is not a simple product to synthesize.

5. *Hypnotics.*—Barbital and barbital-sodium were discussed in the first article. Chloral hydrate, sulphonal and trional, are manufactured by a series of American firms.

Phenylbarbital, phenyl-ethyl-barbituric acid $(C_6H_5)(CH_3)\underline{C.CONHCONH.CO}$, introduced as luminal, is in considerable demand for the treatment of epileptic cases. Merck & Company, 45 Park Place, New York, still have supplies of this drug and of its sodium salt, and the same firm is preparing to manufacture these products. The process of manufacture has been worked out in the chemical laboratory of the University of Chicago by Miss Mary Rising and the author. During the course of the work some improvements have suggested themselves, the results of which will shortly be published for the benefit of any would-be manufacturer.

*(To be continued)*

## Therapeutics

### HAY-FEVER

This troublesome condition is most frequent in the late summer and early fall months, but it may occur at other times of the year in different climates, depending on the susceptibility of an individual to various pollen-bearing plants. While bacteria may increase the intensity of the disease, or may cause a patient to become susceptible to it, still hay-fever is probably always caused by irritating pollen.

The disease is present only in regions where pollen-rich plants predominate, and occurs only when these plants have reached the stage of disseminating the pollen, or when the pollen is artificially introduced into the nostrils of a susceptible person. When a patient is removed from all source of pollen, or when the offending weeds are destroyed in the region in which the patient lives, hay-fever does not occur.

Hay-fever is no respector of persons, and may occur at any age, in both sexes and in any civilized race. It is more frequent, however, in males, and more frequent in the white race than in the colored race. The age of greatest susceptibility, or the age at which most cases develop, seems to be in the decades from 10 to 40. This age of greatest incidence and the reason that males are more affected than females may signify the age and sex most exposed to pollen.

Scheppegrell,[1] president of the American Hay-Fever Prevention Association, finds that hay-fever may be artificially produced at any time in hay-fever subjects. If the inoculation of the irritating pollen, which he finds to be the male elements of the flowering plants, is given to the patient at another period of the year than the hay-fever season, the length and degree of the attack may be accurately controlled. This is because, unlike micro-organisms, the male elements of these pollens cannot reproduce themselves.

The reaction from these pollens he divides into the direct and indirect effect. Some produce the reaction by the local mechanical irritation, and this perhaps even in persons not susceptible to hay-fever. In insusceptible subjects, the reaction ceases as soon as the pollens are discharged. The indirect effect occurs in susceptible persons who are poisoned by absorption of some toxalbumin contained in the pollen.

While the pollen of many plants may cause hay-fever reaction when applied directly to the nostrils, it is only the wind-borne pollens that need to be considered in hay-fever. Scheppegrell states that it is characteristic of hay-fever weeds that they have no attractive flowers or perfumes, and these hay-fever plants are "the ragweeds, wormwoods, cockleburs, careless weeds and grasses." In the United States, the spring type of hay-fever is caused by the grasses, while the fall types are caused more by the ragweeds, the cockleburs and the wormwoods. While it seems to be a fact that goldenrod is a cause of hay-fever, Scheppegrell doubts that it is a frequent cause.

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[1] Stieglitz, Julius: Synthetic Drugs, The Journal A. M. A., Feb. 23, 1918, p. 536.

[2] Anesthesin, New and Nonofficial Remedies, 1917, p. 28.

[1] Scheppegrell, W.: Hay-Fever and Hay-Fever Pollens, Arch. Int. Med., June, 1917, p. 959.

### SUSCEPTIBILITY AND PREDISPOSITION

There can be no question that a susceptibility to hay-fever must exist since so few persons (1 per cent., according to Scheppegrell) in a locality overrun with these weeds are subject to the affliction.

Cooke, Flood, and Coca,[2] after careful investigation of the subject of sensitization, sum up thus:

> 1. Hay-fever is the clinical symptomatic expression of local hypersensitiveness. The active pollen substances are not toxins.
>
> 2. The hypersensitiveness is established spontaneously and never by immunologic process. This has been shown in two ways: first, by the observation that individuals may be sensitive to pollens of plants that are indigenous in foreign countries and with which they have never come in contact; and second, by the observation that individuals who are naturally sensitive to one protein only cannot be artificially sensitized to another protein, either animal or vegetable.
>
> 3. The sensitization is not directly inherited, although the tendency to spontaneous sensitization is inherited as a dominant character.
>
> 4. The antibody-like substances of human sensitization are not demonstrable in the blood of sensitive persons by any of the immunity reactions. They are present in the cells of the sensitive tissues. They cannot be increased artificially by the usual process of immunization.
>
> 5. The mechanism of the alleviating effect of specific, that is, pollen extract therapy, is the same as that of desensitization in experimental anaphylaxis. The freedom from symptoms lasts as long as the respective "antigenic" substances remain in combination with the antibody-like substances in the tissues.

Persons that are attacked by hay-fever may be predisposed by some other cause than a peculiar hypersensitiveness of the mucous membrane of the nose. These patients, many times, are found to have anatomic malformations, such as hypertrophic turbinates or deviated septums, or other obstructive or irritative conditions in the nostrils, and many of these patients are cured by the removal of these abnormal conditions. In other instances more or less incurable pathologic changes may be present in the mucous membrane of the nose and adjacent sinuses. Furthermore, a neurotic individual may be more hypersensitive to this irritation than other persons without any assignable physiologic, pathologic or anatomic excuse.

On the other hand, as shown by Strouse and Frank,[3] persistence of a hay-fever attack may well be due to an associated bacterial acute or subacute infection. An associated infection may allow more of the pollen irritant to become absorbed, and the disease is then intensified and more difficult to cure.

True hay-fever due to pollen should be differentiated from similar conditions caused by emanations from animals, such as the horse, cat or dog, and from odors from certain fruits, flowers, and from ipecac and musk. Sneezing, lacrimation, coughing and asthma may occur in some persons, who have such peculiar idiosyncrasies. Bronchial asthma may occur as a separate entity, or be associated with or follow hay-fever; hence its treatment often is the same as that of the hay-fever.

The symptoms of an attack of hay-fever may begin immediately on inhalation of the pollen, or they may be delayed for a few hours; but sneezing, congestion of the nostrils, reddening and itching of the eyelids or of the inner canthi of the eyes, irritation of the roof of the mouth and throat, and soon more or less spasmodic attacks of sneezing are the primary symptoms. Later rhinitis may occur, with more or less conjunctivitis, pharyngitis and bronchitis. There may be temporary increased temperature, but soon there is depression, more or less weakness, and often subnormal temperature.

### GENERAL TREATMENT

1. All predisposing causes should be ascertained, and if possible, removed.

(*a*) Hypertrophic and sensitive mucous membrane of the turbinates should be removed. An obstructive and deflected septum should be corrected. An infected sinus should be cleaned.

(*b*) All infected areas in the mouth and throat should be removed.

(*c*) Meat and purin bases should be removed from the diet. Although the diet should be nutritious, it should contain no irritating substances, such as mustard or other condiments. Tea, coffee and, of course, alcohol are contraindicated. Fish, strawberries, and any other food that is likely to cause anaphylactic irritability should not be allowed.

(*d*) The bowels should be carefully regulated so that toxic intestinal substances are prevented from entering the circulation and adding to the disturbing elements already present in the blood.

(*e*) Alkalis should be administered to decrease any possible hyperacidity of the system. There is no better alkali than sodium bicarbonate, which should be administered for a few days at least in a dose of 1 gram (15 grains) every three hours. It is pleasantly given as an effervescing salt, or it may be given in combination with a small amount of bismuth subcarbonate, as:

| | |
|---|---|
| Bismuth subcarbonate............... | 5 gm. |
| Sodium bicarbonate.................. | 20 gm. |

Mix, and make 20 powders
Take a powder, with water, every three hours.

This small amount of bismuth may prevent the slight irritation of the mucous membrane of the stomach that may occur from the sodium bicarbonate. If preferred, potassium citrate may be the salt administered. The dose should be 2 gm., given in wintergreen water, and administered four times a day. There is no question that alkalis many times diminish the irritability caused by anaphylaxis, and it has long been recognized that alkaline sprays in the nostrils are of benefit, and alkaline gargles are soothing, in hay-fever.

(*f*) Calcium is often of value in hay-fever, as it is in hives, in angioneurotic edema, and in some forms of asthma. Calcium may be administered as calcium lactate, or as the more irritant calcium chlorid. If the lactate is used, and especially if the chlorid is used, it should be administered after food has been taken, and then largely diluted.

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[2] Cooke, R. A.; Flood, E. P., and Coca, A. F.: Hay-Fever, Jour. Immunol., 1917, **2**, 217.

[3] Strouse, Solomon, and Frank, Ira: Pollen Extracts and Vaccines in Hay-Fever, The Journal A. M. A., March 4, 1916, p. 712.

(*g*) An associated bronchitis should be treated as though the hay-fever were not a factor.

(*h*) A weakened heart should be strengthened. The persistent sneezing and the frequent coughing in hay-fever always more or less weaken and temporarily, at least, dilate a heart, and a hay-fever patient generally is improved by digitalis. Of course, if the heart is sturdy, if there is arteriosclerosis and hypertension, digitalis may not be indicated, and nitroglycerin may be of value. Strychnin is generally inadvisable, on account of its increasing the general nervous irritability.

2. If possible, all pollen-bearing weeds in the immediate neighborhood of the patient's home should be destroyed; otherwise the patient must migrate to some pollen-free region.

3. The symptoms should be ameliorated. Most patients certify to the relief obtained from simple alkaline sprays in the nose and throat. Such treatment is well represented by alkaline tablets, consisting essentially of sodium bicarbonate and borax, dissolved in 60 c.c. (2 fluidounces) of warm water. Epinephrin sprays, in solution of 1 : 10,000, are used, and are frequently of value. It may also be used as an ointment of 1 : 1,000, and a small portion placed in each nostril. Some persons, while getting immediate relief from epinephrin solutions, later have increased congestion and extra sneezing, but the majority of patients are benefited. Sometimes a weak menthol, or menthol and camphor, oil spray or ointment benefits the patient. While cocain may be used by the physician in his office, if he thinks it advisable in an individual case, such solutions should not be given to the patient, and should not be used frequently by the physician. Boric acid washes and eyedrops will generally relieve the itching of the eyes and eyelids and will be soothing in conjunctivitis. If the nasal discharge is very profuse and watery, atropin sulphate in a dosage of 1/500 grain every two hours may be given until there is a dryness of the throat.

If there is much asthma and the patient wheezes and has hard work to get his breath, and the bronchial secretion is not sufficient, sodium iodid in a small dose to cause an increased secretion may be good treatment, although it will almost invariably increase the nasal secretion.

4. The only drugs that have proved of much value in hay-fever are quinin and antipyrin, and these are not very efficient. Large doses of quinin have been found successful in some cases. Antipyrin in large doses has also modified the attacks, much as it may modify the paroxysms of a whooping cough; but the doses must be large, and during its administration the heart should be protected by digitalis. Arsenic and strychnin have been advocated, but have not been proved of much value.

### SPECIFIC TREATMENT

*Preventive.*—Before it is decided to use a pollen extract, it is advisable to ascertain the particular pollen to which the patient is susceptible. The skin test is safe and generally satisfactory; the eye test is hardly justifiable. Various dilutions of different pollen extracts should be tried in this test. The arm is generally employed for this purpose. Several scratches through the epidermis are made, and a drop of the pollen extract, beginning with a well diluted solution, of first one hay-fever weed and then another, is used to note the sensitivity. A patient sensitive to an extract soon shows local irritations at the point of absorption. As soon as the pollen that causes reaction is found (the reaction occurring in from five to fifteen minutes), various dilutions of this particular pollen may be tested to determine the dose correct for this particular patient, and the first dose of injection should be the dose which fails to excite a skin reaction. The first subcutaneous injection should not be given until after all symptoms of the local skin test reaction have subsided.

Turnbull[4] has demonstrated something that seems to be of practical interest: He found that some of these hay-fever patients showed a cutaneous reaction from the proteins of wheat, barley, oats, corn and rice, and some even showed a reaction, especially to wheat, on the respiratory tract. Therefore, he believes that hay-fever patients should avoid bread and boiled cereals, and use only the dry, prepared cereals, and he finds that patients so arranging their diet are more quickly cured of their hay-fever.

As it is not always feasible to test out the individual pollens as described above, the stock preparations of mixed spring or fall pollens may be used. Full directions for the use of these pollen extracts for diagnostic purposes, for immunization, and for curative purposes, come with the package.

The preventive treatment of hay-fever should be begun about eight weeks prior to the season in which the patient is susceptible. Ordinarily from ten to fifteen injections are required, and they should be given at two or three day intervals, depending on the amount of reaction. If symptoms of anaphylaxis or hay-fever symptoms occur, the dose should be smaller and less frequent. If the patient, from such injections, is immune for that year, he may be immune to the hay-fever pollen the following year; but it seems to have been shown that this immunity is only weak and rather ineffective by the third year. However, sufficient statistics have not yet been offered to show how long an immunity may last; also failure to produce immunity must be expected. The theory of this treatment is that a person sensitive or sensitized to a certain pollen may be desensitized by exhausting from the body cells the specific proteolytic enzymes by the pollen protein injection.

*Curative.*—Theoretically and practically there can be no antiserum prepared to treat pollen infection or hay-fever. Rarely, perhaps, the hay-fever may be aborted, after it has begun, by a few injections of a pollen extract; but not enough data have been presented to show the value of the vaccine treatment during the active process of hay-fever. The symptoms could easily be aggravated and perhaps become serious by a large dose of pollen extract. Consequently, only very small doses should be tried, at first, to see what reaction the patient shows, and with gradually ascending doses the susceptibility can be ascertained and the pollen curative treatment tried.

It would be inexcusable, however successful in individual cases the pollen treatment might prove to be, to omit the therapeutic suggestions already mentioned.

It would also be inexcusable to depend on possible immunization for the following year by means of pollen extracts and to omit a careful study of the patient to eliminate, if possible, all predisposing causes of hay-fever disturbances.

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[4] Turnbull, J. A.: Boston Med. and Surg. Jour., 1916, **175**, 931.

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SATURDAY, MARCH 9, 1918

## THE ABDERHALDEN REACTION

Few reactions that have found application in clinical medicine have been the subject of as much controversy within a short period of time as have those which are known as Abderhalden's tests for pregnancy, cancer, etc. These are based, it will be recalled, on the assumption that the introduction of foreign proteins of any kind into the circulation promptly leads to the appearance therein of specific protective enzymes which will digest the strange proteins or their derivatives, but will not split other proteins. The extraordinary power of the body to develop such special enzymes so readily and so rapidly has been the subject of much speculation. The analogy of an antitoxin arising as the result of the introduction of a toxin into the organism has often been commented on in this connection.

The preponderance of the discussion has related to the alleged specific reaction in pregnancy, in which, according to Abderhalden's theory, the foreign protein reaches the blood from the placenta. Numerous investigators have maintained that a "test" can often be elicited with the blood of males as well as that of females; that is, the serum of the male may digest placental protein as well as blood of the opposite sex does. To such allegations Abderhalden has been wont to reply that the technic of the tests has not been properly mastered; but, as one commentator has remarked, the details of the technic appear to be so elaborate as to destroy the value of the test for practical investigators. We have further discussed even more serious criticisms of the specificity of the Abderhalden test, notably the findings of Van Slyke[1] and his colleagues, who have experimented under the most careful conditions and likewise have found no essential differences in the proteolytic power of male and female serums toward placental protein.

Boldyreff[2] of Kasan also has found that the serum of males sometimes gives a positive, sometimes a negative, result. He believes that the variable outcome depends on the state of the digestive organs. It is maintained by Boldyreff[3] that the alimentary canal, with the exception of the gastric glands, is not at rest between the acts of digestion. According to his conception of the "periodic function" of the organism. the activity of the pancreas and the intestinal juice is manifested in a definite rhythmic way between the periods of digestion of the food. As a result, the secretions of the glands pass into the empty intestine; they are presumably absorbed from the small intestine, and therefore, their enzymes are at times discoverable in the blood.

Such, then, is Boldyreff's conception of the origin of Abderhalden's protective enzymes, which, accordingly, would occur in both sexes, as has been reported. If the explanation is tenable, we need not look to blood cells for the origin of the blood enzymes. Boldyreff asserts that the latter act not only on placenta protein but on other varieties of albuminous substance as well. Abderhalden's method, he concludes, is a good one for detecting the presence of proteolytic enzymes in the blood; but as a distinctive sign of pregnancy it is useless. This criticism is in harmony with the adverse criticisms that we have mentioned in the past.[4]

## THE USE OF CYANID IN THERAPY

To those now studying or practicing medicine, prussic acid connotes a poison of high toxicity and extremely dangerous qualities. The physician will not think of this admittedly poisonous compound in terms of therapeutic possibilities unless, perchance, he is old enough to recall the use of hydrocyanic acid in the cough mixtures that were concocted a generation ago. Nevertheless, the pharmacologist is well aware that hydrocyanic acid in suitable doses is one of the strongest known stimulants for the respiration. The disuse of so potent an agent cannot be attributed to the lack of critical situations in which the facilitation of respiration is called for. We must, therefore, conclude that either the fear of the drug's extreme toxicity, or its evanescent action, or some other undesirable feature has served to eliminate prussic acid and its salts from the therapy of today.

Respiration is a function of such indispensable character that the control of it in emergencies is an indisputable desideratum. In drowning, in stoppage of breathing during deep anesthesia, in extreme hemorrhage, and during undue intracranial pressure, the danger of failure of respiration often dictates the remedial procedures and determines the final outcome. Efforts directed to the relief of such danger crises can only be welcomed provided they rest on a background of rational therapeutics. It is in this spirit that we refer to a recent attempt of Loevenhart, Lorenz, Martin and Malone[1] to gain recognition anew for an abandoned drug. Substituting sodium cyanid for the older volatile hydrocyanic or prussic acid, they have shown the effects to be essentially the same. Potassium cyanid is avoided because of the depressing effects of potassium salts on the heart. The uncertainty of absorption is avoided by the use of intravenous medication, the cyanid being injected dissolved in physiologic sodium chlorid solution. The effect of the substance is truly ephemeral; but by means of slow continued or repeated injections, stimulation of respiration of almost any degree of intensity can be secured.

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[1] The Specificity and Utility of the Abderhalden Reaction, editorial, The Journal A. M. A., April 8, 1916, p. 1117.

[2] Boldyreff, W.: Abderhalden's Reaction, Jour. Physiol., 1917, **51**, Proceedings of the Physiological Society, p. 22.

[3] Boldyreff, W.: Quart. Jour. Exper. Physiol., 1916, **10**, 175.

[4] Abderhalden's latest communication on the subject was summarized in The Journal, March 2, 1918, p. 658.

The transitory character of the results, due to the rapid detoxication of the cyanid in the body, presumably by conversion to nontoxic sulphocyanate, is an advantage rather than a disadvantage when a speedy action for emergency needs is the essential. Baneful after-effect and cumulative phenomena are thereby more readily avoided. The Wisconsin investigators, who have already undertaken clinical researches in suitable cases under the guidance of their observations in the experimental pharmacology of cyanid, insist that the factor of safety in the intravenous administration of fiftieth-normal sodium cyanid is sufficiently large for clinical purposes. Warning symptoms of overrapid dosage are afforded by marked pallor, nausea, marked increase of pulse rate and the depression rather than stimulation of respiration that follows too rapid injection of too large a dose. In their own experience they noted no disagreeable symptoms whatever. In addition to the desired stimulation to respiration, there was evidence of stimulation of other parts of the cerebrum, especially the psychic functions.

As Loevenhart and his colleagues remark, it would seem superfluous to advise caution in the use of cyanid in therapy. Nevertheless, the evidence now at hand makes it seem worth while to give consideration anew to a procedure which promises to assist in the difficult task of resuscitation from drowning, to avert embarrassment of respiration in the accidents of anesthesia, to tide over the dangers of intracranial pressure until decompression can be accomplished, and to assist artificial respiration in other emergencies. No form of intravenous therapy is safe for the trials of a novice, yet we must not on that account stand aloof from procedures that call for intelligence and skill. Progressive therapy—in contrast with lackadaisical routine prescription writing—may find something quite worth while in the restoration of cyanid to the list of compounds worthy of consideration, even if a final verdict as to its real usefulness may be deferred for the present.

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[1] Loevenhart, A. S.; Lorenz, W. F.; Martin, H. G., and Malone, J. Y.: Stimulation of the Respiration by Sodium Cyanid and Its Clinical Application, Arch. Int. Med., January, 1918, p. 109.

## THE HEALTH OF WOMEN WAGE EARNERS

The entrance of women into vocations once regarded as the exclusive province of male labor has been enormously accentuated by the needs of wartime service throughout the world, although the movement in this direction was well initiated in some fields even before the present conflict. Most civilized countries have provided special legislative protection for women wage earners.[1] It is said that in many respects American legislation lags far behind the legal protection already afforded by leading European countries to the women who, with slighter physique, are competing with men or are replacing men amid the special health hazards of modern industry.

In contemplation of the steps that are yet to be taken, it may properly be asked to what extent physical or physiologic reasons dictate a special consideration of women, in contrast to men; and whether the emphasis of future legislation should not be placed, in its fundamental rather than any specific aspect, on the worker and the character of the task rather than on the sex of those engaged in it. It certainly requires no argument to convince a medical man of the deserts of women at the time of childbirth, during the period of pregnancy, and long after delivery. It is also not improbable that the menstrual period demands special consideration, although more than one writer has begun to protest against classing this as a periodic disability to be charged against the sex.

Are there any inherent further peculiarities that furnish a rational and scientific basis for distinctions between workers? In what respect is woman exposed to health dangers that do not so seriously threaten men? The usual statement is that "with a physique slighter and less strong, woman has not the same power to resist conditions which insidiously break down health and which predispose to more serious disturbances." [1] Yet although woman has fortunately been kept away from the more dangerous occupations, such as those involving the use of poisons or the presence of harmful dusts and gases, although she has usually been kept away from the underground work in mines and out of the chemical industries, there are very few investigations available as a basis for sound and effective extension of legislation.

Viewing, as we do, the more intensive cooperation of women from month to month in the hard work of today, we may therefore turn with some relief to certain tentative conclusions that have been arrived at by Mosher and Martin[2] in a study of the muscular strength of college women at Stanford University,

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[1] A summary of conditions existing prior to the war is given by Andrews, Irene O.: The Protection and Promotion of the Health of Women Wage Earners, in Kober and Hanson: Diseases of Occupation and Vocational Hygiene, Philadelphia, 1916, p. 831.

[2] Mosher, Clelia D., and Martin, E. G.: The Muscular Strength of College Women, with Some Consideration of Its Distribution, THE JOURNAL A. M. A., Jan. 19, 1918, p. 140.

California. They submit that there is no difference in the muscular strength of men and women which is due to sex as such. The differences frequently found are attributable to differences in the use of the muscles, brought about by the conventional limitations of activity or by dress. A high degree of muscular power in a woman, Mosher and Martin add, in no way lessens her racial efficiency. Lack of muscular power, as in the pectoral muscles, may be a distinct racial disability.

Whatever social or personal preferences may dictate, the need of woman's work at the present time is beyond dispute. Aside from the ethics or the philanthropy of the situation, it is gratifying to learn that woman is not penalized with all the insurmountable physical handicaps with which tradition has invested her; nor is she likely to suffer from the actual exercise of powers with which she has been endowed perhaps in more generous measure than either mankind or woman herself has suspected. The poet may still be content with the Sanskrit characterization of woman:

> There in the fane a beauteous creature stands,
> The first best work of the Creator's hands,
> Whose slender limbs inadequately bear
> A full-orbed bosom and a weight of care;

but the physiologist has discovered far greater potential powers in the so-called "weaker" sex.

## FOOD AND OBESITY

It is easy to assert in an offhand way, as do the majority of writers on nutrition, that obesity or the deposition of fat in the body is due to "superalimentation or the consumption of food in excess of the requirements," and that this is aided by "insufficient exercise, diminished metabolism, or nutritional disturbance of glandular and trophic origin." [1] Leaving aside the accepted instances of admitted pathologic obesity, there remain the familiar types of persons in whom we somehow suspect an indefinable "disposition" toward corpulence. They will frequently deny that their food intake is unduly liberal, and they may even claim to observe abstemiousness in diet. Not infrequently one may see specimens of the obese and the thin in the same family and household under common conditions of diet which fail to suggest any obvious explanation for such inequalities in size. Thus it has come about that obesity has been regarded by many students of physiology as an exemplification of an altered metabolism—as a lowering of the exchange of materials with a consequent deposition of fat. In a classic experiment by Rubner,[2] who compared the metabolism of a boy who was obese with that of his brother, the fat brother proved to have a larger total metabolism than the lean one, but also a larger body surface. Compared on the basis of their surface areas, the metabolism of the boys was the same.

Friedenthal[3] has suggested that the complaint of many corpulent persons can be understood when they declare that they continue to put on weight with an absolutely lower ingestion of food. In ratio to their small proportion of active tissue (contrasted with fat depots or inert tissue), the ingested food is frequently not small, so that a portion of it is still available for weight increment. Reviewing the somewhat conflicting views on this subject a few years ago, von Fürth[4] remarked that perhaps it would be best to foresee that the methods of investigation now at our command are not good enough to allow us to say that there is a true and constant abnormality in the metabolism of all obese individuals; which does not say, however, that such fault does not exist.

Abnormalities of a still different order have also been attributed to the body that is obese. It has been charged with a sort of metabolic wastefulness. The best illustrations are derived from the domain of animal husbandry, in which the fattening of the individual has become an art rather than an accident. It is known that the gain in live weight secured per unit of feed consumed diminishes as the fattening progresses. Is this, too, due to some perversion of metabolism in obesity? Armsby and Fries,[5] who have made an accurate investigation of this problem, deny that it is due to the supposed lower utilization of food by the fattened as compared with the thin individual. They found the corresponding rations digested equally well by the fattened and unfattened animal. These investigators at the Institute of Animal Nutrition of the Pennsylvania State College have also approached the question whether, with the progress of the fattening, the body cells become less efficient in the manufacture of fat from other nutrients, or whether the cells of the adipose tissue, as they become loaded with fat, offer, as it were, an increasing resistance to the deposition of added fat, to overcome which requires an expenditure of energy.

The answer to these inquiries is of interest not only to the cattle feeder who must count the cost of "finishing" his product for the market, but likewise to students of human nutrition. They raise the question of unique nutritive needs in the case of the obese. Carefully made observations on fattened cattle[5] indicate clearly that the net energy values of the ration and the percentages of metabolizable energy which were available for gain were only slightly less in the fattened than in the unfattened condition in the same individual. However, after extensive fattening, the maintenance requirement was increased as much as 36 per cent. in one case—an increment far larger than the increase in size or body surface would account for. Arsmby and Fries attribute the lower economic efficiency of the fattened animal to this higher maintenance requirement of food, rather than to any noteworthy difference in the utilization of the surplus of feed over the maintenance requirement. If the same manifestation of uneconomic use of food in the obese applies to man, there is an added force to the Food Administration's advice to our corpulent citizens to burn their own fat and thereby save fuel for the nation's fighters.

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[1] Tibbles, W.: Dietetics or Food in Health and Disease, 1914, p. 452.

[2] Rubner, M.: Beiträge zur Ernährung im Knabenalter, 1902.

[3] Friedenthal, H.: Centralbl. f. Physiol., 1909, **23**, 437.

[4] Von Fürth, O.: Chemistry of Metabolism, translated by A. J. Smith, Philadelphia, 1916, p. 394.

[5] Armsby, H. P., and Fries, J. A.: Influence of the Degree of Fatness of Cattle upon their Utilization of Feed, Jour. Agric. Research, 1917, **11**, 451.

## THE PEORIA OUTBREAK

It is disappointing to find that widespread epidemics due to a sewage-contaminated water supply still occur with relative frequency in large and civilized communities. Peoria is the third large Illinois city to suffer from a visitation of this sort within a few years, similar outbreaks having occurred at Rockford and Quincy a few years ago. In the last named cities the outbreak was clearly traced to the water supply, and the circumstances leading up to the occurrence were fully investigated. In both Rockford and Quincy the outbreak of gastro-intestinal disease was followed by one of typhoid fever. It is yet too early to learn whether Peoria will be afflicted in like manner, but the health authorities in that city must be awaiting developments with anxiety. In the majority of such outbreaks everywhere typhoid with its relatively long period of incubation has been a sequel to the more sudden and more extensive as well as more transient epidemic of gastro-enteritis.

Owing to the fact that no complete investigation and report on the Peoria situation have yet been made by the local authorities, we are not in a position to state exactly how the water contamination occurred. The fact that the water company is privately owned may perhaps explain in part the difficulties of carrying through a complete investigation. It can hardly be believed, however, that the Peoria authorities will allow the matter to rest here, particularly with the shadow of a possible typhoid epidemic hanging over them. The citizens of Peoria will doubtless demand that a searching inquiry be made, and that so far as practicable the conditions at the water works and the circumstances preceding the outbreak be brought to light.

The state of Illinois has for some years maintained an expert staff and excellent facilities for water examination in connection with the State Water Survey, with headquarters at the University of Illinois. There is also a well organized Illinois Water Supply Association, with membership composed of the various water works superintendents and other officials. It is somewhat singular that three of the most serious outbreaks of water-borne disease that have occurred in this country in the last few years should have occurred in this state. Both the Rockford and the Quincy epidemics were due to something approaching mismanagement of the water supply systems, and from the information furnished in the report of our special investigator published last week it may be conjectured that the Peoria outbreak may have been due to some form of carelessness or negligence on the part of the responsible authorities.

It is somewhat surprising that in a city the size of Peoria an efficient municipal health organization should not be provided. We understand that the Peoria health officer is not a full-time appointee, and that no systematic oversight of the bacterial condition of the water supply has been practiced. In Peoria as in many other cities there have doubtless been some unsettling changes in the office of the health commissioner, as a result of the shifting of personnel necessitated by the war; but the health of a thriving city is too important to be jeopardized in this way except in dire need. There seems little doubt that Peoria, like many other cities of its class, is mistaken in supposing that the health work of the city can be properly administered with part-time service and with insufficient staff and appropriations. There is a kind of efficiency just as necessary at this time in civil life as in the military camps. If Peoria reaps an aftermath of typhoid with its roll of deaths, the appeal to the imagination of the average citizen may be greater than if no further development takes place; but the outbreak, as we now know about it, must be sufficiently impressive to the responsible authorities. In public health affairs, eternal vigilance is the price of safety.

# Current Comment

## REGULATIONS ON PHYSICAL EXAMINATIONS FOR SELECTIVE SERVICE

After The Journal had gone to press last week and some 18,000 copies were printed, a telegram containing important changes in the regulations covering the physical examination of registrants for selective service was received from the Provost Marshal-General, requesting publication in the current issue. In accordance with this request the presses were stopped and the new modifications immediately inserted. This will explain why the matter was printed in some copies of The Journal and not in others. In brief, the changes grant to the local boards certain powers previously delegated to the medical advisory boards. They are incorporated in the three following statements:

> Local Boards may accept registrants for special and limited military service but must refer all doubtful and remediable cases to the Medical Advisory Boards.
>
> Local Boards can accept or reject for general military service and may also accept for special or limited military service but must refer all doubtful or remediable cases not falling within said three classes to the Medical Advisory Board.
>
> Local Boards may accept a registrant as physically qualified for special or limited military service in a named occupation or capacity without reference to the Medical Advisory Board.

The effect of these changes is to remove some of the work from the medical advisory boards. As The Journal has previously stated, the effect of the creation of the medical advisory boards and the regulations concerning physical examination was to throw the large majority of examinations of registrants, in fact all except unconditionally accepted or rejected registrants, on these boards. The new regulations modify the rules on unconditional acceptance or rejection, and permit the local boards to accept registrants for named occupations or for special or limited military service. Even under these new conditions, the medical advisory boards have a large amount of work and an especially important responsibility.

## THE COLD BATH AND BLOOD FLOW

Many of the methods of physical therapy at present in use are still based on admittedly empiric indications. The responses obtained or assumed to result from one procedure or another, such as applications of heat or cold in specific generalized or localized ways, frequently express themselves in the guise of vague feelings of well-being. The result is that descriptions of such effects are couched in most general terms. One hears, for example, that a cold spray or shower "affords excellent gymnastics for the skin," or that cool baths are hygienically wholesome because they provoke a "healthful reaction," sometimes spoken of as "skin training." This, however, is not the language of physiology. An instance of the sort of investigation that is still urgently needed to give a tangible scientific basis to much of modern hydrotherapy is furnished by recent hemodynamic studies of Burton-Opitz.[1] He has accurately measured the blood flow in subjects during immersion in cold water. The attempt was made to ascertain those tonic reactions which one ordinarily experiences in baths of from 32 to 34 C. (89.6 to 93.2 F.). A comparison of the values before and after the immersion showed very clearly that the cool water exerts a favorable influence on the blood flow, and that the increased flow is associated with a well marked rise in the systemic pressure and a slight acceleration of the respiratory movements.

## THE OXYGEN DEFICIT IN THE VENOUS BLOOD

Arterial blood, as it is about to leave the heart to carry its essential components for the use of the far away tissues, is nearly saturated with oxygen. In the progress of the fluid laden with this indispensable gas through the body, the oxygen is gradually given up in successive portions. Finally the circulating medium returns to the right heart as venous blood more or less depleted in oxygen. In asphyxia, when no adequate provision is available for replenishing this loss, the last traces of transported oxygen may disappear from the blood; but under normal circumstances of life, the blood corpuscles never stay long enough in the proximity of the tissues to lose their entire store of oxygen. The magnitude of the removal of the latter has long been known through the investigations of various physiologists. Recently Lundsgaard,[1] using the improved technic developed in the Hospital of the Rockefeller Institute for Medical Research, has completed new measurements of the "oxygen unsaturation" of the blood, as ascertained from a determination of the oxygen-carrying capacity and the actual oxygen content of the venous blood in a group of normal persons. The average oxygen-combining power approximates 20 volumes per cent.; the oxygen content of the normal subject resting as completely as possible ranged from about 10 to 17 volumes per cent. The difference between the oxygen capacity and the content of the gas actually present in the blood that has supplied the tissues thus ranges in health around an average of 6 per cent. In other words, little more than one quarter of the oxygen is withdrawn for metabolic purposes in each transit of the blood through the circulation. It will be interesting to see what renewed study in this field discloses when it is applied to the problems of the patient in the clinic.

## OLIVE OIL NOT ESSENTIAL

Physicians are receiving letters from a company whose business it is to import olive oil. With the letter is a card, which physicians are urged to sign, reading:

> "From both a medicinal, as well as a food standpoint, it is important that we have available, at all times, a supply of pure imported olive oil. You are authorized, therefore, to use this card to support your application to the State Department and War Trade Board, Washington, D. C., in an effort to secure the importation of sufficient olive oil to take care of consumers during 1918."

A postscript to the letter offers to send the recipient a complimentary copy of a book. One physician who has received this combination request and offer questions whether the methods of the company are justifiable. To him it appears to be "a very shrewd way of getting a great endorsement from physicians under a camouflage of war necessity." Most physicians, we believe, will view it in the same light. Leaving aside altogether the inference that the complimentary book is a *quid pro quo* for the endorsement, the statements both in the letter and on the card fail to convince. It is *not* important either from a medicinal or from a food standpoint that we have available a supply of imported olive oil. It is not even important that we have a supply of domestic olive oil. Freely admitting the food value of good olive oil, whether imported or domestic, it is no greater than some other vegetable oils; and the same applies to any alleged medicinal qualities. Even if olive oil had all the superlative virtues assigned to it by those who are in the business of selling it, it would still be true that the domestic olive oil is the equal of the imported olive oil. With ship tonnage as vital a problem as it is today one can think of many products that can be put in ships' holds that are of greater importance and value than imported olive oil.

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[1] Burton-Opitz, R.: Haemodynamical Studies, Am. Jour. Physiol., 1917, 45, 62.

[1] Lundsgaard, C.: Studies of Oxygen in the Venous Blood, I, Technique and Results on Normal Individuals, Jour. Biol. Chem., 1918, 33, 133.

# Medical Mobilization and the War

## THE ASSOCIATION'S WAR SERVICE

"It is a matter of tremendous importance to the nation, as it is to the medical profession, that systems be devised by which the individuals who compose it will be so evaluated that some one in each state, some one for the whole nation, may be able to tell Congress the exact value of the medical man power of the country at any moment.

This should have been done long ago by the American Medical Association, through its splendid facilities for organization, but it has so utterly failed to realize its opportunities in this respect that it is barely consulted in Washington, and the duties and responsibilities it should have proudly and efficiently borne have been undertaken by the Medical Section of the Council of National Defense."

This is quoted from an editorial in a journal owned and controlled by one of the constituent state associations of the American Medical Association. The fact that this charge appeared in a state journal prompted the chairman of the Board of Trustees and the secretary of the American Medical Association, independently, to write to the Surgeon-General asking if there is any basis in fact or any justice or truth in the charge.

The following are the replies of the Surgeon-General:

WAR DEPARTMENT,
OFFICE OF THE SURGEON-GENERAL
WASHINGTON

February, 22, 1918.

Thomas McDavitt, M.D.,
Chairman, Board of Trustees,
American Medical Association,
St. Paul, Minn.

*Dear Doctor McDavitt:*—In answer to your letter dated Feb. 14, 1917, I am very glad to acknowledge the great service which the American Medical Association has given, with and without solicitation, to me personally and to the Office of the Surgeon-General, in the solution of the important problems of preparedness for war and of the medical and surgical care of our boys in training camp and field by the Medical Department of the Army.

Through the officers, The Journal and educational propaganda distributed by the American Medical Association, we have secured thousands of officers of the Medical Reserve Corps. The Office of the Surgeon-General and the Medical Department of the Army still need your aid and support.

Permit me to thank you and through you the other trustees and officers of the Association for the valuable help already rendered and for the acceptable offer of a continued life service.

Very truly yours,
(Signed) W. C. Gorgas,
Surgeon-General, U. S. Army.

WAR DEPARTMENT,
OFFICE OF THE SURGEON-GENERAL
WASHINGTON

February, 22, 1918.

Dr. Alex. R. Craig, Secretary,
American Medical Association,
535 North Dearborn St.,
Chicago, Illinois.

*Dear Doctor Craig:*—It gratifies and affords me pleasure to acknowledge the great services rendered by the American Medical Association, to me personally and to the Office of the Surgeon-General, in organizing the Medical Department of the Army for the efficient care of our soldiers in training camp and field.

Since April, 1917, the Board of Trustees, the officers at the Chicago headquarters, The Journal and all the machinery of the American Medical Association have been important and distinctive factors through which many thousands of physicians have been influenced to apply for commissions in the Medical Reserve Corps; medical officers have received valuable instruction by means of special articles printed in The Journal and also through literature distributed in pamphlet form from the office; and in other ways too great to enumerate here.

The spirit of service expressed by the officers and members of the American Medical Association in so many helpful ways, in the work of preparation for war and for actual surgical and medical care of our soldiers in war, evidences a patriotism and devotion to country which is a credit to the American medical profession.

I accept and thank you and through you the other officers of the Association for the offer to continue the same services of the Association to the Medical Department of the Army as long as may be.

Very truly yours,
(Signed) W. C. Gorgas,
Surgeon-General, U. S. Army.

### Manual of Instructions for Medical Advisory Boards

The manual, just issued by the Provost-Marshal-General's Office, represents the report of the board of specialists, including military surgeons, appointed by the Surgeon-General. Incorporated in the manual are also the regulations governing physical examinations issued to local boards. The manual constitutes an excellent guide to physical diagnosis. A number of copies are available for general distribution by The Journal, and will be sent gratis to physicians on receipt of 3 cents in stamps to cover cost of mailing.

### Personnel of the Medical Department

For the week ending March 1, the personnel of the Medical Department of the Army included:

Medical Corps: 751, including 1 major-general, 61 colonels, 101 lieutenant-colonels, 195 bajors, 2 captains and 391 lieutenants.

Medical Reserve Corps: 17,430, including 1,055 majors, 3,974 captains and 12,401 lieutenants. On active duty: 13,909, including 679 majors, 3,928 captains and 9,302 lieutenants.

Medical Corps, National Guard: 1,202 including 7 lieutenant-colonels, 259 majors, 146 captains and 790 lieutenants.

Medical Corps, National Army: 61 including 4 brigadier-generals, 15 colonels, 42 lieutenant-colonels and 2 majors.

The Dental Corps, 211; Dental Reserve Corps, 5,048, of whom 1,296 are on active duty; Dental Corps, N. G., 266; Veterinary Corps, 24; Veterinary Reserve Corps, 1,398, of whom 695 are on active duty; Veterinary Corps N. G., 56; Veterinary Corps N. A., 301; Sanitary Corps, 903, and Ambulance Service, 136 constitute the remainder of the commissioned personnel.

### New Bulletin on War Surgery and Medicine

The Surgeon-General has authorized the issue of a monthly bulletin to be devoted to abstracts of war medical literature. The purpose of the publication is announced as being threefold: 1. To furnish the medical personnel abstracts of original papers of importance. The ordinary military routine may not leave time for the systematic reading of current literature. 2. To equip the various officers detailed as medical instructors with necessary information in short compass. 3. To furnish a medium for the prompt publication of reports which might otherwise not gain circulation but which have special educational value.

The first issue, that for March, is devoted wholly to surgery, although it is stated that subsequent issues will be allotted to internal medicine, laboratory medicine and the surgical specialties in proportion. The first number contains an excellent article by Major George de Tarnowsky, M. R. C., concerning surgery of the zone of the advance as observed in the French Service de Santé; a series of abstracts on gas gangrene and on trench foot and a final article consisting of the conclusions of the Inter-Allied Surgical Conference held in Paris during March and May, 1917, on the general principles guiding the treatment of the wounds of war.

### Dedication of Auditorium at Fort Oglethorpe

On March 11, special exercises will be held at Fort Oglethorpe in connection with the opening of the Warden McLean Medical Auditorium, constructed at Camp Greenleaf in Chickamauga Park, the Medical Officers' Training Camp. For some time the training of medical officers has been centralized at this training camp so that now there are over 3,000 mdical officers in training at Camp Greenleaf. The special auditorium was built for lecture purposes, and divisions of special training in various subjects are being established at the camp. It is likely that with the continuation of a centralization at Camp Greenleaf the school at Fort Riley will be discontinued as were those at Fort Benjamin Harrison and Camp Dodge, Iowa.

The exercises at Camp Greenleaf will be in charge of an auditorium committee consisting of Lieut.-Col. Roger Brooke, M. C.; Majors Mahlon Ashford, M. C.; H. L. K. Shaw, M. R. C.; N. M. Owensby, M. R. C. The following is the program:

10.00 a.m.—Presentation of Auditorium at the Camp
2.00 p.m.—Review at Fort Oglethorpe
5.00- 7.00 p.m.—Buffet Supper at Hostess' House
7.30 p.m.—Entertainment at Big "Y," Ringgold and Lafayette Rds.

### Hospital News

Ten hotels at Vichy, France, have been placed at the disposal of the American forces. Five hospitals are to be installed in the hotel, with accommodations for 7,000 patients.

It is announced that a United States Army depot is to be established at Ellis Island, New York Harbor. This will later be used as a receiving hospital for German prisoners and sick and wounded American soldiers returned from France.

The Hotel Cape May, Cape May, N. J., has been leased by the government for use as a hospital at the rental of $99,000. The building has 600 rooms.

The American Field Hospital at a western front was apparently used as a target in a German air raid, February 16. Fortunately, none of the patients, nurses, officers or men were injured.

New Ocean House at Swampscott, Mass., with the annex and several cottages has been taken over by the government and will be converted into a reconstruction hospital. The buildings at present accommodate more than 500 patients.

### Bill for Navy Nurse Corps

Under date of February 1, Representative Hicks of New York introduced a bill to prescribe the personnel of the Navy Nurse Corps, method of appointment, etc. The bill provides, in brief, that the Nurse Corps (female) of the Medical Department of the Navy shall hereafter be known as the Navy Nurse Corps, and shall consist of one superintendent and as many chief nurses and research nurses as may be needed. The superintendent shall be appointed by the Secretary of the Navy and all other members by the Surgeon-General, by and with the approval of the Secretary of the Navy. The chief nurses are to be appointed by promotion from the other members. The annual rate of pay to be: for the superintendent, $2,400; for the nurses, $840, with increases for each three-year period; and for the chief nurses, $360, in addition to the pay of a nurse. All members shall receive $10 per month additional when serving outside the United States. There are also provisions for retirement pay, leave of absence, transportation and subsistence, and a final provision repealing previous regulations covering these points.

### Extracantonment Health Zone Regulations

In carrying out the cooperative plan of the United States Public Health Service, the Medical Corps of the U. S. Army and state and local health authorities in extracantonment zones for protecting the health of the troops in camps and of the inhabitants of such zones, new regulations have been adopted in a number of zones (*Public Health Reports,* Feb. 15, 1918). Among these are rules adopted Jan. 11, 1918, by the health board of Des Moines, in the zone of Camp Dodge, for the control of venereal diseases. Regulations were also prescribed in regard to communicable diseases, and the city health officer was relieved by ordinance of all other duties, and a number of new officers, inspectors, clerks and visiting nurses provided to assist in carrying out the regulations. At Richmond, Va., in the zone of Camp Lee by regulation of the health department of Jan. 16, 1918, druggists and other retailers of drugs and remedies advertised to relieve persons suffering from contagious diseases are required to procure receipts from such purchasers, with name and address. The dealers are required to report to the health department monthly. Another regulation controls the handling of live poultry and other food products, and still another gives a revised list of reportable communicable diseases, with a special list of diseases which are to be reported as soon as their presence is suspected. The U. S. Public Health Service in cooperation with the commanding officer of the United States troops at Fort Oglethorpe, Ga., has issued regulations for the extracantonment zone covering barber shops, billiard halls, manicuring parlors, hotels, restaurants and eating houses.

### Medical Officers Discharged from the Service

Rather sensational statements have appeared in some of the newspapers regarding the number discharged from the Medical Reserve Corps and the reasons therefor. Certain newspapers seem to have assumed that all who have been discharged were inefficient, and numerous editorial comments have been based on this assumption. Briefly, the facts are:

Up to March 1, including those connected with the National Guard, 1,078 medical officers had been honorably discharged. If this number had been dismissed because of inaptitude or incompetency, it would be a serious matter. The following is the official tabulation as of March 1, 1918:

DISCHARGES IN THE MEDICAL RESERVE CORPS

| Causes | |
|---|---|
| Physical disability | 369 |
| Inaptitude | 150 |
| Other branches of the service | 297 |
| Domestic troubles | 26 |
| Resignations | 88 |
| Needed by the community | 32 |
| Deaths | 28 |
| Total | 990 |

DISCHARGES IN THE MEDICAL CORPS, NATIONAL GUARD

| Causes | |
|---|---|
| Physical disability | 25 |
| Inaptitude | 10 |
| Other branches of the service | 15 |
| Domestic troubles | 0 |
| Resignations | 34 |
| Needed by the community | 1 |
| Deaths | 3 |
| Total | 88 |

It will be noted that, including the two corps, 312 are listed under the term "other branches of the service." This refers to those who have been transferred to the regular Medical Corps, as well as to those who have gone outside of the medical department; that is, those who have taken appointments in the line. Deducting these 312 men who have not actually been discharged from the Army and 31 who have died, leaves 735 who have been honorably discharged from the army for all causes. One hundred and twenty-two have resigned; 33 "needed by the community"; 26 were compelled to give up their work on account of domestic complications—which in the majority of instances means family illness, death, etc.; 394 were dismissed for physical disability and 160 for inaptitude. It is quite possible that some of those who have been dismissed for "physical disability" were inefficient in their work but certainly only a small percentage.

### Prevention of Smallpox Among Selected Men

The office of the Provost-Marshal-General has issued the following statement of precautions against introduction of epidemic diseases into cantonments:

1. At this season of the year there is a maximum prevalence of communicable diseases, and there now is an epidemic of mild smallpox in numerous localities in the central and southern states often unrecognized and not under medical care.

2. To modify and as nearly as may be to prevent the introduction of communicable epidemic diseases into the cantonments through the mobilization of selected men coming from districts in which communicable epidemic diseases exist, the following precautions should be taken:

(*a*) Where smallpox exists in epidemic form, all selected men within the current quota who are within the district in which the epidemic exists should be immediately vaccinated by the state or local health authorities if, under the local law, such vaccination is compulsory, and if not compulsory, then if such selected men consent to such vaccination.

(*b*) Where typhoid or paratyphoid fever exists in epidemic form, all selected men within the current quota in the district in which the epidemic prevails should be immediately and properly inoculated with standardized triple typhoid vaccine by the state or local health authorities where such inoculation is compulsory, and where not compulsory, then if the selected men consent to the same.

(*c*) Where measles, cerebrospinal meningitis, scarlet fever, virulent streptococcus sore throat, and diphtheria exist in epidemic form, as evidenced by authentic reports from state or municipal or other local health departments, the adjutant-general of the state should make an immediate report of the conditions to the division surgeon at the camp to which the territory in which the epidemic exists is contributory, asking for advice as to whether or not the mobilization of selected men from such districts should be delayed during the prevalence of the epidemic, and also immediately report to this office all such facts as well as any advice received from the camps, and await instructions from this office.

(*d*) The individual in charge of a squad of selected men en route to a mobilization camp should be furnished by the local board with written information for the division surgeon, of the existence of communicable diseases (especially cerebrospinal meningitis and measles) in the district from which the selected men come, to the end that a possible disease carrier may be placed in quarantine.

E. H. CROWDER, Provost-Marshal-General,
By FRANK BILLINGS, Major, M. R. C.

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## A MEDICAL OFFICER'S EXPERIENCE IN THE WAR ZONE

The following paragraphs are excerpts from letters written by Major George de Tarnowsky, Chicago, now attached to the American Expeditionary Forces in France, to friends at home:

"I have had six wonderful trips so far, visiting every part of the devastated district, talking to the people, walking through cities and villages where only the streets remain. I have climbed down into marvelous grottoes, caverns and dugouts made by the French and Germans, studying the methods of picking up the wounded, carrying them to these underground rooms for first aid and then transporting them by auto, by rail, by boat, etc., to the various front hospitals. . . .

### ATROCITIES

"I have visited over a hundred towns and villages, always in a military auto, with a guide to get me in and out of the maze of trenches. The systematic devastation of the country is one of the things one cannot forgive the Boches. Acres and acres of fruit trees chopped down, the trees lying where they fell, proving that the Boches did not need the wood but only sought the annihilation of a race. All girls of over 14 years have been taken away. One poor woman with seven children had her two daughters 14 and 16 years old taken away by the Boches. Her husband is a prisoner in Germany, and she was severely wounded in the abdomen by a shell. Her farmhouse is half demolished, yet there she was, making a brave fight with her five young ones around her. We sent her bread, potatoes and clothes, and have given her two goats whose milk keeps the youngest three children alive. One dear old peasant woman kissed my hand and said—'We thank Americans for having come to help us.' Her two daughters, both married, and three daughters disappeared in Germany. . . .

### PRUSSIAN OFFICERS

"The only time I feel like smiling on these trips is when I come across German prisoners rebuilding the villages and roads they have destroyed. France is wisely making them, in a small way, undo the wrong they have done. Cemeteries have been systematically torn up, all the metal from the coffins removed, and the skeletons thrown around on the ground. Everywhere one sees the arrogance and selfishness of the Prussian officer. They lived luxuriously in bombproof houses or dugouts, with thick iron and cement walls and roof, while they locked up their poor soldiers in mitralleuse cages so that they could not escape from shell fire. Always the best of everything for the officers and the worst of everything for their men; such a contrast to the British and French system in which the officer thinks of his men first and of himself last.

"I am constantly amazed at the beautiful democratic spirit which prevails in the French army. Officers and men fraternize openly, and yet the discipline is excellent. The French soldier goes about his duties because he knows it is for the good of the service and of the country—not because he fears to be punished if he doesn't perform his duty. . . .

### FRENCH SERVICE

"I have visited many hospitals, including the wonderful one hewn out of the rocks under the famous citadel. Some of the trips were extremely dangerous and we had to take shelter under rocks or crouch down in the bottom of trenches, while bullets and shells whizzed over our heads. When I tell you that I crawled up to a listening post and saw a German soldier 15 yards off in another peep-hole, blinking at me, you can judge of the nearness to the enemy lines. In many places, owing to swamps, etc., no trenches can be built, and we had to dash across the open, one by one, in order not to draw fire. As a rule, they don't waste ammunition on a single soldier, but they have a nasty way of changing their minds without notifying you in advance. The only really hard time I had was in passing from one army zone to another. No automobiles are allowed to pass, so we had to take a train. We were to have been met at the post of ——— by another auto, but the train was five hours late, and it was 11 o'clock at night before we reached the place. The auto had departed, leaving no instructions, so there we were, in a pitch dark town, under bombardment. We carried our suitcases with us and started out to find a hotel. All were packed full to overflowing, so, after an hour's futile search, we tramped back to the station to spend the night in the cold, dark waiting room. It was then after midnight, and we hadn't eaten a thing since noon. The officer on guard then suggested that we try a rest home for soldiers on furlough, called "Abri des permissionaire," and showed us the way there. We found two bags of straw and two blankets apiece, *the last ones.* Through the same kind officers the canteen or 'cooperative' was opened for us, and I bought a box of cheese, a piece of sausage, a hunk of bread and a bottle of wine, which we ate at 1 o'clock in the morning. Going to bed was simplicity itself, as we took off our shoes and put on an extra pair of woolen socks. Just as we had tucked ourselves in and our teeth began to chatter from contact with the cold and very damp blankets and straw, two belated French officers came in and looked at us in despair. That they did not curse us simply goes to prove that politeness is an essential part of every Frenchman's make-up. They spent the night trying to keep up a small fire in the one tiny stove which the wooden barrack contained. 'C'est la guerre.' In the morning, as all the water was frozen, we washed our faces with the corner of our handkerchief and reported at headquarters, after drinking a big bowl of hot café au lait.

"There we were given another automobile and sallied forth to complete the trip. Over the farthest north of the cities of that region we saw fourteen aeroplanes fighting over the town, a most thrilling sight. Two nights we slept in officers' barracks in a big hospital center with wonderful underground passages where the wounded were carried during the bombardments; another night I had a cot behind a little grocery store kept by two dear old peasant women. . . .

### BRITISH SERVICE

"I spent ten days with the British Army visiting their aid posts and hospitals. During the whole ten days I merely took my coat and trousers off, sleeping with my steel helmet and gas mask ready for emergencies. Two nights I spent at headquarters in an old chauteau which was regularly aimed at by Boche avions; three nights I was in a wooden hut surrounded by sand bags 4 feet high; three nights I had a cubby hole in the cellar of a ruined house, in the center of Ypres, close by the famous cathedral and cloth hall. The last two nights were again spent in a hut, and here not only was the hut surrounded by sand bags, but an extra sand bag wall was built around the cot so that it gave you the effect of jumping into a huge bath tub. The cot—save the mark—consisted of a piece of chicken wire stretched over four boards; two blankets served as a mattress, and two blankets were for covers. At Ypres not only did I have rows of sand bags around, but tiers of sand bags over my head, supported by railway ties. The officers' mess is usually a barrack, or cellar, similarly protected. Yet, in the midst of warfare, with bombardment going on all the time, my servant—as the officers still call their orderlies—brought me hot water to shave with and a small canvas tub in which one could take a sectional bath. In spite of war, we 'dress' for dinner, dressing consisting in taking off one's belt and putting on shiny puttees and shoes. Afternoon tea was still a necessary function, and I was always brought back to mess in time for 5 o'clock toast, jam and buns.

"The officers were a splendid lot of fellows. They were formal the first day, melted in the evening, after chatting for several hours over whisky and soda, and the next morning hailed me as 'tarnasky,' a sure sign—with the British—that you are accepted as a gentleman and a good fellow. Michel had warned me about the sanctity of the morning shave, morning tub, change of shoes and puttees, and removal of belt for supper. In France one puts on the belt for formal occasions. Of course, when I had casually remarked that my grandparents were English, the ice entirely disappeared, and I was at home with them for the rest of my mission.

### THE WAR

"I shall describe one scene to give an idea of how hellish war can be. In order to reach some 'pill boxes,' as the British call the cement forts which they use as dressing stations (all of them built by the Germans when they occupied that sector) before the enemy could see us, I was awakened at half past 5 in the morning, given a cup of tea and toast and started at 6 with a captain M. C. as guide. We drove 4 miles in an auto and then got out. I gazed on an endless sea of mud and water. Roads were all destroyed by shell fire and there wasn't a square yard which was not represented by a shell hole as big as our bath room, full of thick, yellow-green water. The only means of advance was along 'duck board' paths 3 feet wide and placed on wooden posts 2 feet above the water. This path was almost 5 miles long, changing direction every 20 yards in order to avoid enfilading fire. One's head gets quite dizzy turning so often. There is not a tree left standing anywhere. Dead bodies of horses were everywhere; I idly counted twenty-four of them while walking less than 500 yards. Bodies of German and British lie here, there, everywhere. Now an arm, now a leg, now a head sticking out of the mud, or bobbing on a pool of water. They cannot be buried, because if one leaves the wooden path one sinks in the mud and is smothered to death in a few minutes. The stench of the atmosphere is something awful.

"We visited the dressing stations, where I met three of the American lieutenants who had crossed over with me on the *St. Louis* in September. All three looked as though they had lost considerable sleep, but they were sticking to their posts like heroes. They had been in that sector only one week, fresh from English hospitals where I had left them. All had bloodshot eyes from living in a dark room with acetylene lights and smoky fires, which they had to keep going in order to keep warm. The actual front lines consist of a series of shell holes connected up, in which one sits or crouches. Water has to be bailed or pumped out almost constantly. A large percentage of the men develop trench foot. I am sorry to say that my feet started to bother me again—worse than ever. However, they are now quite all right, as I have been walking around the hospital for a week with only slippers on and am treating my feet three times daily according to army methods. The men's feet often swell up to such an extent that they cannot get their shoes off, but have to have them cut to pieces.

"The return journey was quite exciting, as the Boche opened a barrage fire between the first 'pill box' and the path we were walking on, thus preventing us from returning to shelter. It was most fascinating to watch the shells falling steadily along our line for five minutes, then jumping forward another hundred yards and smashing things up, and again forward. That is why the paths are built zigzag so that shells can destroy only a small section at a time. At a junction point of these paths some "Tommies" came running at top speed. The leader shouted to me 'Run like hell, sir, they are going to "strafe" this point something horful.' Run like hell we did, and soon got out of range! The fascination of the scene prevented one from getting very scared, but I confess that my knees wobbled a little and that my heart was going pit-a-pat for a few minutes! That wasn't my first baptism of fire, but it was the most exciting. It also gave me an excellent idea of the wholesale wastage of shells in this war. At least 200 shells were fired at us, yet aside from the general splashing of mud, which kept my orderly busy the rest of the day, no one even received a scratch. The very next morning a shell crashed into the door of a pill box and the second one demolished the kitchen nearby. But again no one was hurt. Of course, one is not always so lucky; but it explains the peculiar war philosophy which one quickly acquires at the front. One may be hit at any moment of the day or night; but the chances are so immeasurably in one's favor that aside from taking every possible precaution, one pays no attention to the noises around.

"One of the most exciting scenes I witnessed near Ypres was a British 'sausage' or stationary observation balloon, the cable of which suddenly snapped. Up it shot in the air, the wind rapidly driving it toward the Boche lines. We saw the observer climb out of the basket with the parachute strapped to his shoulders and jump into space, the parachute unfolding and letting him slowly float down toward earth. What a shout of joy went up a few minutes later when the telephone rang to announce the Englishman's safe descent behind his own lines. Another day I counted twenty-six aeroplanes fighting in the air over Ypres; unfortunately, the Boche machines turned tail before any could be bagged.

"The army is splendid. I saw regiments from England, Scotland, Australia and Canada in different sectors; all were splendid looking fighting men, well trained and seasoned. American medical officers are to be found in many of the British hospitals doing noble work; I also met artillery and line officers studying methods of warfare—all eager to learn and all realizing that the American Army must learn this new type of warfare if it does not wish to waste its man power uselessly."

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Feb. 22, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):

| | |
|---|---|
| All Troops | 1,506.7 |
| National Guard Camps | 1,192.5 |
| National Army Camps | 1,835.9 |
| Regular Army | 1,360.1 |

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

| | |
|---|---|
| All Troops | 50.8 |
| National Guard Camps | 44.8 |
| National Army Camps | 58.6 |
| Regular Army | 45.3 |

3. CAMPS HAVING ADMISSION RATE FOR DISEASE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Shelby, Bowie, Doniphan, Beauregard, Wheeler, Sevier, Kearny and Logan. NATIONAL ARMY: Camps Travis, Pike, Funston, Dodge, Zachary Taylor, Jackson and Sherman.

4. CAMPS HAVING NONEFFECTIVE RATE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Bowie, Sevier, Beauregard, Shelby, Wheeler, Kearny and Doniphan. NATIONAL ARMY: Camps Funston, Travis, Pike, Jackson, Zachary Taylor, Dodge and Lee.

5. VENEREAL DISEASES: Annual admission rate per 1,000:

| | |
|---|---|
| National Guard Camps | 51.1 |
| National Army Camps | 62.9 |
| Regular Army | 81.3 |

CAMPS HAVING RATE ABOVE AVERAGE: NATIONAL GUARD: Camps Bowie, Wheeler, Logan, Wadsworth and Shelby. NATIONAL ARMY: Camps Pike, Grant, Dix, Jackson, Lee, Lewis and Dodge.

6. NUMBER OF NEW CASES OF PNEUMONIA REPORTED 473

Highest number in any one camp:

| | |
|---|---|
| National Guard—Camp Cody | 46 |
| National Army—Camp Travis | 46 |

7. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING FEB. 22, 1918

| Camps | Pneumonia | Dysentery | Malaria | Venereal | Paratyphoid | Typhoid | Measles | Meningitis | Scarlet fever | Deaths | Noneffectivie per 1000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 3 | ... | ... | 34 | .. | .. | ... | 1 | .. | 1 | 27.0 |
| Hancock | 8 | ... | ... | 14 | .. | .. | 19 | 2 | 8 | 0 | 27.0 |
| McClellan | 9 | ... | ... | 12 | .. | 1 | 16 | 1 | 3 | 1 | 32.5 |
| Sevier | 9 | ... | 1 | 20 | .. | .. | 7 | 2 | 3 | 8 | 69.9 |
| Wheeler | 17 | 1 | 4 | 43 | .. | .. | 1 | .. | .. | 4 | 52.2 |
| Logan | 11 | ... | 1 | 59 | .. | .. | 48 | .. | 1 | 2 | 35.3 |
| Cody | 46 | ... | ... | 14 | .. | .. | 2 | 2 | 4 | 13 | 37.7 |
| Doniphan | 2 | ... | 1 | 15 | .. | .. | ... | 1 | .. | 5 | 45.5 |
| Bowie | 22 | ... | 1 | 63 | .. | .. | 1 | 3 | 1 | 3 | 70.9 |
| Sheridan | ... | ... | ... | 6 | .. | .. | 4 | .. | .. | 2 | 23.5 |
| Shelby | 3 | ... | ... | 26 | .. | .. | 1 | 2 | 1 | 3 | 56.3 |
| Beauregard | 6 | ... | ... | 17 | .. | .. | 2 | .. | ... | 8 | 61.2 |
| Kearny | 9 | ... | ... | 5 | .. | .. | 2 | .. | 9 | 1 | 49.8 |
| Devens | 5 | ... | ... | 15 | .. | .. | 10 | 1 | 3 | 3 | 38.5 |
| Upton | 8 | ... | ... | 20 | .. | .. | 4 | .. | 2 | 1 | 24.6 |
| Dix | 2 | ... | ... | 34 | .. | .. | 26 | .. | 6 | 2 | 43.6 |
| Meade | 2 | ... | ... | 26 | .. | .. | 9 | 2 | 6 | 4 | 31.4 |
| Lee | 15 | ... | ... | 50 | .. | .. | 14 | 3 | .. | 9 | 63.6 |
| Jackson | 10 | ... | 1 | 31 | .. | .. | 6 | 9 | 2 | 6 | 86.2 |
| Gordon | 12 | ... | ... | 24 | .. | .. | 2 | 1 | 0 | 6 | 34.1 |
| Sherman | 4 | ... | ... | 34 | .. | .. | 61 | .. | 16 | 2 | 52.9 |
| Taylor | 19 | ... | ... | 13 | .. | .. | 5 | .. | 1 | 7 | 71.4 |
| Custer | 3 | ... | ... | 15 | .. | .. | 16 | .. | 5 | 6 | 44.7 |
| Grant | 4 | ... | ... | 43 | .. | .. | 23 | 1 | 17 | 5 | 38.3 |
| Pike | 19 | ... | 4 | 87 | .. | .. | 7 | .. | 9 | 7 | 97.1 |
| Dodge | 9 | ... | ... | 27 | .. | .. | 19 | .. | 18 | 9 | 68.7 |
| Funston | 4 | ... | ... | 7 | .. | .. | 1 | 2 | 7 | 2 | 104.6 |
| Travis | 46 | ... | ... | 22 | .. | .. | 4 | 2 | 1 | 7 | 98.0 |
| Lewis | 21 | ... | ... | 47 | .. | .. | 40 | 2 | 26 | 2 | 60.9 |
| Regulars | 132 | 4 | 5 | 585 | 1 | 2 | 519 | 25 | 129 | 66 | 45.3 |
| National Guard in departments | 1 | ... | ... | 22 | .. | .. | 58 | .. | .. | 0 | |
| National Army in departments | 12 | ... | 1 | 148 | .. | .. | 31 | .. | 32 | 2 | |

8. ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

| | All Troops in U. S., Week Ending Feb. 22, 1918 | Regulars in U. S., Week Ending Feb. 22, 1918 | National Guard, All Camps, Week Ending Feb. 22, 1918 | National Army, All Camps, Week Ending Feb. 22, 1918 | Expeditionary Forces, Week Ending Feb. 14, 1918 |
|---|---|---|---|---|---|
| Pneumonia | 21.2 | 18.3 | 22.6 | 23.2 | 18.5 |
| Dysentery | 0.2 | 0.5 | 0.1 | 0.0 | 0.2 |
| Malaria | 0.8 | 0.7 | 1.2 | 0.6 | 0.2 |
| Venereal | 70.7 | 81.3 | 51.1 | 62.9 | 51.7 |
| Paratyphoid | 0.04 | 0.1 | 0.0 | 0.0 | 0.2 |
| Typhoid | 0.1 | 0.3 | 0.1 | 0.0 | 0.0 |
| Measles | 42.9 | 72.1 | 16.0 | 81.4 | 26.4 |
| Meningitis | 2.8 | 3.5 | 2.2 | 2.9 | 4.2 |
| Scarlet fever | 13.8 | 17.9 | 4.7 | 15.1 | 11.1 |

## NEWS OF THE CANTONMENTS

### Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Feb. 24, 1918.

Lieut.-Col. William E. Keller, M. C., from Scranton, Pa., has been relieved as division sanitary inspector and placed in charge of the One Hundred and Third Sanitary Train.

Surgeon-General Gorgas accompanied Secretary of War Baker on a recent inspection of Camp Hancock and the base hospital here.

Major Leonard D. Frescoln, training officer, gave a demonstration, March 1, at the chief of staff's office of methods used in training the Hospital Corps and men of the division in camp sanitation, hygiene and first aid work.

### Thirty-Fourth Division, Camp Cody, Deming, N. M.

Feb. 24, 1918.

The general health of the camp has continued good. There have been no epidemics, and no accidents. At the base hospital a new sewerage system placed well below the surface, and frost proof, is approaching completion, permitting of the installation of bath tubs, hand basins, toilets, with running water both hot and cold, and shower baths for the use of patients and officers. A new system of steam heating for operating and examining rooms also is in course of installation.

The organization of the staff and personnel of the hospital has been perfected, and the efficiency of the institution thereby increased; for although the daily census shows a population of 837, yet additional ward space for which there is sufficient equipment is needed. An extension to the present quarters for medical officers is being constructed.

A pavilion for the treatment of psychiatric and nervous patients has been erected containing rooms for the segregation or isolation of disturbed patients, enclosed porches and sun parlors, and equipped with necessary toilet and bathing facilities. This class of patients always present by reason of their turbulent and boisterous conduct a difficult problem, and their management cannot be accomplished satisfactorily otherwise than in the manner which is being carried out.

The cases of pneumonia occurring at this camp which formerly showed a predominance of Type III of the disease of late have almost disappeared. The cases which have been rceived during the last month have been lobar cases of Type I.

#### MEDICAL OFFICERS STAGE BOXING SHOW

February 19, the medical officers of the Thirty-Fourth Division staged a boxing show accompanied by incidental musical numbers and recitations. The opening number of the program consisted of musical selections by Captains King and Sprague, and by Lieutenants McGavey, Ogden and Nauestod of the base hospital. This was followed by a popular solo and quartet by four enlisted men of Field Hospital Company No. 135. Then a boxing contest was staged by members of the One Hundred and Ninth Sanitary Train, followed by a selection by the orchestra of the sanitary train. Then came a boxing contest by Drs. McHugh and Robiliard of the One Hundred and Thirty-Sixth Infantry. Private John Brodie of Field Hospital Company No. 134 gave an imitation of Harry Lauder, and Private Al Schueman of Ambulance Company No. 135 gave a series of sleight of hand tricks. This was followed by the heavyweight contest of the evening between Dr. Embree of the Dental Corps and Dr. White of the Veterinary Corps, the animal department finally being successful over that of the teeth. The events concluded with a buffet luncheon.

### Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

March 4, 1918.

#### COURT MARTIAL

A general court martial was convened, March 5, to try the case of Major Milton Board, who is charged with being partly responsible for the death of Otho Murray, a private of Cumberland County, Ky. Col. William Guthrie of the Three Hundred and Ninth Engineers is president of the court, and Capt. Reilley of the Three Hundred and Thirty-Fifth Infantry is Major Board's counsel.

#### LAST DRAFT ARRIVALS

The details worked out for the handling of the last draft arrivals have proved highly successful and have resulted in a great saving of money and wear and tear on equipment. It is said this is the only camp which has adopted this plan of handling the new arrivals. Four medical boards examine the men immediately following their arrival, and uniforms and equipment are not issued until the recruit has been found fit and acceptable. Those failing to measure up are promptly discharged. The medical officers have encountered many amusing incidents. One man was very anxious for fear he would not be accepted, for he said, "I simply could not get along with my wife!" One thousand three hundred men were vaccinated and inoculated in short order.

The new selects will not be allowed to leave camp for two weeks. They will be kept in quarantine from the time they arrive. None will be given passes or furloughs in that time, but will have to remain in their quarters or training area for the prescribed period. This order has been put into effect in the One Hundred and Fifty-Ninth Depot Brigade since the men began reporting in, and is in keeping with the policy of the medical department of the division so new contagious and infectious diseases will not spread to other organizations.

Three distinct battalions of the division, including all officers and men, are under strict quarantine because of both mumps and measles.

#### NEW DIVISION SURGEON

Lieut.-Col. William A. Smart of the Regular Army Medical Corps arrived at Camp Zachary Taylor last week and took command of the medical department of the Eighty-Fourth Division, succeeding Lieut.-Col. John H. Allen, who was relieved from duty recently. Lieutenant-Colonel Allen remains on duty as camp surgeon, and as such is the ranking medical officer.

It is reported that ninety deaths have occurred at the base hospital since it was first opened.

#### SPECIAL MESS FOR SICK

Facilities have been provided for the messing of patients at regimental infirmaries whenever overcrowded conditions at the base hospital necessitate the keeping of patients in bed in the regimental infirmaries. Authority for such action has been given in an order from the adjutant-general, which was published for the information and guidance of all regimental separate battalion and independent unit commanders at the cantonment. The commanding generals of all divisions in the regular national armies and national guards are authorized under such conditions to appoint one acting cook for each infirmary. These acting cooks will be relieved as soon as the necessity for caring for the bed patients in the regimental infirmaries is terminated.

#### CONFERENCES ON SICK

Orders have been issued for a meeting every Thursday night at 7 o'clock for all the separate unit surgeons, and a conference will be held on all admissions and discharges.

### Eighty-Sixth Division, Camp Grant, Rockford, Ill.

March, 4, 1918.

#### ALIBI

The absence of a Camp Grant letter from this column for some time past has been as noticeable as has been the absence of the Camp Grant name from the weekly health reports issued by the Surgeon-General's Office (only those camps having noneffective rates above the average are honored by personal mention in that document). The reason for this hesitancy for appearing in print is the same in both cases: every medico here is working, following the example set by our division surgeon, Lieut.-Col. James M. Phalen, M. C.

### DISEASE INCIDENCE

The brand of health exhibited in this cantonment is excellent. A few cases of measles are spotted here and there, but the main supply is becoming exhausted rapidly. Two different grades of measles have been appraised by the contagious service; the original, one and only genuine brand, introduced to the trade by the first increments of the draft, ran a very mild course; while the secondary grade, imported from the Columbus and Jefferson Barracks, was somewhat more severe in its character. Neither, however, was productive of sequelae of import. There is just about enough scarlet fever on hand to keep one physician (grade lieutenant or captain) fairly busy invoicing it and keeping the stock up to grade. A choice assortment of mumps, right, left and bilateral, flooded our shelves by their numbers (200 in all) for a while but the sanitary train, as usual, played the rôle of capricornus and took them off the books of the base hospital by opening a field hospital for the swell-jaws. One sample of smallpox is kept on hand, more as a curiosity than anything else. Epidemic meningitis is represented by four cases, a pitifully small stock that probably will not be renewed. As a result of these, the chief of the contagious service is being accused, on all sides, of obtaining money under false pretenses.

The remainder of the base hospital is less than comfortably full with the usual variety of diseases, medical, surgical and others. Throughout the camp, bronchitis seems to be the prevailing of the lesser diseases, although occasional endemics of influenza (so called) and streptococcus sore throat make their appearance.

### PROMOTIONS

Promotions form the burning quesion of the day. Lieut.-Col. H. C. Michie, the C. O. of the base hospital, had his gold leaves silvered last week and Lieut.-Col. H. O. Scott, D. C., in charge of dentists, sprouted a brand new pair of silver leaves about a month ago. The field hospital section of the sanitary train is rejoicing in the promotion of their ex-director, Major S. J. Kopetzky, M. R. C., to the position of C. O. of the sanitary train. His former place is well filled by Major A. S. Clark, M. R. C., whose field hospital company is now commanded by Capt. J. E. Kellar, Jr., M. R. C.

### NEW DRAFT

The arrival of 5,300 new draft men is keeping the surgeons of the divisional organizations fairly busy, although the experience gained by the examination of the original draft has simplified their problems. The necessary paper work, too, is lessened by the introduction of Form 1010, P. M. G. O., and there is the promise that it will be reduced still further.

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## Eighty-Ninth Division, Camp Funston, Kan.

Feb. 27, 1918.

The last contigent of men of the first draft are now coming into camp in small groups. The system of examining them at present is so far superior to the one we were obliged to use in October that it is worthy of mention.

The men are taken from the train directly to the examiner's building. Their qualification cards, with regard to fitness for various occupations, are then filled out. The men are then undressed, bathed, and started on their examinations. A series of wooden runways from one set of special examiners to another has been built, so that when the men are once started, they cannot possibly go any way but the right way. Thus all confusion is stopped.

The examiners are from the various boards of special examiners, thus avoiding a reexamination of all the command at a larter time by specialists, as was necessary in the first men drafted.

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# ORGANIZATION OF THE OFFICE OF THE SURGEON-GENERAL, U. S. ARMY

The following outline gives the personnel of the divisions of the Surgeon-General's Office as shown in the chart on the opposite page: The sections should be read in conjunction with the chart, reading from left to right.

Surgeon-General United States Army.—Major-General W. C. Gorgas; *Attaches:* Col. C. K. Morgan, British Army; Col. C. U. Dercle, French Army; Lieut.-Col. C. L. Furbush.

Chief Assistants to the Surgeon-General.—Brig.-Gen. Charles Richard; Brig.-Gen. Henry P. Birmingham; Col. James W. Van Dusen; Col. James R. Church.

Administration.—Major J. L. Gooch, Jr.; Lieuts. C. H. Wilson; S. P. Davies, L. J. Wyeth, Bernard Gumprecht.

Personnel.—Cols. Robert E. Noble, R. B. Miller, Lieut.-Col. Bert W. Caldwell; Majors Horace D. Arnold, M. R. C.; John S. Coulter, William H. Walsh, M. R. C.; Charles W. Ayres; Captains F. C. Waite, John H. Rose, M. R. C.: Robert F. Miller, John E. Horn; Lieuts. Henry L. Mann, L. B. Schutte.

Finance and Supply.—Cols. Carl R. Darnall; Edwin P. Wolfe; Majors E. R. Gentry, E. C. Jones, J. C. King, D. S. White, V. C.; W. T. Fishleigh; R. A. Wood; Capts. J. B. Copping, A. L. McMurtry, W. G. Stoner, J. C. Scheve, F. W. Lennox, D. M. MacClaire, J. G. Moon, V. C., N. A.; Lieuts. E. P. Turner, J. Van Putten, H. Kelley, E. Thompson, M. B. Bradley.

Sanitation.—Cols. Deane C. Howard, P. M. Ashburn, W. P. Chamberlain, J. W. White; Lieut.-Cols. F. W. Weed, V. C. Vaughan, W. D. Wrightson; Majors E. D. Kremers, James T. B. Bowles; Capts. H. N. Fuller, E. J. Tucker; Lieuts. E. E. Hume, T. R. Kendall. *Medical Section (Division of Sanitation) Sick and Wounded Records and Bureau of Information.*—Lieut.-Col. Albert G. Love; Capt. Robert H. Delafield.

Training Camps.—Col. Edward L. Munson.

Ambulance Service.—Brig.-Gen. Henry P. Birmingham; Capts. Luke C. Doyle, J. F. Newport.

Hospitals.—Col. Robert E. Noble; Lieut.-Cols. Charles F. Morse, L. J. Owen, H. H. Johnson, W. L. Hart, W. H. Smith; Majors Floyd Kramer, C. L. Brown; Louis B. Baldwin, M. R. C.; Capts. Clifford Perry; Lieut. Jens Christensen.

Special Hospitals and Physical Reconstruction.—Lieut.-Col. Edgar King; Majors James Bordley, M. R. C.; H. E. Mock, M. R. C.; R. H. Hutchings, M. R. C.; Paul B. Magnusen, M. R. C.; Casey A. Wood, M. R. C.; M. E. Hagerty, M. R. C.; H. B. Price, W. H. Henderson, M. Murray, A. C. Monahan; Capts. C. Burns Craig, M. R. C.; A. H. Samuels; Lieuts. William J. Ezickson, M. R. C.; W. A. Clark, M. R. C.; Charles Willing, John T. Boyd.

Surgery.—Col. W. H. Moncrief; Majors R. P. Sullivan, M. R. C.; A. B. Kanavel, M. R. C.; S. H. Smith, P. R. Turnure, M. R. C.; M. G. Seelig, M. R. C.; F. W. Bailey, M. R. C.; Lieuts. P. E. McNabb, T. P. Davison, H. I. Wilson.

Military Orthopedic Surgery.—Lieut.-Col. E. G. Brackett; Majors David Silver, M. R. C.; Henry R. Hayes, M. R. C.; Paul B. Magnusen, M. R. C.; A. S. Begg, M. R. C.; J. T. Rugh, M. R. C.; Kendall Emerson, M. R. C.; Capts. S. D. Breckenridge, M. R. C.; Horace Morison, John H. Morse, M. R. C.

Urology.—*Genito-Urinary Diseases:* Dr. G. W. Wende; Capt. Warren Walker, M. R. C. *Venereal Diseases:* Majors William F. Snow, M. R. C;. W. A. Sawyer, M. R. C.; Capts. A. N. Thompson, M. R. C.; A. B. Spingarn; Lieut. Sidney F. Morgan.

Head Surgery.—Col. T. C. Lyster; Lieut.-Col. W. H. Parker, M. C., N. A.; Majors N. M. Black, M. R. C.; H. P. Mosher, M. R. C.; V. P. Blair, M. R. C.; Allen Greenwood, M. R. C.; C. W. Richardson, M. R. C.; Charles Bagley, Jr., M. R. C.; R. H. Ivy, M. R. C.; Capt. H. H. Kerr, M. R. C.

Roentgenology.—Lieut.-Col. A. C. Christie.

General Medicine.—Col. George E. Bushnell. *Gastro-Intestinal.*—Major Seale Harris, M. R. C.

Tuberculosis.—Lieut.-Col. E. H. Bruns; Capt. W. H. Phares, S. C., N. A.

Cardiovascular.—Lieut.-Col. Warfield T. Longcope; Major A. E. Cohn, M. R. C.; Lieut. F. C. McLean, M. R. C.

Psychiatric.—Lieut.-Col. Pearce Bailey; Capt. Sanger Brown, 3d, M. R. C.; Lieut. Roy Haber.

Psychology.—Majors R. M. Yerkes, K. T. Waugh; Capt. C. S. Berry; Lieut. A. S. Otis.

Infectious Diseases and Laboratory.—Col. F. F. Russell; Majors H. J. Nichols, E. K. Dunham, M. R. C.; George Draper, M. R. C.; Capt. J. B. Murphy; Lieut. Harry A. Mankin.

Food and Nutrition.—Majors John R. Murlin; Caspar W. Miller, M. R. C.; Capt. W. P. Garrety; Lieut. F. M. Hildebrandt.

Gas Defense.—Brig.-Gen. Henry P. Birmingham; Lieut.-Col. Bradley Dewey; Major Arthur L. Besse; Capts. L. E. Cover, Frederick A. Dewey, Francis J. Eiseman, M. R. C.; Paul V. Hollenbeck, O. R. Johnson, William S. McKinney, James D. Pilcher, M. R. C.; James H. Walton; J. W. Wheeler; John O. Woodruff; Lieut. J. Stanley Babbitt; Joseph J. Barnett.

Army Medical School.—Brig.-Gen. William H. Arthur; Lieut.-Cols. E. R. Whitmore, E. B. Vedder, H. W. Jones; Major C. G. Snow.

Medical Museum and Library.—*Curator:* Col. W. O. Owen. *Librarian:* Col. C. C. McCulloch, Jr.

Medical and Surgical History of the War.—Majors F. H. Garrison, M. R. C.; John S. Fulton, M. R. C.; Lieut. C. T. Crudgington.

Dental Corps.—Lieut.-Cols. W. H. G. Logan, J. R. Ames, D. C.; Lieuts. J. F. Doyle, J. E. Schaefer.

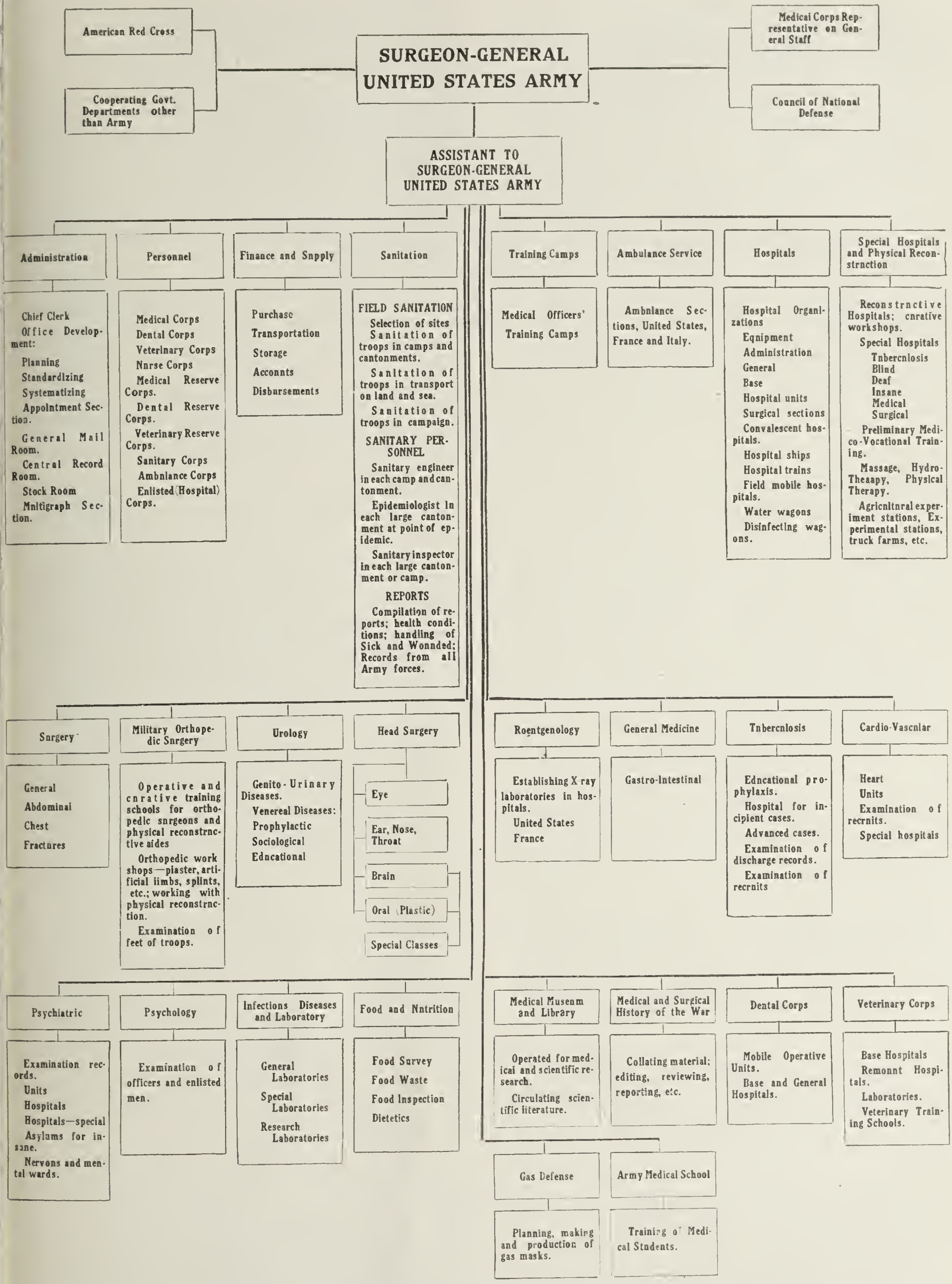
Veterinary Corps.—Col. R. B. Miller; Lieut.-Cols. C. J. Marshall, V. C., N. A.; C. F. Morse; Major R. S. Stanclift, V. C, N. A.; Capt. J. N. Hornbaker, V. C., N. A.

The following divisions are not indicated on the chart:

Army Nurse Corps.—Miss Dora E. Thompson; Miss A. W. Goodrich, Field Inspector of Nurses; Miss F. M. Durkin; Miss Edith A. Mury.

Active Vocational Board.—Dr. Royal Meeker, labor; Dr. Davis Edsall, medico-vocation; Mr. John E. Wilder, industrial and employment; Mr. Charles A. Stone, industrial and employment; Dr. Dean Lewis, general surgeon; Mr. Douglas C. McMurtrie.

Reconstructive Aides.—Miss Margurite Sanderson.


SURGEON-GENERAL UNITED STATES ARMY
American Red Cross
Cooperating Govt. Departments other than Army
Medical Corps Representative on General Staff
Council of National Defense
ASSISTANT TO SURGEON-GENERAL UNITED STATES ARMY
Administration
Chief Clerk
Office Development:
Planning
Standardizing
Systematizing
Appointment Section.
General Mail Room.
Central Record Room.
Stock Room
Multigraph Section.
Personnel
Medical Corps
Dental Corps
Veterinary Corps
Nurse Corps
Medical Reserve Corps.
Dental Reserve Corps.
Veterinary Reserve Corps.
Sanitary Corps
Ambulance Corps
Enlisted (Hospital) Corps.
Finance and Supply
Purchase
Transportation
Storage
Accounts
Disbursements
Sanitation
FIELD SANITATION
Selection of sites
Sanitation of troops in camps and cantonments.
Sanitation of troops in transport on land and sea.
Sanitation of troops in campaign.
SANITARY PERSONNEL
Sanitary engineer in each camp and cantonment.
Epidemiologist in each large cantonment at point of epidemic.
Sanitary inspector in each large cantonment or camp.
REPORTS
Compilation of reports; health conditions; handling of Sick and Wounded; Records from all Army forces.
Training Camps
Medical Officers' Training Camps
Ambulance Service
Ambulance Sections, United States, France and Italy.
Hospitals
Hospital Organizations
Equipment
Administration
General
Base
Hospital units
Surgical sections
Convalescent hospitals.
Hospital ships
Hospital trains
Field mobile hospitals.
Water wagons
Disinfecting wagons.
Special Hospitals and Physical Reconstruction
Reconstructive Hospitals; curative workshops.
Special Hospitals
Tuberculosis
Blind
Deaf
Insane
Medical
Surgical
Preliminary Medico-Vocational Training.
Massage, Hydro-Therapy, Physical Therapy.
Agricultural experiment stations, Experimental stations, truck farms, etc.
Surgery
General
Abdominal
Chest
Fractures
Military Orthopedic Surgery
Operative and curative training schools for orthopedic surgeons and physical reconstructive aides
Orthopedic work shops—plaster, artificial limbs, splints, etc.; working with physical reconstruction.
Examination of feet of troops.
Urology
Genito-Urinary Diseases.
Venereal Diseases:
Prophylactic
Sociological
Educational
Head Surgery
Eye
Ear, Nose, Throat
Brain
Oral (Plastic)
Special Classes
Roentgenology
Establishing X ray laboratories in hospitals.
United States
France
General Medicine
Gastro-Intestinal
Tuberculosis
Educational prophylaxis.
Hospital for incipient cases.
Advanced cases.
Examination of discharge records.
Examination of recruits
Cardio-Vascular
Heart
Units
Examination of recruits.
Special hospitals
Psychiatric
Examination records.
Units
Hospitals
Hospitals—special
Asylums for insane.
Nervous and mental wards.
Psychology
Examination of officers and enlisted men.
Infectious Diseases and Laboratory
General Laboratories
Special Laboratories
Research Laboratories
Food and Nutrition
Food Survey
Food Waste
Food Inspection
Dietetics
Medical Museum and Library
Operated for medical and scientific research.
Circulating scientific literature.
Medical and Surgical History of the War
Collating material; editing, reviewing, reporting, etc.
Dental Corps
Mobile Operative Units.
Base and General Hospitals.
Veterinary Corps
Base Hospitals
Remount Hospitals.
Laboratories.
Veterinary Training Schools.
Gas Defense
Planning, making and production of gas masks.
Army Medical School
Training of Medical Students.

ORGANIZATION OF THE OFFICE OF THE SURGEON-GENERAL, UNITED STATES ARMY, 1918

## National Research Council

Following is an outline of the organization of the division of medicine and related sciences in the department of science and research of the National Research Council:

### I. DIVISION OF MEDICINE AND RELATED SCIENCES

Chairman, Richard M. Pearce (National Research Council), 1023 16th St., N. W., Washington, D. C.

Vice Chairman, Major Robert M. Yerkes, Surgeon-General's Office, Washington, D. C.

*Executive Committee.*—H. D. Dakin, New York City; C. B. Davenport, *Cold Spring Harbor,* L. I., N. Y.; Major Simon Flexner, Rockefeller Institute, New York City; W. H. Howell, School of Hygiene, Johns Hopkins University, Baltimore; Major Charles H. Mayo, Rochester, Minn.; Major William J. Mayo, Surgeon-General's Office; Col. F. F. Russell, U. S. Army; E. R. Stitt, U. S. Navy; Major V. C. Vaughan, Surgeon-General's Office, Washington, D. C.; William H. Welch, School of Hygiene, Johns Hopkins University, Baltimore; the chairman and vice chairman, ex officio.

### II. COMMITTEES INCLUDED IN MEDICAL DIVISION

1. *Anatomy Committee.*—Chairman, H. H. Donaldson.

2. *Physiology Committee.*—Chairman, W. B. Cannon; vice chairman, and acting chairman, W. H. Howell.

(*a*) Subcommittee for Investigations on the Physiology of Shock.—Chairman, W. B. Cannon.

(*b*) Subcommittee on the Control of Hemorrhage.—Chairman, W. H. Howell.

(*c*) Subcommittee on Solutions adopted for Transfusion after Hemorrhage.—Chairman, L. J. Henderson.

(*d*) Subcommittee on Fatigue in Industrial Pursuits.—Chairman, Frederick S. Lee.

3. *Committee on Medicine and Hygiene.*—Chairman, Victor C. Vaughan.

(*a*) Subcommittee on Psychiatry.—Chairman, Stewart Paton.

4. *Psychology Committee.*—Chairman, Robert M. Yerkes.

(*a*) Subcommittee on Methods for the Psychological Examination of Recruits.—Chairman, Robert M. Yerkes.

(*b*) Subcommittee on Tests of Special Skill.—Chairman, Edward L. Thorndike.

(*c*) Subcommittee on Problems of Aviation, Including the Examination of Aviation Recruits.—Chairman, Edward L. Thorndike.

(*d*) Subcommittee on Incapacity, Reeducation and Vocational Training.—Chairman, Shepherd I. Franz.

(*e*) Subcommittee on Visual Problems.—Chairman, Raymond Dodge.

5. *Committee on Anthropology.*—Chairman, William H. Holmes; vice chairman, C. B. Davenport.

6. *Zoology Committee.*—Chairman, E. G. Conklin.

(*a*) Subcommittee on Medical Zoology, with groups representing (1) entomology, (2) helminthology, (3) protozoology.

### III. COOPERATING COMMITTEES

(Now existing in the Council)

1. *Chemistry.*—Chairman, M. T. Bogert.

(*a*) Subcommittee on Biochemistry.—Chairman, Frank P. Underhill.

(*b*) Subcommittee on Pharmaceutical Chemistry.—Chairman, Frederick B. Power.

2. *Food Committee.*—Chairman, A. E. Taylor.

3. *Advisory Committee on Toxicity of Preserved Foods.*—Chairman, J. J. Abel.

### IV. PURPOSE

To concentrate in Washington a comparatively small body of men representing the existing committees, and thus provide for effective cooperation in the rapid organization of medical research as an aid to the solution of urgent military problems.

### V. FIELD

Medicine, surgery, hygiene, physiology, anatomy, psychology, psychiatry, physical anthropology, and closely related subjects.

### VI. METHODS

1. To cooperate closely with the Surgeon-General of the Army (through Colonel Russell) and of the Navy (through Dr. Stitt) in determining urgent problems, and to enlist the aid of civilian laboratories in the solution of these problems.

2. To assist the Surgeon-Generals of the Army and Navy in procuring trained investigators to enter the respective services as contract surgeons to undertake special field investigations during short periods of time.

3. To send, if it is considered advisable, individuals to England, France and Italy to determine the urgent problems which should be taken up without loss of time in civilian laboratories in this country.

4. To invite, if it is considered necessary, commissions or individuals from England, France and Italy to this country to advise with the Medical Division of the National Research Council.

5. To maintain correspondence with prominent medical investigators in the American Expeditionary Forces and in civilian laboratories in France, England and Italy, and thus obtain reports of the important fields of research, the character of the work in progress, and the needs of the workers.

6. To establish relations with and, if agreeable to them, to cooperate with research organizations abroad, as (*a*) British Medical Research Committee, (*b*) the Research Society recently organized in France by medical officers of American, French and British forces, and (*c*) the Committee on Medical Research of the American Red Cross in France, etc.

7. To obtain reports of all medical research organizations in this country dealing with war problems, and of individuals engaged in the investigation of war problems.

8. To maintain a bureau for the dissemination of up-to-date bibliographies of all forms of medical research bearing on war problems.

9. (*a*) Prepare lists of individuals and laboratories equipped and ready to undertake research at short notice.

(*b*) Prepare lists of individuals who will hold themselves in readiness to move from laboratory to laboratory to work for shorter or longer periods on special or emergency problems or to augment existing laboratory staffs in a group of selected laboratories.

10. To hold conferences from time to time in Washington or other central city for discussion of important research problems and methods of attack.

11. To hold military medical meetings from time to time in the neighborhood of large cantonments, for the discussion of medical problems by military and civilian physicians.

## CORRECTION

Under "Orders to Officers of the Medical Reserve Corps," issue of February 9: *To New York City* for intensive training in his specialty, Lieut. WINFRED OVERHOLSER, Wellesley Hills. The remainder of the order does not apply to Lieutenant Overholser.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS AND THE MEDICAL CORPS OF THE NATIONAL ARMY

*To Camp Logan,* and *Ellington Field,* Houston, Texas, *Love Field* and *Concentration Camp,* Dallas, Texas, *Call Field,* Wichita Falls, Texas, and *Rich Field,* Waco, Texas, for sanitary inspection and on completion *to his proper station,* Col. WILLIAM F. LEWIS.

*To Newport News, Va.,* to make sanitary inspection and on completion *to his proper station,* Col. PERCY H. ASHBURN.

*To Camp Custer,* Battle Creek, Mich. for inspection and on completion *to his proper station,* Lieut.-Col. VICTOR C. VAUGHAN.

*To Camp Zachary Taylor,* Louisville, Ky., as division surgeon, from Newport News, Lieut.-Col. WILLIAM M. SMART.

*To Walter Reed General Hospital* for observation and treatment, Lieut.-Col. WILLIAM P. BANTA.

*To Wilbur Wright Field,* Dayton, Ohio, *Camp Sherman,* Chillicothe, Ohio, School for adjutants, *Ohio State University,* Columbus, Ohio, and *Columbus Barracks, Ohio,* for sanitary inspections and on completion *to his proper station,* Lieut.-Col. FRANK W. WEED.

*To Camp McArthur,* Waco, Texas, for duty, from Camp Lee, Major EDWARDS C. REGISTER.

*To Camp Upton,* L. I., N. Y., as camp sanitary inspector, from Camp Upton, Major ALVIN W. SCHOENLEBER.

*To Camp Wadsworth,* Spartanburg, S. C., for inspection and on completion *to Camp Greene,* Charlotte, N. C., from Camp Greene, Major CONDON C. McCORNACK.

*To Cape May, N. J.,* for duty, from Newport News, Major JAMES S. FOX.

*To Charleston, S. C.,* for investigation and on completion *to his proper station,* Major WILLIAM L. HART.

*To Fort Riley* as commanding officer, from Fort Leavenworth, Major FRANK H. CHILTON.

*To Markleton, Pa.,* for duty, from the Surgeon-General's Office, Major JOHN C. SKINNER.

*To Washington, D. C.,* from Camp Fremont, Major CLARENCE R. BELL.

*To Asheville, N. C.,* for duty, from Fort Sam Houston, Lieut. EDWARD A. NOYES.

*To Camp Dix,* Wrightstown, N. J., as orthopedic surgeon, from Camp Meade, Lieut. KARL F. KOSMODEL.

*To Camp Dodge,* Des Moines, Ia., as orthopedic surgeon, from Army Medical School, Lieut. FRANK L. COLE.

*To Camp Gordon,* Atlanta, Ga., as orthopedic surgeon, from Camp Devens, Lieut. ALBERT W. GREENWELL.

*To Camp Lee,* Petersburg, Va., for duty, from Army Medical School, Lieut. EDWIN H. ROBERTS.

*To Fort Oglethorpe* for instruction, Lieut. FREDERICK T. HILL.

*To New York City,* Bellevue Hospital, for instruction and on completion *to his proper station,* from Camp Sevier, Lieut. BEN M. MERIWETHER.

*To Philadelphia, Pa.,* University Hospital, for instruction and on completion *to his proper station,* from Camp Wadsworth, Lieuts. HENRY B. SMITH, WALTER C. TILDEN.

The following officers of the Medical Reserve Corps who have passed the preliminary examination for appointment in the Medical Corps will proceed to the Army Medical School for the required course of instruction: Lieuts. JOHN W. BILLINGSLEY, THOMAS S. McCLANAHAN.

The resignation of Lieut. ANDREW J. HARNESS is accepted.

## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Moultrie, Lieut. RAYFORD HODGES, Woodville.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, Lieuts. ROBBINS NETTLES, Belle Ellen; PERCY B. SKINNER, Belleville; SAMUEL C. TATUM, Center; WILLIAM E. BROUGHTON, Perdue Hill.

*To Camp Sheridan,* Montgomery, Ala., as orthopedic surgeon, from New York City, Lieut. DAVID RAMSEY, Pine Apple.

*To Camp Sherman,* Chillicothe, Ohio, for temporary duty, Lieut. GROVER E. MURPHY, Birmingham.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieut. RUFUS A. CULPEPPER, Cullman.

*To Fort Oglethorpe,* Provisional Base Hospital, Lieut. JAMES E. BLAYDES, Bessemer.

*To New Orleans, La.,* Charity Hospital, for instruction, and on completion *to Camp Logan,* Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. CARL A. HARRIS, Bessemer.

*To Newport News, Va.,* for duty, from Camp Gordon, Major EUGENE DU BOSE BONDURANT, Mobile.

*To Pittsburgh, Pa.,* for instruction and on completion *to Camp Lee,* Petersburg, Va., base hospital, from Fort Oglethorpe, Lieut. JAMES H. BLUE, Bessemer; on completion *to Camp Sherman,* Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Lieut. JAMES A. CAMPBELL, Atmore.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, Lieut. JOHN H. HAYS, Bessemer; from Fort Oglethorpe, Lieut. GILBERT A. RHODES, Troy.

*To his home* and honorably discharged from the Medical Reserve Corps, on account of physical disability existing prior to his entrance into the service, Lieut. JESSE F. BRYARS, Eliska.

### Arizona

*To Fort Riley* for instruction, from Nogales, Ariz., Capt. CHARLES FORD, Nogales.

### Arkansas

*To Fort Omaha, Nebr.,* as gas instructor, from Camp Doniphan, Lieut. MATT F. HOUSTON, Clarendon.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Hoboken, N. J.,* for temporary duty, from Fort Oglethorpe, Lieut. ARTHUR F. HOGE, Fort Smith.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* from Fort Oglethorpe, Lieuts. RAPHAEL W. STEELE, Gentry; ARLEY D. CATHEY, Wilton.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, Lieut. MAURICE F. LAUTMAN, Hot Springs.

*To his home* and honorably discharged from the Medical Reserve Corps, on account of physical disability existing prior to his entrance into the service, Lieut. SHELBY A. TURNER, Haber Springs.

### California

*To Alcatras, Calif.,* U. S. Disciplinary Barracks, for duty, Capt. DANIEL W. HUMFREVILLE, Los Angeles.

*To Camp Cody,* Deming, N. Mex., base hospital, Lieuts. HARVEY P. CHARLES, Berkeley; LLOYD R. MACE, Hollywood.

*To Camp Kearny,* Linda Vista, Calif., base hospital, Lieut. JOHN H. BREYER, Pasadena. For duty, Lieut. ALVA F. MAINE, Oakland.

*To Camp Lewis,* American Lake, Wash., as orthopedic surgeon, Capt. JOHN CARLING, Los Angeles.

*To Camp Sheridan,* Montgomery, Ala., for duty, from Fort Riley, Lieut. RAY A. CARTER, Los Angeles.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to Camp Taylor,* Louisville, Ky., base hospital, from Fort Riley, Lieut. JOHN C. IRWIN, Los Angeles.

*To Fort Mason, Calif.,* for duty, Lieuts. HOMER C. SEAVER, Pomona; HOWARD W. FLEMING, San Francisco.

*To Fort Riley,* for instruction, Lieut. JOSEPH SAYLIN, San Gabriel.

*To Los Angeles, Calif.,* for instruction, Lieut. JOSEPH J. KAVANAGH, Los Angeles.

*To report to the Commanding General, Western Department,* for assignment to duty, Capt. JAMES A. JACKSON, San Diego; from Fort Douglas, Capt. DAVID B. FIELDS, Weaverville. For assignment to duty, Lieut. LEO V. ROSENTHAL, Duarte.

*To Rockefeller Institute* for instruction, and on completion *to Walter Reed General Hospital,* for temporary duty, from Fort Oglethorpe, Major ALVIN POWELL, Oakland.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, from Fort Snelling, Capt. WALTER S. JOHNSON, San Francisco.

### Colorado

*To Camp Kearny,* Linda Vista, Calif., base hospital, Capt. LEWIS M. VAN METER, Denver.

*To Fort Logan, Colo.,* for duty, Lieut. NICHOLAS A. WOOD, Denver.

*To Fort Riley* for instruction, Capt. THOMAS A. STODDARD, Pueblo.

*To New Haven, Conn.,* as commanding officer of the U. S. Army General Hospital, from Washington, D. C., Major ALEXIUS M. FORSTER, Colorado Springs. For duty, from Camp Gordon, Capt. WILL H. SWAN, Colorado Springs.

### Connecticut

*To Army Medical School,* Washington, D. C., for instruction in orthopedic surgery, Lieut. HERMAN M. HURWITZ, Hartford; from Camp McClellan, Lieut. LAVERNE HOLMES, Manchester.

*To Camp Devens,* Ayer, Mass., as orthopedic surgeon, from Harvard Medical School, Lieut. HAROLD L. BURR, Middletown.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. EDWARD J. GODFREY, Waterbury.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, Lieut. WILLIAM T. DRISCOLL, Norwich.

*To Camp Upton,* L. I., N. Y., as orthopedic surgeon, from Army Medical School, Lieut. WILLIAM F. COLLINS, New Haven.

*To Fort Adams, R. I.,* for duty, Lieut. NAPOLEON B. LEWIS, Norwich.

*To Fort Oglethorpe* for instruction, Lieut. EDWARD B. ALLEN, South Manchester.

### District of Columbia

*To Fort Oglethorpe* for instruction, from New York City, Lieut. RALPH H. DAVIS, Washington; from Philadelphia, Lieut. MARTIN H. SPELLMAN, Washington.

*To Pittsburgh, Pa.,* for instruction, and on completion to Camp Devens, Ayer, Mass., base hospital, from Fort Oglethorpe, Lieut. CHARLES F. BOVE, Washington.

*To Rockefeller Institute* for instruction, from Fort Oglethorpe, Lieut. JAMES A. CAHILL, Jr., Washington.

*To Walter Reed General Hospital,* Takoma Park, D. C., for temporary duty, from Army Medical School, Lieut. JOHN A. TALBOTT, Washington.

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Capt. EDWIN M. HASBROUCK, Washington.

### Florida

*To Army Medical School,* Washington, D. C., for instruction in orthopedic surgery, Capt. JOHN W. ALSOBROCK, Plant City.

*To Cincinnati, Ohio,* for instruction in orthopedic surgery, from Fort Oglethorpe, Capt. HENRY C. DOZIER, Ocala.

*To Fort Oglethorpe* for instruction, Lieut. LELAND F. CARLTON, Tampa.

*To New Haven, Conn.,* U. S. Army General Hospital, from Fort Oglethorpe, Lieut. HARVEY O. BYRD, Tribly.

*To New York City,* Roosevelt Hospital, for instruction, and on completion *to Fort Myer, Va.,* for temporary duty, Lieut. JACOB J. SPENCER, St. Augustine.

*To the inactive list* of the Medical Reserve Corps, Lieut. WILLIAM E. SCHNAUSS, Jacksonville.

*To their homes* and honorably discharged, Lieut. GROVER G. HARDIE, Fort Pierce. On account of physical disability existing prior to entrance into the service, from Fort Oglethorpe, Lieut. HENDLEY F. HORNE, Jacksonville. On account of physical disability incident to the service, Lieut. THOMAS E. BLACKBURN, Swainsboro.

### Georgia

*To Camp Gordon,* Atlanta, Ga., for temporary duty, from Camp Gordon, Lieut. MURDOCK S. SQUEN, Atlanta.

*To Camp A. A. Humphries,* Accotink, Va., for duty, from Fort Oglethorpe, Lieut. CLARENCE G. COX, Ellijay.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. EARL E. PATE, Macon.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, Lieut. JESSE L. MEEKS, Atlanta.

*To Fort Dade, Fla.,* for duty, Capt. DANIEL B. EDWARDS, Savannah.

*To Fort Oglethorpe,* Provisional Base Hospital, Capt. ROBERT H. STANLEY, Augusta. For instruction, from Philadelphia Lieut. KENNETH S. HUNT, Milner.

*To Rockefeller Institute, N. Y.,* for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. CLEO D. WILDER, Atlanta; from Camp Jackson, Lieut. CHARLES E. LAWRENCE, Atlanta.

*To his home* and honorably discharged from the Medical Reserve Corps, on account of physical disability existing prior to his entrance into the service, Lieut. GEORGE H. TURNER, Douglasville.

### Idaho

*To Portland, Ore.,* for duty, Lieut. JESSE D. LOUIS, St. Anthony.

*To Rockefeller Institute* for instruction, and on completion *to Army Medical School,* for duty, from Fort Riley, Lieut. GEORGE B. RANDALL, Buhl.

### Illinois

*To Alexandria, La.,* for temporary duty, Major WILLIAM R. CUBBINS, Chicago.

*To Allentown, Pa.,* for duty, from Allentown, Lieut. THOMAS A. WAYLAND, Dallas City.

*To Ann Arbor, Mich.,* Psychopathic Hospital, for intensive training, Lieuts. RALPH R. McCARTHY, WILLIAM J. RILEY, Chicago.

*To Army Medical School,* Washington, D. C., for instruction in orthopedic surgery, Lieut. HUBERT F. DUNN, Chicago.

*To Camp Beauregard,* Alexandria, La., base hospital, Lieuts. GEORGE E. ARZT, HENRY BARANCIK, Chicago; JOEL A. EASTMAN, La Rose; STEPHEN C. BRADLEY, Marshall.

*To Camp Bowie,* Fort Worth, Texas, base hospital, from Camp Bowie, Lieut. WALTER W. BOYNE, East St. Louis.

*To Camp Custer,* Battle Creek, Mich., base hospital, Lieut. JESSE R. GERSTLEY, Chicago.

*To Camp Doniphan, Fort Sill, Okla., Fort Riley, Kan., Camp Dodge,* Des Moines, Ia., and on completion *to his proper station,* Major JOHN A. HORNSBY, Chicago.

*To Camp Grant,* Rockford, Ill., for duty, Lieut. WILLIAM H. GEHL, Chicago.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Fort Riley, Capt. FRANK A. PALMER, Morris.

*To Camp Logan,* Houston, Texas, as assistant to camp surgeon, from Fort Leavenworth, Lieut. MAYER A. NEWHAUSER, Chicago.

*To Camp McClellan,* Anniston, Ala., base hospital, Lieut. FRANK BRINCKERHOFF, Florid.

*To Camp Pike,* Little Rock, Ark., base hospital, Capt. ARTHUR H. CURTIS, Chicago; Lieut. JEFFERSON D. McCULLOUGH, Jr., Aurora; from Philadelphia, Lieut. MANDEL A. I. COHEN, Chicago.

*To Camp Sherman,* Chillicothe, Ohio, base hospital, Capt. HOBERT S. McCAUGHEY, Hoopeston.

*To Camp Travis,* Fort Sam Houston, Texas., for duty, Lieuts. WALTER K. REED, Chicago; ERNEST B. DOWNS, Danville; WILLIAM R. WESENBERG, Mount City; PHILIP HERRIN, Villa Grove.

*To Camp Zachary Taylor,* Louisville, Ky., base hospital, Lieuts. RALPH WALDO CARPENTER, CARL FREUND, HARRY KATZ, Chicago; from Camp Taylor, Lieut. WILLIAM H. CREDE, Chicago; from Harvard Medical School, Lieut. TORRENCE REED, Chicago.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, Capt. DAVID C. STRAUS, Chicago. On completion *to Camp Grant,* base hospital, from Fort Riley, Lieut. HARRY W. KINNE, West Chicago. On completion *to Camp Sherman,* base hospital, from Fort Riley, Lieut. STEPHEN BIEZIS, Chicago. On completion *to Camp Taylor,* base hospital, from Fort Riley, Lieut. FLOYD M. CLARK, Chicago. For duty, and on completion *to Camp Dodge,* base hospital, Lieut. ROBERT E. FLANNERY, Chicago.

*To Cleveland, Ohio,* for instruction, and on completion *to Fort Porter, N. Y.,* for duty, from Fort Riley, Lieuts. FRANK A. ANDERSON, Chicago; HUGH E. COOPER, Peoria.

*To Detroit, Mich.,* Signal Corps Aviation Section, for duty, Lieut. SETH E. GILKEY, Chicago.

*To Fort McPherson, Ga.,* for duty, from Ann Arbor, Major DEAN D. LEWIS, Chicago.

*To Fort Oglethorpe* for instruction, Capts. THOMAS A. HOGAN, Chicago; WILLIAM W. COLEMAN, Lincoln; Lieuts. G. F. BREWINGTON, JOHN F. GRANT, JOHN H. LUCZAK, CHARLES C. RENTFRO, EDMOND C. ROOS, Chicago; SAMUEL L. STEVENS, Dalton City; ELMER L. CROUCH, Jacksonville; from Harvard Medical School, Lieuts. HARRY J. FORTIN, ROBERT W. KISPERT, HERMAN G. SCHUMM, Chicago; from New York City, Lieut. IRWIN H. CUTLER, VINCENT W. KOCH, Chicago.

*To Fort Ontario, N. Y.,* for temporary duty, from New York City, Lieut. MARCUS H. HOBART, Chicago.

*To Fort Riley* for instruction, Lieut. TIMOTHY S. HUGGARD, Chicago.

*To Hot Springs, Ark.,* Army and Navy Hospital, from Fort Riley, Capt. GEORGE A. DARMER, Aurora.

*To New Orleans, La.,* Charity Hospital, for instruction and on completion *to Camp McClellan,* from Fort Riley, Lieut. THEODORE F. BUTZOW, Chicago. On completion *to Camp Shelby,* base hospital, from Fort Riley, Lieut. BERNARD J. BOLKA Chicago.

*To Pittsburgh, Pa.,* for instruction, and on completion to Camp Grant, base hospital, from Cornell Medical College, Capt. CLARENCE W. GEYER, Aurora.

*To Rockefeller Institute* for instruction, and on completion *to his proper station,* from Camp Jackson, Capt. THOMAS E. CHERRY, Cowden; from Camp Pike, Capt. CHARLES J. POOLE, Mt. Vernon. For instruction, from Fort Oglethorpe, Lieut. PIERRE A. STEELE, Chicago. For instruction in laboratory work, and on completion *to Army Medical School,* for duty, from Army Medical School Lieut. PATRICK J. GRIFFIN, Chicago.

*To St. Louis, Mo.,* Washington University, for instruction in urology and Dermatology, Lieut. EMER L. CARTWRIGHT, Chicago; from Fort Riley, Lieut. GEORGE W. BOWMAN, Alsey.

*To his home* and to the inactive list, from Fort Riley, Lieut. EARL WILLIAM GILROY, Chicago.

*To their homes* and honorably discharged, Lieuts. WILLIAM F. PETERSON, Chicago; EVANDER D. TAYLOR, Moline.

### Indiana

*To Army Medical School,* Washington, D. C., for instruction in orthopedic surgery, Lieut. RUSSELL A. GILMORE, Michigan City.

*To Camp Gordon,* Atlanta, Ga., base hospital, Lieut. EDWARD K. Newton, Whiting.

*To Camp Jackson,* Columbia, S. C., base hospital, Lieuts. EARL H. HARE, WILLIAM WISE, Indianapolis; CHARLES E. WOODCOCK, Whiteland.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. ROBERT E. REPASS, Indianapolis.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieut. GLEN D. LARRISON, Brook.

*To Fort Oglethorpe* for instruction, Capt. SAMUEL G. JUMP, Muncie; from Camp Sherman, Capt. JOSEPH M. GLENN, Vincennes. Provisional base hospital, Capt. FLAVINE J. BECK, Hartsville; Lieut. JOHN E. WHITEHALL, South Bend.

*To Fort Riley* base hospital, for duty, from Fort Riley, Lieut. BYRL R. KIRKLIN, Muncie.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Upton,* Long Island, N. Y., base hospital, from Fort Oglethorpe, Lieut. HARRY G. IRWIN, Huntertown.

*To Rockefeller Institute* for instruction in laboratory work, and on comple *to Army Medical School,* from Fort Oglethorpe, Lieuts. OLIVER E. GREIST, Delphi; HERMAN H. GICK, Indianapolis; JOHN S. ROBINSON, Winchester.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. CLAUDE B. NEIDHAMER, Indianapolis.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. ELMER B. MOSER, Windfall.

*To his home* and honorably discharged, from Fort Oglethorpe, Lieut. ARTHUR C. DOTY, Indianapolis.

### Iowa

*To Camp Custer,* Battle Creek, Mich., for duty, from Fort Oglethorpe, Capt. FRANCIS LA PIANA, Des Moines.

*To Camp Devens,* Ayer, Mass., as orthopedic surgeon, from Harvard Medical School, Lieut. GARNETT S. FELT, New Providence.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion to Camp Taylor, from Fort Riley, Lieut. LOUIS B. AMICK, Millersburg.

*To Fort Douglas, Utah,* as gas instrutor, from Camp Doniphan, Capt. ALBERT E. CONRAD, Decorah.

*To Fort Riley* for instruction, Lieut. CARL KAIL, Hartford.

*To Hoboken, N. J.,* for duty, from Fort Riley, Capt. ALANSON M. POND, Dubuque.

*To New York City,* Neurological Institute, for instruction, from Fort Riley, Lieut. ELMER P. WEIH, Clinton.

*To Rockefeller Institute* for instruction, and on completion to Camp, Lee, base hospital, Lieut. ERWIN J. GOTTSCH, Le Mars.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, Lieut. CHARLES E. MOORE, Newton.

*To his home* and honorably discharged, Lieut. ROBERT G. HINRICHS, Palmer.

### Kansas

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieuts. HAROLD H. THEIS, Chautauqua; CHARLES E. YATES, Vinland.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to Camp Sherman,* base hospital, from Fort Riley, Lieut. LEO E. HAUGHEY, Concordia.

*To Fort Leavenworth, Kan.,* department laboratory, for duty, from Fort Leavenworth, Lieut. MATHEW H. KEEFER, Kansas City.

*To Fort McPherson, Ga.,* for duty, from Camp Taylor, Lieut. JAMES A. H. WEBB, Stafford.

*To Rochester, N. Y.,* for duty, from Camp Pike, Capt. NEWTON A. SEEHORN, Hutchinson.

*To Rock Island, Ill.,* for duty, from Fort Riley, Lieut. ULYSSES S. BOYER. Ada.

*To his home* and honorably discharged, Lieut. GEORGE E. KNAPPENBERGER, Mankato.

### Kentucky

*To Camp MacArthur,* Waco, Texas, base hospital, Major CHARLES G. LUCAS, Louisville.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, Lieut. CHARLES V. GIBSON, Barren Fork.

*To Camp Upton,* L. I., N. Y., as orthopedic surgeon, from Harvard Medical School, Lieut. MICHAEL P. LINK, Louisville.

*To Camp Taylor,* Louisville, Ky., base hospital, from Fort Riley, Lieut. CHARLES M. GARTH, Louisville.

*To El Paso, Texas,* for duty, from Fort Riley, Lieut. EDMUND R. YOST, Greenville.

*To Fort Oglethorpe* for instruction, Lieut. JOHN R. HODGES, Baskett.

*To Lexington, Ky.,* to enlist the enlisted personnel and on completion *to the inactive list,* Lieut. GEORGE H. WILSON, Lexington.

*To Monagomery, Ala.,* Signal Corps, Aviation School, Taylor Field, as camp surgeon, from Fort Oglethorpe, Lieut. JOHN A. SNOWDEN, Right Angle.

*To New Orleans, La.,* Charity Hospital, for instruction, and on completion *to Camp MacArthur,* base hospital, from Fort Oglethorpe, Lieut. SELMAR F. HAUSER, Covington. On completion *to Camp Shelby,* base hospital, from Fort Oglethorpe, Lieut. CHARLES G. GARR, Lexington.

*To New York City,* Bellevue Hospital, for instruction, and on completion to Camp Sheridan, base hospital, from Fort Oglethorpe, Capt. GUY P. GROGSBY, Louisville. Neurological Institute for intensive training, from Washington, D. C., Lieut. ERMIN L. RAY, Louisville.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* for duty, from Fort Oglethorpe, Lieut. ELMORE S. BACKSMAN, Newport.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Capt. HORACE T. RIVERS, Paducah.

*Resignations* of Capt. EDWARD DAVENPORT, Hampton, and Lieut. JAMES R. SKINNER, Benton, accepted.

### Louisiana

*To Bayard, N. M.,* U. S. Army General Hospital, for observation and treatment, from Jackson Barracks, Capt. WILLIAM H. SEEMANN, New Orleans.

*To Camp Beauregard,* Alexandria, La., base hospital, from Camp Beauregard, Lieut. DAVID B. DAVIS, Bunkie.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieut. WALTER R. ABNEY, Lake Arthur.

*To Fort Oglethorpe* for instruction, Lieuts. ROBERT P. REYMOND, Baton Rouge; RUFUS S. FISHER, Sulphur.

*To New Orleans, La.*, Charity Hospital, for instruction, and on completion to Camp Beauregard, base hospital, from Fort Oglethorpe, Lieut. RALPH P. EVANS, Alexandria.

*To New York City*, Bellevue Hospital, for instruction, and on completion *to Camp Sherman*, Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Lieut. WALTER B. HUNTER, Shreveport.

*To Rochester, N. Y.*, Rochester, General Hospital, for duty, from Fort Oglethorpe, Lieut. LEWIS H. LEVY, New Orleans.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School*, for duty, from Camp Sheridan, Lieut. JOSEPH R. D'AUNCY, New Orleans.

*To Washington, D. C.*, for duty, from Army Medical School, Lieut. Abraham Mattes, New Orleans.

*Honorably discharged*, Lieut. NEELY McC. PALMER, Leesville.

### Maine

*To Camp Devens*, Ayer, Mass., base hospital, from Camp Wadsworth, Lieut. JAMES W. LOUGHLIN, Newcastle.

*To Camp Hancock*, Augusta, Ga., as orthopedic surgeon, from Harvard Medical School, Lieut. RAYMOND V. BLISS, Bangor.

*To Fort Oglethorpe*, provisional base hospital, Lieut. LEROY B. SMITH, Winterport.

*To Hoboken, N. J.*, for duty, Lieut. HAROLD R. DEPUE, Princeton.

*To Philadelphia, Pa.*, for instruction in orthopedic surgery, from Army Medical School, Capt. TALCOTT O. VANAMEE, Portland.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School*, from Fort Oglethorpe, Lieut. HAROLD E. E. STEVENS, Lewiston.

*To Washington, D. C.*, for consultation, and on completion *to his proper station*, from Camp Devens, Major WILLIAM C. PETERS, Bangor.

### Maryland

*To Aberdeen, Md.*, for duty, Lieut. JOHN COLLINSON, South River.

*To Army Medical School*, Washington, D. C., for instruction in orthopedic surgery, Lieut. DuMONT F. ELMENDORF, Baltimore.

*To Camp Greene*, Charlotte, N. C., for duty, from Fort Moultrie, Lieut. JOSEPH SALAN, Baltimore.

*To Camp Meade*, Annapolis Junction, Md., with the cardiovascular board examining troops, from Camp Meade, Lieut. HARRY M. STEIN, Baltimore.

*To Fort Dade, Fla.*, for duty, from Fort Oglethorpe, Lieut. HARRY H. WILSON, Baltimore.

*To Fort Des Moines, Iowa*, for temporary duty, Lieut. EDWARD S. JOHNSON, Baltimore.

*To Fort Oglethorpe* for instruction, Lieut. GEORGE PETERSON, Wallville. Provisional base hospital, Lieut. GABRIEL RIGAU, Baltimore.

*To New York City*, Neurological Institute, for intensive training, Lieut. JOHN G. RUNKEL, Catonsville.

*To Rockefeller Institute* for instruction, and on completion *to Camp Meade*, base hospital, from Fort Oglethorpe, Lieut. CLAUDE C. KELLY, Baltimore. On completion *to his proper station*, from Camp Lee, Lieut. WILLIAM R. GERAGHTY, Baltimore.

*To his home* and honorably discharged, Lieut. WILLIAM E. McCLANAHAN, Baltimore.

### Massachusetts

*To Army Medical School*, Washington, D.C., as orthopedic instructor, Lieut. EDWARD KING, Boston. For instruction in orthopedic surgery, Lieuts. WILLIAM F. COTTING, Boston; CARL BEARSE, Roxbury; HAROLD THOMAS, Wollaston; from Camp McClellan, Lieut. LOUIS I. SKIRBALL, Revere.

*To Boston City Hospital, Mass.*, as military director, Major JOSHUA C. HUBBARD, Boston.

*To Camp Joseph E. Johnston*, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. WILLIAM W. MORRISS, Fall River.

*To Camp Logan*, Houston, Texas, for duty, from Fort Ethan Allen, Capt. HARRY E. SEARS, Beverly.

*To Camp Pike*, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. VINCENT J. DI MENTO, Boston.

*To Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. WILLIAM E. REID, Newton.

*To Camp Travis*, Fort Sam Houston, Texas, for duty, Lieut. GEORGE H. CROFTON, Worcester.

*To Camp Upton*, L. I., N. Y., as orthopedic surgeon, from Army Medical School, Lieut. RICHARD A. CUNNINGHAM, Boston.

*To Fort Ethan Allen, Vt.*, for duty, from Fort Oglethorpe, Lieut. ALFRED T. DALRYMPLE, Boston.

*To Fort Oglethorpe* for instruction, Capt. JOHN D. H. WOODWORTH, Boston; Lieuts. CHARLES W. BRESSLER, ALBERT A. PASTENE, HAMILTON C. PERKINS, ISREAL E. RUDMAN, JOHN J. STACK, Boston; AUGUSTUS H. GALVIN, Springfield; from Harvard Medical School, Lieuts. HARRIS E. POWERS, Boston; EARLE E. HUSSEY, Fall River; PATRICK H. O'CONNOR, New Bedford; GEORGE MOSSMAN, Westminster.

*To Hoboken, N. J.*, for duty, Lieut. MORRIS HOFFMAN, Boston; from Fort Oglethorpe, Lieut. CHARLES H. MERRILL, Lynn.

*To New York City*. Bellevue Hospital, for instruction, and on completion *to Camp Gordon*, base hospital, from Fort Oglethorpe, Lieut. WILLARD P. STAPLETON, Worcester. On completion *to Camp Jackson*, base hospital, Lieut. DAVID J. McCONNELL, Greenfield.

*To Philadelphia, Pa.*, University of Pennsylvania, for instruction, and on completion *to his proper station*, Major MENDALL EMERSON, Worcester, from Camp Sevier, Lieut. DAVID SUSSLER, Dorchester.

*To Rockefeller Institute* for instruction, and on completion *to Camp Upton*, base hospital, from Fort Ethan Allen, Capt. HERBERT B. PERRY, Northampton. On completion *to Camp Wheeler*, base hospital, from Fort Oglethorpe, Capt. NATHANIEL R. MASON, Boston. On completion *to Army Medical School*, for duty, from Fort Oglethorpe, Lieut. HORMIDAS CHOQUETTE, New Bedford.

*To his home* and to the inactive list, from Camp Devens, Major JOSEPH H. PRATT, Boston.

*To their homes* and honorably discharged, on account of physical disability existing prior to entrance into the service, Lieuts. WILLIAM E. BROWNE, Boston; LUTHER J. SHEPLEY, Fall River; JOHN G. SWEENEY, North Cohasset.

### Michigan

*To Army Medical School*, for instruction in orthopedic surgery, Lieut. ROBERT M. BAKER, Ann Arbor.

*To Camp Custer*, Battle Creek, Mich., base hospital, from duty as a contract surgeon, at Camp Custer, Capt CHARLES R. SOWDER, Camp Custer. As orthopedic surgeon, from Army Medical School, Lieut. WILLIAM S. CONNS, Detroit.

*To Camp Devens*, Ayer, Mass., as orthopedic surgeon, from Army Medical School, Lieut. AUGUST E. GEHREKE, Detroit.

*To Camp Doniphan*, Fort Sill, Okla., for temporary duty, Lieut. DAMON O. WALTHALL, Ann Arbor.

*To Camp Greene*, Charlotte, N. C., for duty, from Fort Moultrie, Lieut. JOSEPH G. KNAPP, Wyandotte.

*To Camp Hancock*, Augusta, Ga., base hospital, from Camp Taylor, Lieut. LELAND H. TOWER, Battle Creek.

*To Camp McClellan*, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. ALGERT H. KROHN, Detroit.

*To Chicago, Ill.*, Presbyterian Hospital, for instruction, and on completion *to Camp Taylor*, Louisville, Ky., base hospital, Capt. ALBERT E. STOCKLEY, Mesick.

*To Fort McHenry, Md.*, for temporary duty, from Fort Riley, Lieut. EDWIN M. CHAUNCEY, Albion.

*To Fort McPherson, Ga.*, for duty, from Camp Sevier, Lieut. WILLIAM J. ERKENBECK, Detroit.

*To Fort Oglethorpe* for instruction, Capts. BYRON H. JENNE, GEORGE V. OILL, HERMAN H. RUNO, Detroit; Lieut. HUGH R. HILDEBRANT, Ann Arbor.

*To Fort Riley* for instruction, Lieut. JOHN L. KELLIHER, Calumet.

*To New Haven, Conn.*, U. S. A. General Hospital, from Fort Oglethorpe, Capt. CHARLES H. MERRILL, Detroit.

*To New York City* for instruction in orthopedic surgery, from New York City, Capt. EUGENE B. STEBBINS, Ironwood. Post-Graduate Medical School and Hospital, for instruction in urology and dermatology, Lieut. LYLE B. KINGERY, Ann Arbor.

*To Pittsburgh, Pa.*, for instruction, and on completion *to Fort McPherson*, for duty, from Fort Oglethorpe, Lieut. WILLIAM Y. KENNEDY, Detroit.

### Minnesota

*To Cleveland, Ohio*, for instruction, and on completion *to Camp Custer*, base hospital, from Fort Riley, Lieut. STEWART H. ANDERSON, Wells.

*To Fort McPherson, Ga.*, for duty, Lieut. SAMUEL D. WEAVER, Rochester.

*To Fort Oglethorpe* for instruction, from Philadelphia, Lieut. IVER F. SELLESETH, Glenwood.

*To Fort Riley* for instruction, Lieuts. LAWRENCE J. LEONARD, Minneapolis; WALTER H. HALLORAN, St. Paul; from Fort Logan H. Roots, Lieut. JEAN B. CLAIR, Winstead.

*To New York City*, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Greene, Lieut. RALPH B. BETTMAN, Rochester.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. PETER J. BURSHEIM, Lake Benton.

### Mississippi

*To New Orleans, La.*, Charity Hospital, for instruction and on completion *to Camp Sheridan*, base hospital, Lieut. PAUL G. GAMBLE, Greenville.

*To Rochester, N. Y.*, Rochester General Hospital, for duty, from Camp Shelby, Lieut. FREDERICK M. COOK, Poplarville.

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. CLEVELAND DAVIS, Morgan City.

### Missouri

*To Camp Pike*, Little Rock, Ark., base hospital, Lieuts. HARVEY P. BOUGHNOU, Kansas City; FRANK L. DARROW, St. Louis.

*To Camp Shelby*, Hattiesburg, Miss., base hospital, Lieut. CYRUS MALLETTE, Bloodland.

*To Camp Travis*, Fort Sam Houston, Texas, for duty, Capt. SIMON W. WOLTZEN, Clinton; Lieut. ROY A. WALTHER, St. Louis.

*To Chicago, Ill.*, Presbyterian Hospital, for instruction and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Capt. OWEN W. KRUEGER, Kansas City; Lieut. FINIS C. SUGGETT, Ashland; from Fort Riley, Lieut. FOREST F. FOSTER, Kansas City. On completion *to Camp Custer*, base hospital, from Fort Riley, Lieut. FRED E. GARGATZ, Kearney.

*To Fort Bliss*, for duty, from Jefferson Barracks, Capt. JOHN D. HESS, Clarkton.

*To Fort Leavenworth, Kan.*, Department Laboratory, for duty, Lieut. LEO H. WALLENDORF, St. Joseph.

*To Fort Oglethorpe* for instruction, from Philadelphia, Capt. RALPH NIEDRINGHAUS, St. Louis; Lieut. HENRY L. HESS, Kansas City, from Harvard Medical School, Lieut. FRED C. CALLOWAY, Ravanna.

*To Fort Riley* for instruction, Capts. GEORGE McC. HAMILTON, Coffman; WILLIAM T. ELAN, St. Joseph; Lieut. LESLIE E. DEAN, Marysville.

*To Kansas City, Mo.*, for physical examination to determine his fitness for active service, Capt. JOHN G. HAYDEN, Kansas City.

*To New Orleans,* Charity Hospital, for instruction, and on completion *to Camp McClellan,* Anniston, Ala., base hospital, from Camp Shelby, Lieut. JOHN M. PERRY, Princeton.

*To Plainfield, N. J.,* for inspecting property and on completion *to his proper station,* from Plainfield, Lieut. WILLIAM J. EZICKSON, Webb City.

*To St. Louis* and *Kansas City, Mo.,* to give instruction and on completion *to his proper station,* Major MILREY P. BLAIR, St. Louis, Washington University, for instruction in urology and dermatology, Capt. ROBERT G. HALL, Fulton.

*To his home* and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GEORGE C. WILHITE, St. Louis.

## Montana

*To Portland, Ore.,* for duty, Capt. EDWIN A. GERHART, Billings.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* for duty Lieut. CARL O. RINDER, Deer Lodge.

## Nebraska

*To Camp Pike,* Little Rock, Ark., base hospital, Lieut. HARRY E. FLANSBURG, Lincoln.

*To Cleveland, Ohio,* for instruction, and on completion *to Camp Sevier,* Greenville, S. C., base hospital, Lieut. JACOB M. ERMAN, Omaha.

*To Fort Porter, N. Y.,* for duty, from Fort Riley, Lieut. OSCAR E. COLEMAN, Ainsworth.

*To Fort Riley,* for instruction, Lieuts. JOHN S. SIMMS, North Platte; JOSEPH M. CURTIS, Tecumseh.

*To New York City* for instruction in orthopedic surgery, from New York City, Capt. CHARLES E. REMY, Johnstown.

*To Rochester, N. Y.*, Rochester General Hospital, for duty, from Camp Beauregard, Lieut. DEXTER D. KING, York.

## Nevada

*To Cleveland, Ohio,* for instruction, and on completion *to Camp Custer,* base hospital, from Fort Riley, Capt. CLAUDIUS W. WEST, Elko.

*To his home* and honorably discharged, Lieut. WILLIAM T. GLEASON, Ely.

## New Hampshire

*To Army Medical School,* Washington, D. C., for instruction in orthopedic surgery, Lieut. JAMES B. WOODMAN, Franklin.

*To Boston, Mass.*, General Hospital, for instruction, and on completion *to Camp Jackson,* base hospital, Lieut. PHILIAS A. PION, Concord.

*To Fort Oglethorpe,* for duty, from Fort Oglethorpe, Lieut. EARL P. CUSHMAN, Claremont.

## New Jersey

*To Camp Devens,* Ayer, Mass., as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Warren, Lieut. SAMUEL R. FAIRCHILD, Penngrove.

*To Camp Logan,* Houston, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. THOMAS W. HARVEY, Jr., Orange.

*To Cincinnati, Ohio,* for instruction in orthopedic surgery, from Fort Oglethorpe, Capt. WILLIAM L. CORNWELL, Bridgeton.

*To Fort Oglethorpe* for instruction, Lieut. BARNEY D. LAVINE, Trenton.

*To Hoboken, N. J.,* for duty, Lieuts. WILLIAM H. McCALLION, Elizabeth; GEORGE S. SPENCE, Leesburg; WALTER B. MOUNT, Montclair; THOMAS V. CONNOLLY, Paterson; from Fort Oglethorpe, Lieut. THOMAS CRAVEN, Atlantic City.

*To New Orleans, La.,* Charity Hospital, for instruction, and on completion *to Fort Oglethorpe* for duty, from Fort Oglethorpe, Lieut. CHARLES B. HARPER, Trenton.

*To Rochester, N. Y.*, Rochester General Hospital, for duty from Camp Sheridan Lieut. HENRY G. SMITH Cedar Grove.

*To the inactive list* from Camp Sherman, Lieut. CHARLES BROWNE, Princeton.

## New Mexico

*To Fort Riley* for instruction, Lieut. ROLAND R. CROSS, Dulce.

## New York

*To Allentown, Pa.,* for duty, Lieut. ELMER E. OWEN, Batavia.

*To Army Medical School* for instruction, from Camp Custer, Capt. CHARLES E. R. PANNACI, Gloversville. For instruction in orthopedic surgery, Lieuts. CHARLES GOLDMAN, Brooklyn; GEORGE K. BLUE, New York City; from Fort Oglethorpe, Lieut. FRANCIS B. RING, Brooklyn.

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to Camp Devens,* base hospital, from Fort Oglethorpe, Lieut. JAMES F. DOUGHERTY, Richmond Hill.

*To Camp Devens,* Ayer, Mass., as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort H. G. Wright, Capt. BRUNO S. HOROWICZ, New York City; Lieut. ADELBERT C. ABBOTT, Syracuse; from Fort Warren, Lieuts. HERMAN JUDKOWITZ, Brooklyn; CLYDE DANFORD OATMAN, Poolville.

*To Camp Dix,* Wrightstown, N. J., base hospital, Lieuts. SAUL DANSER, Brooklyn; JOHN A. METZEN, Buffalo; WILLIAM FRIEDMAN, GERALD S. SHIBLEY, New York City.

*To Camp Grant,* Rockford, Ill., as orthopedic surgeons, from Army Medical School, Lieuts. GEORGE J. GANOW, Port Dickinson; ROBERT E. O'ROURKE, New York City.

*To Camp Meade,* Annapolis Junction, Md., with the cardiovascular board examining troops, from Camp Meade, Capt. CHARLES C. O'CONNOR, Brooklyn.

*To Camp Pike,* Little Rock, Ark., base hospital, from Newport News, Capt. JOHN B. BRYNE, Jr., Brooklyn; Lieut. CHARLES PHILLIPS, New York City.

*To Camp Sherman,* Chillicothe, Ohio, as orthopedic surgeon, from Harvard Medical School, Capt. ALFRED H. PARSONS, Great Neck base hospital, Lieut. THOMAS C. McCOY, New York City. For duty, from Fort Oglethorpe, Lieut. ELBRIDGE A. CARPENTER, New York City.

*To Camp Upton,* L. I., N. Y., for temporary duty, from Camp Sherman, Capt. REUBEN J. HELD, New York City.

*To Camp Wadsworth,* Spartanburg, S. C., for duty, Major GEORGE W. GOLER, Rochester. As orthopedic surgeon, from Army Medical School, Lieut. FRANCIS J. A. BENNETT, Auburn.

*To Chicago, Ill.,* School of Plastic and Oral Surgery, Northwestern University Dental School, for instruction, from Fort Riley, Capt. MARK H. WARD, Suffern.

*To Fort McPherson, Ga.,* for duty, from Camp Upton, Lieut. HENRY R. KUTIL, New York City.

*To Fort Oglethorpe* for instruction, Capt. EDWIN H. HALL, Briarcliff Manor; from Camp Dix, Capt. HENRY C. DREW, Brooklyn. For instruction, Lieuts. ISIDOR GRAD, Bronx; MERRILL N. FOOTE, HERMAN GROSEMAN, ALFRED H. IASON, MORRIS T. KOVEN, Brooklyn; JOSEPH A. NOWICKI, Buffalo; ALEXANDER ALTSCHUL, DIXON L. AUSTIN, CHARLES M. GRIFFITH, FRANK L. MELENEY, BENJAMIN NOCILLA, HERMAN OSTREWSKY, GEORGE SHEINBERG, New York City; GRADY S. CLINKSCALES, Poughkeepsie; FRED L. RITTER, Pulaski; HERBERT L. KALLET, Syracuse; from Army Medical School, Lieut. JACOB URDANG, Brooklyn; from Harvard Medical School, Lieut. DUDLEY L. MORTON, New York City; from New York City, Lieut. ERNEST S. BULLUCK, New York City; from Philadelphia, Lieuts. ISADORE M. LEAVY, HARRY D. SONNENSCHEIN, New York City. Provisional base hospital, Lieut. ARNOLD SHAMASKIN, New York City.

*To Hoboken, N. J.,* for duty, Lieut. CHARLES A. PERRY, Albany; THOMAS C. McCOY, New York City.

*To Lakewood, N. J.,* and *Belle Meade, N. J.,* for inspection, and on completion *to his proper station,* Major RICHARD H. HUTCHINGS, Ogdensburg.

*To New Haven, Conn.,* U. S. Army General Hospital, from Camp Meade, Capt. THOMAS F. ELLIS, Brooklyn.

*To New York City* for consultation, and on completion *to his proper station,* Major PEARCE BAILEY, New York City. To enlist the additional personnel for base hospital, and on completion *to the inactive list* of the Medical Reserve Corps, Major WILLIAM F. HONAN, New York City. For instruction in orthopedic surgery, from Army Medical School, Capt. SURSE J. TAYLOR, Albany.; on completion *to his proper station,* from Rochester, Capt. EDWARD T. WENTWORTH, Rochester. Bellevue Hospital, for instruction and on completion *to Walter Reed General Hospital,* for temporary duty, Capt. SAMUEL STEWART, Syracuse. On completion *to Williamsbridge,* for temporary duty, Capt. GEORGE F. SAMMIS, Brooklyn. On completion *to Camp Dix,* base hospital, from Fort Oglethorpe, Lieut. ARTHUR C. SMITH, Elmira. On completion *to Camp Lee,* base hospital, Lieut. IRVIN J. RUSSELL, Port Jefferson. On completion *to Camp Meade,* base hospital, from Fort Oglethorpe, Lieut. ONSLOW A. GORDON, Brooklyn. On completion *to Camp Upton,* base hospital, from Fort Oglethorpe, Lieut. FREDERICK CHRISTOPHER, New York City. As instructor in class of fractures and war surgery, Lieut. EDWARD A. KING, New York City. For duty, and on completion *to Fort McHenry,* from Hoboken, Lieut. THOMAS F. DAVIES, Floral Park. For instruction in orthopedic surgery, from New York City, Lieut. IRA W. LIVERMORE, Gowanda. Post-Graduate Medical School and Hospital, for instruction in urology and dermatology, Lieuts. BENJAMIN E. CARMEL, Brooklyn; HERMAN GOODMAN, New York City; from Fort Oglethorpe, Lieuts. JOSEPH L. WOZNIAK, Buffalo; LEO EDELMAN, CHARLES WOLF, New York City.

*To Philadelphia, Pa.,* for instruction, and on completion *to Camp Lee,* base hospital, from Fort Oglethorpe, Lieut. ARWIN H. MacFARLAND, Rome.

*To Pittsburgh, Pa.,* for instruction, and on completion to Camp Dodge, base hospital, from Fort Oglethorpe, Lieut. JOHN H. REYNOLDS, Brooklyn; on completion *to Fort Oglethorpe* for duty from Fort Oglethorpe, Lieut. LAWRENCE M. BELZER, Buffalo.

*To Rochester, N. Y.,* Rochester General Hospital, for duty, from Fort Oglethorpe, Lieut. BERT G. VOORHEES, Elmira.

*To Rockefeller Institute* for instruction, and on completion *to his proper station*, from Camp Devens, Major ROBERT W. ANDREWS, Poughkeepsie. For instruction in the serum therapy of pneumonia, and on completion *to his proper station,* from Rochester, Capt. CHARLES I. HINCHER, Rochester. For instruction and on completion to Camp Lee, base hospital, from Fort Oglethorpe, Lieut. BERNARD McD. KRUG, Warwick. On completion *to his proper station,* from Camp Sheridan, Lieut. DORSEY G. TYLER, Brooklyn; from Williamsbridge, Lieut. WALTER S. WOODRUFF, Mt. Vernon. On completion *to New York City* for duty, Lieut. RUSTIN McINTOSH, New York City. For instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. FREDERICK D. ZEMAN, New York City; from Camp Beauregard, Lieut. MORRIS MASLON, Glen Falls; from Fort Oglethorpe, Lieuts. EPHRAIM M. BLUE-

STONE, JULIUS PINCUS, FRANK TANNENBAUM, New York City.

*To Washington, D. C.*, in the Surgeon-General's Office, Capt. JOHN E. DOUGHERTY, Brooklyn. For consultation and on completion *to his proper station*, from New York City, Capt. BRAINERD H. WHITBECK, New York City. For duty, from Army Medical School, Lieuts. CYRUS W. CULVER, Lowville; MARTIN F. NOLAN, Tonawanda.

Resignations of Capt. EDGAR S. BULLIS, Glen Falls, and Lieut. DAVID M. KAPLAN, New York City, accepted.

*To his home* and honorably discharged, Capt. ARTHUR I. BOYER, New York City.

Honorably discharged, Lieut. MALCOLM T. MUNKITTRICK, New York City. On account of physical disability, existing prior to entrance into the service, Lieuts. WILLIAM J. RYAN, Newport; THOMAS J. RYAN, New York City.

### North Carolina

*To Camp Grant*, Rockford, Ill.. base hospital, from Camp Hancock, Lieut. JOSEPH W. HOOPER, Wilmington.

*To Camp Greene*, Charlotte, N. C., as assistant to the camp surgeon, from Fort Oglethorpe, Lieut. DARIUS C. ABSHER, Mt. Airy.

*To Camp Meade*, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. RALPH C. SADLER, Whiteville.

*To Camp Shelby*, Hattiesburg, Miss., base hospital, Capt. DONALD M. McINTOSH, Old Fort; Lieut. JAMES W. FARRIOR, Kenansville.

*To Fort Oglethorpe* for instruction, Lieut. AMZI JEFFERSON ELLINGTÓN, Raleigh.

*To Newport News, Va.*, for duty, from Camp Beauregard, Major JOHN T. BURRUS, High Point.

*To New York City*, Post-Graduate School and Hospital, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. JACOB H. ROZELLE, Salisbury.

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. DAVID T. LONG, Hurdle Mills.

### North Dakota

*To Camp Dodge*, Des Moines, Ia., for duty, Lieut. JOHN R. MAC KENZIE, Carrington.

*To Cleveland, Ohio*, for instruction, and on completion *to Camp Sheridan*, base hospital, from Fort Riley, Capt. WILLIAM A. GERRISH, Jamestown.

*To his home* and honorably discharged, Capt. NICHOLAS J. SHIELDS, Wahpeton.

### Ohio

*To Army Medical School*, Washington, D. C., for instruction in orthopedic surgery, Lieuts. CLARENCE W. BETZNER, Cincinnati; EDWARD REMY, Jr., Mansfield.

*To Chicago, Ill.*, Presbyterian Hospital, for instruction, and on completion *to Camp Taylor*, base hospital, from Fort Riley, Lieut. OLEN E. CHENOWETH, Lima.

*To Dayton, Ohio*, McCook Field, for duty, from Wilbur Wright Field, Major COURTNEY P. GROVER, National Military Home.

*To Fort Oglethorpe*, for duty, from Fort Oglethorpe, Lieut. GEORGE B. FAULDER, Columbus. For instruction, Lieuts. GEO. G. HUNTER, Cincinnati; JOSEPH E. STEPHAN, Jewell; ELLIS D. KACKLEY, Pleasant City; LEWIS R. CARR, Prairie Depot; ROBERT McQ. ANDRE, Waverly; DAVE H. SMELTZER, Youngstown. Provisional base hospital, Lieut. WILLIAM L. LAYPORT, Cincinnati.

*To Fort Riley* for instruction, from Fort Riley, Lieut. GALE C. GUTHRIE, Uhrichsville.

*To Hoboken, N. J.*, for duty, Lieut. FREDERICK P. PURDY, Killbuck.

*To New Haven, Conn.*, U. S. Army General Hospital, from Fort Oglethorpe, Lieut. CHARLES K. ERVIN, Cincinnati.

*To New York City*, Roosevelt Hospital, for instruction and on completion *to Camp Lee*, base hospital, from Chickamauga Park, Lieut. CLYDE B. TERWILLEGAR, Milford.

*To Philadelphia, Pa.*, for instruction and on completion *to Camp Sevier*, base hospital, from Fort Oglethorpe, Lieut. CLARK E. SHARP, Chillicothe.

*To Rockefeller Institute*, for instruction and on completion *to his proper station*, from Fort Oglethorpe, Major WILLIAM H. LEET, Conneaut. For instruction in laboratory work and on completion *to Army Medical School*, for duty, from Army Medical School, Lieut. FREDERICK A. EULER, Cleveland.

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. HOMER C. BALLARD, Cleveland.

### Oklahoma

*To Camp Cody*, Deming N. M., base hospital, Lieut. JAMES F. MEANS, Claremore.

*To Camp Travis*, Fort Sam Houston, Texas, for duty, Lieuts. ISAAC W. ROGERS, Kellyville; JAMES O. WAILS, Morris; JAMES B. FERGUSON, Sallisaw.

*To Chicago, Ill.*, Presbyterian Hospital for instruction and on completion *to Camp Doniphan*, base hospital, from Fort Riley, Lieut. CHARLES C. SIMS, Healdton.

*To New Orleans, La.*, Charity Hospital, for instruction and on completion *to Camp Beauregard*, from Fort Riley, Capt. VIRGIL BERRY, Okmulgee.

*To Waco, Texas*, Rich Field, Signal Corps Aviation School, for duty, Lieut. JOSEPH T. CUNTER, Ochelata.

*To his home* and honorably discharged, Lieut. CHARLES W. BACON, Enid.

### Oregon

*To Camp Lewis*, American Lake, Wash., for temporary duty, Capt. CLAUDE M. PEARCE, Baker.

*To New York City*, Orthopedic Hospital, for instruction in Orthopedic surgery, from New York City, Capt. JOHN H. BESSON, Portland.

*To report* by wire to the Commanding General, Western Department, for assignment to duty, Lieuts. PRINCE C. PAGE, Buxton; ERIC J. GAMBEE, Portland; from Fort Douglas, Lieut. JAMES A. BEST, Pendleton.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. HAROLD C. BEAN, Portland.

### Pennsylvania

*To Army Medical School*, Washington, D. C., for duty, Lieut. GEO. L. ARMITAGE, Eddystone. For instruction in orthopedic surgery, from Camp Gordon, Lieut. ALBERT P. BERG, Philadelphia.

*To Atlanta, Ga.*, School of Technology, for duty, Lieut HAROLD P. LANSKE, Allentown.

*To Camp Custer*, Battle Creek, Mich., for duty, from Mineola, Capt. SAMUEL C. SMITH, Hollidaysburg.

*To Camp Devens*, Ayer, Mass., as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort H. G. Wright, Lieut. HARRISON M. STEWART, Mont Alto.

*To Camp Dix*, Wrightstown, N. J., base hospital, Lieuts. THOMAS KLEIN, SIMON S. LEOPOLD, Philadelphia; FRANK GUILLARD, Wells Tannery.

*To Camp Dodge*, Des Moines, Iowa, as orthopedic surgeon, from Fort Oglethorpe, Lieut. GEORGE H. FAGGART, Philadelphia.

*To Camp Meade*, Anapolis Junction, Md., base hospital, Lieuts. CHARLES A. FITZGERALD, Clarion; STEPHEN W. NEALON, Latrobe. For duty, from Fort Oglethorpe, Lieut. HOMER G. COLLINS, Meyersdale.

*To Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. BENJAMIN A. FRYE, Sharpesville.

*To Camp Upton*, L. I., N. Y., as orthopedic surgeon, from Army Medical School, Lieut. JAMES C. HARDING, Philadelphia.

*To Cleveland, Ohio*, for instruction and on completion *to Camp Custer*, base hospital, from Fort Oglethorpe, Lieut. PAUL G. DICK, Connellsville.

*To Fort Oglethorpe*, for instruction, Capt. RUDOLPH A. CONSTIEN, Ashland; from Camp Sherman, Capt. DANIEL P. RAY, Johnstown. Provisional Base Hospital, Capt. ARTHUR D. SMITH, Philadelphia. For instruction, Lieut. WILLIAM O. DOUGHERTY, Bethlehem; from Harvard Medical School, Lieuts. JOHN H. ALEXANDER, BROWN FULTON, WILLIAM O. MARKELL, Pittsburgh; EDWARD PARDOE, South Fork; from New York City, Lieut. HARRY C. POLLOCK, Wilmerding; from Philadelphia, Lieuts. FRANK P. McCARTHY, Erie; SCOTT A. NORRIS, Homestead; HENRY J. GILES, Pittsburgh; JAMES B. HELLER, Pottsville.

*To Fort Sam Houston, Texas*, for duty, from duty as a private at Fort Sam Houston, Lieut. CHARLES L. PIPER, McKeesport.

*To Hoboken, N. J.*, for duty, Lieut. CARL H. ROBINSTEEN, Ford City.

*To Lakewood, N. Y.*, for temporary duty, from Camp Sevier, Major EDWARD H. GOODMAN, Philadelphia.

*To New Orleans, La.*, Charity Hospital, for instruction and on completion *to Camp Shelby*, base hospital, from Fort Oglethorpe, Lieut. LOUIS F. FALLON, Wayne.

*To Newport News, Va.*, as orthopedic surgeon, from Army Medical School, Capt. GUY C. BOUGHTON, Erie.

*To New York City*, Bellevue Hospital, for instruction and on completion *to Camp Devens*, base hospital, from Fort Oglethorpe, Lieut. JAMES A. MUNSTER, Pittsburgh. On completion *to Camp Upton*, base hospital, from Fort Oglethorpe, Lieut. THOMAS J. McNILIS, Lucerne. On completion *to Camp Zachary Taylor*, base hospital, from Fort Oglethorpe, Lieut. ARCHIE W. DUNN, Willow Grove. On completion *to Fort McPherson*, for duty, from Fort Oglethorpe, Lieut. HOWARD A. McKNIGHT, Philadelphia. Post-Graduate Medical School and Hospital, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. DON D. BROOKS, Connellsville.

*To Petersburg, Fla.*, and *Crystal Beach, Fla.*, to inspect and report upon certain sites and on completion *to his proper station*, Lieut. CHARLES C. GANS, Chambersburg.

*To Philadelphia, Pa.*, base hospital, for duty, from Fort Oglethorpe, Lieut. JAMES C. McCONAUGHEY, Wayne. University Hospital, for instruction and on completion *to Camp Greene*, base hospital, from Fort Oglethorpe, Lieut. EDWIN C. BOYER, Johnstown.

*To Pittsburgh, Pa.*, for instruction and on completion *to Camp Sherman*, base hospital, from Fort Oglethorpe, Lieut ARTHUR D. COWDRICK, Clearfield.

*To Rockefeller Institute*, for instruction, from Fort Oglethorpe, Lieut. CLAUDE L. BRADFORD, Pittsburgh. For instruction in laboratory work and on completion *to Army Medical School*, from Fort Oglethorpe, Lieut. ARTHUR E. SIMONIS, Tremont.

*To Washington, D. C.*, for duty in the Surgeon-General's Office, from Pittsburgh, Major GEORGE C. JOHNSTON, Pittsburgh. For duty, from Army Medical School, Lieut. SAMUEL B. THOMAS, Waynesboro.

*To Williamsbridge, N. Y.*, for duty, from Fort Oglethorpe, Lieut. JOHN J. KOLSKI, Donora.

*To his home* and to the inactive list, Lieut. MOSES H. BAKER, Pittsburgh.

*To their homes* and honorably discharged, Lieuts. CHARLES E. HERMAN, Carnegie; FRANK H. LONG, Coopersburg; CLARENCE

E. APPLE, Oak Lane Terrace. On account of physical disability existing prior to entrance into the service, Lieut. FRANCIS M. QUINN, Minersville.

### Rhode Island

*To Camp Fremont,* Palo Alto, Calif., base hospital, from Camp Freemont, Lieut. JAMES HAMILTON, JR., Providence.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, Lieut. CHARLES L. LYNCH, Providence.

### South Carolina

*To Camp Greene,* Charlotte, S. C., base hospital, Lieut. ALEXANDER S. BLANCHARD, Williston.

*To Camp Shelby,* Hattisburg, Miss., base hospital, Lieut. WADE THOMPSON, Anderson.

*To Camp Upton, L. I., N. Y.,* as Division Sanitary Inspector, from Camp Upton, Capt. WILLIAM J. BURDELL, Lugoff.

*To Camp Wadsworth,* Spartanburg, S. C., base hospital, Lieuts HOMER M. DANIEL, Anderson; MANLY C. SMITH, Simpsonville.

*To Fort Oglethorpe,* for instruction, Lieuts. LONNIEL M. McMILLAN, Florence; JAMES J. GLENN, York; from Philadelphia, Lieut. ROBERT T. FERGUSON, Gaffney. Provisional base hospital, Lieuts. ROBERT W. PRESTON, Charleston; LESLIE ST. C. HAYS, Clinton.

*To New York City,* Roosevelt Hospital, for instruction and on completion *to Camp Greene,* base hospital, from Fort Oglethorpe, Lieut. JOSEPH E. THOMAS, Jefferson.

*To Rockefeller Institute,* for instruction in laboratory work and on completion *to Army Medical School,* for duty, from Camp Jackson, Lieut. GEORGE F. KLUGH, Cross Hill.

### South Dakota

*To Chicago, Ill.,* Presbyterian Hospital, for instruction and on completion *to Camp Grant,* base hospital, from Fort Riley, Lieut. ROSCOE R. FISK, Brooklings.

*To Fort Riley,* for instruction, from Camp Dodge, Capt. ALBERT E. BRAWN, Webster.

### Tennessee

*To Camp Bowie,* Fort Worth, Texas, base hospital, from Memphis, Lieut. JAMES B. STANFORD, Memphis.

*To Camp McClellan,* Anniston, Ala., base hospital, Lieuts. CLAUDE A. SYMONS, Memphis; MILTON S. LEWIS, Nashville.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from Memphis, Tenn., Lieut. JOHN J. SHEA, Memphis.

*To Camp Shelby,* Hattiesburg, Miss., as orthopedic surgeon, from Army Medical School, Capt. ALPHONSE H. MEYER, Memphis. Base hospital, Lieut. ROBERT L. GALLAHER, Caryville.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. WILLIS S. ALEXANDER, Ridgely.

*To Cleveland, Ohio,* for instruction and on completion *to Camp Custer,* base hospital, from Fort Oglethorpe, Lieut. GROVER C. ENGLISH, Mount Pleasant.

*To Fort McPherson, Ga.,* for duty, from Camp Gordon, Lieut. GROVER C. CONYERS, Gates.

*To Fort Oglethorpe,* for duty, from Camp Joseph E. Johnston, Lieut. GEORGE A. HATCHER, Nashville. For instruction, Lieut. JOSEPH C. BLANKENSHIP, Walling.

*To New Orleans, La.,* Charity Hospital, for instruction and on completion *to Camp Doniphan,* base hospital, Lieut. SAMUEL T. PARKER, Lexington.

### Texas

*To Army Medical School,* for a course in orthopedic surgery, from Camp Grant, Lieut. LOUIS E. DEVENDORF, Taft.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., base hospital, from Camp Meade, Capt. JOSEPH E. JOHNSON, Kirwin.

*To Camp Travis,* Fort Sam Houston, Texas, base hospital, Capt. STANLEY T. LOWRY, San Antonio; Lieuts. CARL K. ARNOLD, Henrietta; ALLEN JOHNSON, San Antonio.

*To Cleveland, Ohio,* for instruction and on completion *to Camp Taylor,* base hospital, from Fort Riley, Lieut. ROSCOE ETTER, Hubbard.

*To Fort Oglethorpe,* for instruction, Lieut. WILLIAM H. BENNETT, Lamosa.

*To New Orleans, La.,* Charity Hospital, for instruction and on completion *to Camp MacArthur,* base hospital, from Fort Riley, Capt. ROBERT D. GIST, Amarillo.

*To New York City,* Bellevue Hospital, for instruction and on completion *to his proper station,* from Chickamauga Park, Capt. GEORGE H. STAGNER, Waco. Post-Graduate School and Hospital, for instruction in urology and dermatology, from Camp Lee, Lieut. RALEIGH L. DAVIS, Big Springs.

*To Philadelphia, Pa.,* University Hospital, for instruction and on completion *to Camp Jackson,* base hospital, from Fort Oglethorpe, Lieut. GILES A. DEASON, Ft. Worth.

*To Southern Department,* for assignment to duty, Capts. FOSTER R. WINN, Alvin; CLARENCE S. BROWN, Garland; Lieuts. ERNEST W. NITSCHE, Dallas; MARCUS P. SMART, Eddy; THADDIUS K. JONES, Henrietta; JAMES R. DICKSON, Marshall; JOHN W. McMAHON, Mineral; MARSHALL A. RAMSDELL, Santa Anna; OZRA W. CUNNINGHAM, Valley View.

*To Waco, Texas,* Rich Field, Signal Corps Aviation School, for duty, Lieut. ELMORE G. BRITTAIN, Dallas.

*To his home* and honorably discharged, Lieut. ROBINSON H. SALMON, Maypearl.

### Utah

*To Pittsburgh, Pa.,* for instruction and on completion *to Camp Meade,* base hospital, from Fort Riley, Lieut. JAMES M. GRAHAM, Fruita.

*To Waco, Texas,* Rich Field, Signal Corps Aviation School, for duty, Lieut. RAY T. WOOLSEY, Salt Lake City.

### Vermont

*To Camp Devens,* Ayer, Mass., as orthopedic surgeon, from Harvard Medical School, Capt. HARRY L. FROST, Williston.

*To Camp Upton,* L. I., N. Y., as orthopedic surgeon, from Army Medical School, Lieut. JOHN D. THOMAS, Burlington.

*To Fort Oglethorpe* for instruction, Lieut. ALBION A. CROSS, Williamstown.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Upton,* base hospital, from Fort Oglethorpe, Lieut. WINDSOR DeF. BOWEN, Saxton's River.

### Virginia

*To Army Medical School* for instruction in orthopedic surgery, Lieut. Arthur Hooks, Blackstone; from Fort Oglethorpe, Lieut. CHARLES E. LLEWELLYN, Richmond.

*To Camp Dodge,* Des Moines, Ia., as orthopedic surgeon, from Camp Devens, Lieut. PERCY E. DUGGINS, Norfolk.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. THOMAS J. KAGEY, Newport News.

*To Camp Pike,* Little Rock, Ark., base hospital, Lieut. WILLIAM F. WILLIAMSON, Richmond.

*To Camp Upton,* L. I., N. Y., as orthopedic surgeon, from Army Medical School, Lieut. FREDERICK P. SUTHERLAND, Roanoke.

*To Rochester, N. Y.,* Rochester General Hospital, for duty, from Fort Oglethorpe, Lieut. LAWTHER J. WHITEHEAD, Richmond.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Capt. EDWARD L. FLANAGAN, Fairfax; Lieut. CLIFFORD A. FOLKES, Roanoke.

*To his home* and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. RALPH W. BROWN, Roanoke.

### Washington

*To Camp Sheridan,* Montgomery, Ala., for duty, from Fort Riley, Lieut. WALTER A. BURG, Uniontown.

*To Cleveland, Ohio,* for instruction, and on completion *to Camp Grant,* base hospital, from Fort Riley, Lieut. GEORGE I. HURLEY, Hoquiam.

*To Portland, Ore.,* for duty, Capts. SPENCER B. HOWE, Bellingham; HARRY P. FINDLEY, Everett; DOUGLAS McINTYRE, St. John; Lieuts. LEON L. GOODNOW, Aberdeen; FRANK J. BICKFORD, Centralia; FRANK A. BRYANT, Colfax; JOHN HIETT, Ione; EDWARD W. COX, Monroe; ERTIE C. LANTER, CONSTANTIN J. LAPIDEWSKY, Seattle; JOSEPH HEHIR, Sedro-Wooley; ROBERT H. FARLEY, Spokane; JAMES D. COUCHE, Twisp.

*To his home* and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. EDMUND S. WEST, North Yakima. *To his home* and honorably discharged, Lieut. WALTER R. JOHNSON, Chehalis.

### West Virginia

*To Camp A. A. Humphries,* Accotink, Va., for duty, from Fort Oglethorpe, Lieut. CHARLES L. MOORE, Upper Fract.

*To Camp Pike,* Little Rock Ark., as orthopedic surgeon in the camp, from Camp Pike, Lieut. EMERSON MEGRAIL, Wheeling.

*To Camp Sherman,* Chillicothe, Ohio, base hospital, from Camp Sherman, Major RAWLEY N. POWELL, Ellsins.

*To Fort Oglethorpe* for instruction, Lieut. EARL B. HANSON, Charleston. Provisional base hospital, Lieut. JOHN R. KEESEE, Wayne.

*To New York City,* Bellevue Hospital for instruction, and on completion *to Camp Taylor,* base hospital, from Fort Oglethorpe, Lieut. JULIUS C. SCHULTZ, Huntington.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* from Fort Oglethorpe, Lieut. WM. C. SLUSHER, Bluefield.

### Wisconsin

*To Camp Grant,* Rockford, Ill., base hospital, Lieut. EMMETT W. BOWEN, Watertown.

*To Camp Wheeler,* Macon, Ga., for inspection, and on completion *to his proper station,* Major NELSON M. BLACK, Milwaukee.

*To Cleveland, Ohio,* for instruction, and on completion *to Camp Pike,* base hospital, from Fort Riley, Capt. RODERICK S. ELLIOTT, Milwaukee.

*To Fort Oglethorpe* for instruction, from Philadelphia, Lieut. BERNARD O. BENDIXEN, Kewaskum.

*To Fort Riley* for instruction, Capt. CONRAD W. WILKOWSKI, Chippewa Falls; Lieut. EDWARD H. FISCHER, National Home.

*To Rockefeller Institute* for instruction and on completion *to Camp Hancock,* base hospital, from Fort Oglethorpe, Lieut. HAROLD A. BACHMANN, Sheboygan.

*To Williamsbridge, N. Y.,* for temporary duty, from Philadelphia, Lieut. MERRITT LaC. JONES, Wausau.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. IRVING A. MYERS, Cottage Grove; Lieut. THOMAS J. McCRORY, Racine.

### Wyoming

*To Camp Pike,* Little Rock, base hospital, Lieut. MICHAEL M. CODY, Superior.

*To report* by wire to the Commanding-General, Western Department for assignment to duty, Lieut. CLAUDE A. HARMON, Upton.

# Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## ARKANSAS

**Sanitary Inspection Discontinued.**—The active work of sanitary inspection in Little Rock which had been carried on under the supervision of the United States Public Health Service was discontinued, January 23, on account of the failure of the city council to appropriate funds for the continuance of the work.

**Personal.**—Dr. Frederic C. Rowell has been appointed health officer of Pine Bluff.——Dr. Leon M. Mooney, Mountain Home, fell while hunting, February 2, fracturing his right arm.——Dr. George M. Converse, United States Public Health Service, was the guest of honor at the meeting of the Lions' Club, held at Little Rock, January 21.

**Isolation Hospital for Little Rock.**—As the result of a conference between the board of trustees of the University of Arkansas with the state and city officials, it is announced that three wards of the old medical school building in Little Rock will be equipped as an isolation hospital. The state has agreed to appropriate $6,000 for the support of this institution.

**Meningitis.**—February 18, it was reported from Little Rock that the meningitis situation in that city was well in hand, according to a report given by Dr. Claude C. Pierce, San Francisco, of the United States Public Health Service, who had been sent to investigate this epidemic. There had been twenty-nine cases since November 26, only three of which were secondary. All druggists, it was said, had been asked to cooperate by not selling any "patent medicines" for the cure of any infectious diseases.

## INDIANA

**Unit Assembled.**—Hospital Unit I from Madison County, commanded by Major John B. Fattic, Anderson, with eleven medical officers and forty-eight enlisted men has been mobilized at Fort McPherson, Atlanta, Ga.

**New Antituberculosis Officers.**—At the fifth annual meeting of the Marion County Medical Society for the Prevention of Tuberculosis, held in Indianapolis, February 21, a report of Sunnyside Sanatorium was presented and an outline of the activities for the coming year was given by Dr. William F. King, Indianapolis, assistant secretary of the state board of health. Dr. Alfred Henry, Indianapolis, was reelected president, and Drs. Charles J. Kneer, Oaklandon, George H. McCaskey, West Newton; Edward M. Amos, Indianapolis; Arthur L. Barnes, Southport, Ernest O. Asher, New Augusta; Jeremiah A. Swails, Action; Charles J. McIntosh, Indianapolis; Mrs. J. C. McCain, Ben Davis, and Mrs. F. W. Wiese, Cumberland, were elected township vice presidents.

## ILLINOIS

### Chicago

**Meeting of Internists.**—At the twenty-second regular meeting of the Chicago Society of Internal Medicine held, February 25, the essayist was Dr. H. Gideon Wells, who spoke on "The Medical Aspect of Plague and Famine as Seen in Russia."

**Personal.**—Dr. Harry D. Orr, who has been director of ambulance trains at Camp Logan, Houston, Texas, has been promoted to the rank of lieutenant-colonel, M. C., N. A., and placed in command of the One Hundred and Eighth Sanitary Train.——Major Robert J. Gay has been promoted from the command of Field Hospital No. 131 to the directorship of ambulance trains.——Major Daniel W. Rogers, surgeon of the One Hundred and Thirty-Fourth Illinois Field Artillery, has been relieved from command of ambulance trains and placed in charge of Field Hospital No. 131.——Dr. Clement J. Cullen, Oak Park, suffered a cerebral hemorrhage while in his office, February 22, and is reported to be in a critical condition.——Dr. Brown Pusey was operated on recently at St. Luke's Hospital for gallstones, and is convalescing uneventfully.

## MARYLAND

**Appropriation for Psychopathic Building.**—The governor has approved of an appropriation of $80,000 for the equipment of the Spring Grove psychopathic building at Catonsville, which has been offered to the government to be used for the care of soldiers suffering from nervous and mental disorders.

**Billings in Baltimore.**—Major Frank Billings, Chicago, medical aid to Provost-Marshal-General Crowder, addressed the medical advisory boards, local boards and district boards of the state at Osler Hall, Baltimore, February 12, and explained the new regulations for the physical examination of registrants. The address was followed by a conference.

**Additional Patients at Fort McHenry.**—Two hundred and forty-nine more patients have arrived at the United States Army General Hospital No. 2, at Fort McHenry, Baltimore. Seventeen men are from overseas and the remainder are from northern army camps. None of the men are wounded. They are suffering mainly from heart trouble and, in a large majority of cases, the patients have been in the same condition for years. The new detachment makes a total of 402 patients now under treatment at Fort McHenry.

**Mortality from Pneumonia.**—The highest mortality from pneumonia in the history of the health department of Baltimore was reported for the week ending February 16, during which there were 78 deaths from the disease. The next highest record was for a week in January, 1916, when 73 persons died from pneumonia. Deaths in the city from all causes totaled 317, as compared with 246 in 1917, 207 in 1916, and 190 in 1915. During that week there were reported to the department 112 cases of pneumonia. Of these 65 were lobar and 47 bronchopneumonia.

**Meetings.**—At a meeting of the Baltimore County Medical Association held at the medical and chirurgical faculty building, Baltimore, February 20, resolutions were passed approving two bills that are pending in Congress, which will increase the rank of the members of the Medical Reserve Corps. After a business session, Dr. John H. Crum of Detroit, Mich., gave an illustrated talk on diphtheria. Dr. J. Percy Wade, Catonsville, is president of the association and Dr. Samuel J. Fort, Catonsville, is secretary.——At a meeting of the Book and Journal Club of the Medical and Chirurgical Faculty of Maryland, held, February 26, in Oslear Hall, Baltimore, Major Pearce Bailey, of the Surgeon-General's Office, Washington, D. C., spoke on "Voltaire."

**Personal.**—Dr. Thomas H. Brayshaw, Glenburnie, Md., one of the best known physicians of Anne Arundel County, is seriously ill at his home, suffering from an attack of pneumonia. His condition is regarded as serious.——Dr. William S. Baer, Baltimore, who went to France last June as a member of the Johns Hopkins Base Hospital Unit, with the rank of major in the Medical Reserve Corps, is soon to be made a lieutenant-colonel of the National Army, according to an announcement recently made at the headquarters of the Army Medical Corps in Washington, D. C.——Dr. John M. T. Finney, head of the Johns Hopkins Base Hospital Unit, now holds the position of medical director, with the rank of lieutenant-colonel.——Dr. Michael J. Egan, of St. Joseph's Hospital, Baltimore, has left for New York, where he will take a three months' training course in neurologic surgery before going to France.——Dr. Kenneth J. McCullough, Baltimore, assistant surgeon at the Sparrows Point plant of the Bethlehem Steel Company, has resigned to accept a position as assistant surgeon of the Atlantic Coast Line. Dr. S. F. Hundley will succeed Dr. McCullough at Sparrows Point.——Dr. Mary F. Shedwick Bailey, Philadelphia, has been appointed an assistant in the bacteriologic laboratory of the Baltimore City Health Department.——Dr. Arthur P. Herring, Baltimore, secretary of the state lunacy commission, has been commissioned a captain in the Medical Reserve Corps and is now stationed at the United States Army General Hospital No. 2 at Fort McHenry, Baltimore, where he is in charge of the psychiatric work.

## MINNESOTA

**Dr. Rowntree Operated On.**—Dr. L. G. Rowntree, the head of the Department of Medicine of the University of Minnesota, was operated on at the Mayo Clinic at Rochester, March 6, the operation revealing a rather serious subacute perforating ulcer of the duodenum, with hemorrhage.

## NEW JERSEY

**Newark Health Department News.**—The monthly bulletin of the health department of Newark for February announces that a narcotic clinic for the study and treatment of drug addicts has been established in the city dispensary, and that a considerable number of such persons have applied for treatment. The general plan of treatment includes rapid reduction in dose, substitution of a milder narcotic, stimulation of cellular activity, dilution of the toxic agents, and elimination, with encouragement.

## NEW YORK

**Personal.**—Major Michael J. Thornton, formerly of Albany, who has been on duty with the British troops for several months, has been transferred to the American forces.——Dr. John H. Hamilton, Albany, has been appointed state epidemiologist of Iowa, succeeding Dr. Mark F. Boyd, resigned.

**Naval Hospital at Pelham Bay Park.**—A base hospital adjoining the naval encampment at Pelham Bay Park is in the process of construction. The hospital is to be similar to Base Hospital No. 1 on Gun Hill Road, the Bronx, and will accommodate about 2,000 patients. The hospital is to be used as a general hospital for the United States Navy.

**Support Owen-Dyer Bill.**—The New York State committee of the medical section of the Council of National Defense, of which Dr. George D. Stewart is chairman, is taking active measures to support the legislation recently introduced in Congress aiming to correct the inequitable situation whereby medical officers of the Navy are eligible to more advanced rank that those of the Army, in which a far smaller proportion of medical officers than line officers are eligible for advanced rank. The committee has written a letter to all the medical organizations of the state urging them to send to the New York State senators and representatives in Congress resolutions endorsing this legislation.

**State Board of Drug Control.**—The Whitney drug addiction committee presented its report to the legislature, March 1, recommending the establishment of a board of drug control within the state department of health. The plan presented provides for the appointment of a drug commissioner with such administrative powers as will enable him in cooperation with the federal internal revenue bureau to utilize as far as possible the information obtained by federal agents and inspectors. The drug commissioner is to have power to make rules and regulations for the control of the drug traffic. Under the plan provision will be made for the registration of all dealers in narcotics, as well as physicians and veterinarians, and for the inspection of all institutions treating drug addicts. According to estimates furnished by the committee, from 2 to 5 per cent. of the population of New York City are drug addicts, and a larger percentage is found in smaller cities and rural communities. The committee has also found that the use of narcotics is greatly on the increase.

### New York City

**Medical Unit for Palestine.**—A gift of $100,000 has been announced by the joint distribution committee of the American Jewish Relief Committee for the medical unit of Hadassah, which will leave for Palestine within a few weeks. The British government will cooperate in assuring a safe and speedy transportation of the medical unit.

**Academy Activities.**—At a meeting of the New York Academy of Medicine, to be held, March 13, under the auspices of the public health committee, Dr. James Alexander Miller, who has recently returned from France, will deliver a lecture illustrated by lantern slides, on "Health Conditions in France, and America's Effort to Aid Them."

**Personal.**—Dr. Leo Buerger has been appointed professor of genito-urinary diseases in the New York Polyclinic Medical School and Hospital.——Dr. George Gray Ward, Jr., has been appointed chief surgeon and surgical director of the Woman's Hospital in the State of New York, succeeding Dr. Clement Cleveland, resigned.——Dr. Arthur J. O'Leary has been appointed assistant sanitary superintendent of the department of health for the Bronx.

**More Rockefeller Gifts.**—At its annual meeting, March 1, the Rockefeller Foundation announced that an additional $187,281 has been appropriated for war work. Of this sum $125,000 is for the purpose of continuing the war demonstration hospital of the Rockefeller Institute, $50,000 is for the medical division of the national research council of the Council of National Defense, and $12,281 for other medical war research and relief work. Among the members of the executive committee for the year 1918 are Drs. George E. Vincent and Simon Flexner. Dr. Hermann M. Biggs was elected a member of the international health board of the foundation.

**Diagnostic Laboratories Must Keep Records.**—The department of health has adopted regulations relating to the records to be kept by laboratories offering facilities for the diagnosis of contagious diseases. These regulations require that the person in charge of the laboratory shall cause a record to be kept wherein shall be entered the following information: the laboratory number and date of the receipt of every specimen to be tested to determine the presence of communicable disease, and the result of the laboratory test. The department of health may, at its discretion, require every such laboratory to furnish a statistical report covering a stated period and embodying the foregoing specified information.

## NORTH CAROLINA

**Personal.**—Dr. Franklin H. Lackey, Fallston, is reported seriously ill with septicemia at a hospital in Lincolnton.——Dr. May S. Miles, Greensboro, has been elected president of the Guilford County Medical Society.

**Physicians Found Guilty of Violating State Law.**—It is reported that Drs. William P. S. Webb, Rockingham, and Robert T. Upchurch, Henderson, have been found guilty of violating the state statistics law by failing to report births occurring in their practice.

**Unit O to be Equipped.**—The Mecklenburg County Medical Society and the local chapter of the American Red Cross have undertaken to raise $15,000 to equip Unit O, which recently left Charlotte in command of Major Addison G. Brenizer, for preliminary training.

**Tuberculosis Clinic Opens.**—A free tuberculosis clinic was opened at Charlotte at the city auditorium, January 29, under the auspices of the city health department and the United States Public Health Service. Acting Asst. James A. Keiger, of the United States Public Health Service, is in charge of the clinic, which will be open at 2:30 p. m., Tuesdays and Fridays of each week.

**Standardization of Hospitals.**—A joint session of committees from the Medical Society of the State of North Carolina, and the North Carolina State Nurses' Association met in Greensboro, February 14, to confer on the standardization of the hospitals of the state, and on the possible establishment of a North Carolina Hospital Association as a component of the National Hospital Association. The state society was represented by Dr. Jacob F. Highsmith, Fayetteville; Henry F. Long, Statesville, and Major John T. Burrus, High Point.

## OHIO

**Hospital Notes.**—The Kings Daughters Hospital has been incorporated at Ashland.——Dr. Curtiss Ginn, Dayton, has been named a member of the board of trustees of the Miami Valley Hospital, Dayton, succeeding Dr. Harry E. Palmer.

**Medical Building for Columbus.**—Drs. William D. Inglis, E. H. Ryan, Charles S. Means and Yeatman Wardlow have taken a lease on the property of Dr. Theodore W. Rankin and will erect on this site a building to contain fourteen suites of offices for physicians and dentists.

**New Academy Officers.**—At the annual meeting of the Dayton Academy, January 25, it was voted to continue the organization and the following officers were elected: president, Dr. Howard V. Dutrow; vice president, Dr. Rufus C. Pennywitt; secretary, Dr. Edgar L. Braunlin, and treasurer, Dr. John D. Fouts.

**Dr. King Addresses Academy.**—Dr. F. Truby King, president of the Royal New Zealand Society for the Health of Women and Children, spoke at an open meeting of the Academy of Medicine of Cleveland, held in the council chamber of the city hall, February 8, on "The Responsibility of the Municipality for the Welfare of Its Mothers and Children."

**New Medical College Building Dedicated.**—The new building of the University of Cincinnati College of Medicine was dedicated, February 25, the principal speakers being Major Christian R. Holmes, dean, and Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching. The new medical building was erected and equipped at a total cost of approximately $600,000.

**Enlisted Reserve Corps.**—Dr. F. C. Waite, Cleveland, has been called to Washington, D. C., to assist Major Horace D. Arnold, M. R. C., in the new division of the Surgeon-General's Office, which is to have charge of the medical, dental and veterinary students who, under the selective service act, have been enlisted in the Medical Reserve Corps and placed on the inactive list, pending the completion of their education. Any student who does not make satisfactory progress will be dropped from the reserve list and become eligible for active service. The division is also to have oversight of the schools in which these men are studying and to determine which schools are satisfactorily equipped for professional training.

**Personal.**—Dr. John G. Wishard, Wooster, was elected president of the Union Medical Association of the sixth councillor district at its meeting held in Canton, February 19.——Dr. John E. Sylvester, Wellston, while going over a grade crossing near Wellston in his automobile was struck by a train and suffered a fractured rib and severe injuries and contusions.——Dr. James G. Alcorn, Columbus, who has been doing relief work in Belgium for six months returned to Columbus, February 10.——The residence of Dr. Granville Reynard, Union City, was damaged by fire to the extent of $2,800, February 4.——Dr. Pinckney D. Shriner has been elected president of the Columbus Board of Health.——Dr. Mark D. Godfrey, Columbus, has been appointed district physician to succeed Dr. Michael A. Bartley, deceased.——Dr. Thurman R. Fletcher, Columbus, has been made chief of the state industrial commission, as the successor of Dr. William H. White.——Dr. Dan M. McDonald, chief surgeon of the Firestone Tire and Rubber Company, Akron, has been made medical director of the company.

## PENNSYLVANIA

**Reception to Medical Officers.**—The physicians and nurses at the state hospital, Fountain Springs, held a reception, February 8, in honor of five members who have entered the military service.——The Lackawanna County Medical Society held a patriotic meeting at Scranton, at which a service flag with fifty stars was unfurled.——At a meeting of the Westmoreland County Medical Society at Greensburg, February 5, Dr. Ida E. Blackburn presented a service flag in recognition of the forty members who have gone into the military service.

**Personal.**—Dr. George H. Seaks, Gettysburg, had a narrow escape from drowning, February 20, while crossing a flooded creek in his automobile.——Dr. Lucius M. Elsinger, Scranton, has been made physician of the Lackawanna County Jail, succeeding Dr. Samuel P. Longstreet, resigned.——Dr. Roger P. Batchelor has assumed his duties as superintendent of the Palmerton Hospital, succeeding the late Dr. John W. Luther.——Lieut. George S. Condit, who was recently wounded in France, has returned to his home in Warren, invalided.

### Philadelphia

**Personal.**—Police Surg. Leon F. Luburg, while on his way to answer a sick call, discovered a fire in a building on Vine Street, and roused the occupants, who escaped without casualty.——Dr. Francis L. Hughes heads the eligible list for the position of supervising medical inspector of the bureau of health.

**Course in Neurologic Surgery at Philadelphia.**—A third course in neurologic surgery for medical reserve officers to be given under direction of the Surgeon-General's Office has been started in Philadelphia, and is now being conducted at the Jefferson, Philadelphia General and University hospitals. It covers ten weeks, with thirty-one hours of work a week, and includes demonstrations, lectures, clinics and quizzes. Operative clinics are held eight hours a week at the University and Jefferson Hospitals, and special lectures by authorities from other cities are arranged for from time to time. The teaching staff includes Drs. Charles W. Burr, John Chalmers DaCosta, John B. Deaver, G. M. Dorrance, E. L. Eliason, George Fetterolf, Lewis Fisher, Charles H. Frazier, T. B. Holloway, Chevalier Jackson, John A. Kolmer, Paul A. Lewis, James H. Lloyd, S. DeW. Ludlum, D. J. McCarthy, J. W. McConnell, R. Tait McKenzie, Charles K. Mills, George P. Muller, H. K. Pancoast, George A. Piersol, Charles S. Potts, William C. Posey, B. Alexander Randall, William G. Spiller, B. A. Thomas, T. T. Thomas, T. H. Weisenburg, Andrew H. Woods, William Zentmayer, Majors Thomas Johnson and George M. Piersol, and Capt. Laurence Selling, Portland, Ore. Among the student officers are Majors Lomax Gwathmey, Norfolk, Va.; Robert M. Howard, Oklahoma City, and Carl W. Ney, New Orleans; Capts. F. W. Brodrick, Sterling, Ill.; Andrew F. McBride, Paterson, N. J.; George E. Maurer, New York City; Robert A. Noble, Bloomington, Ill.; Grover C. Penberthy, Detroit; Joseph E. Pirrung, Cincinnati; John W. Price, Jr., Louisville, Ky.; Jacob H. Shuford, Hickory, N. C.; Walter B. Turner, Youngstown, Ohio; Otto E. Utzinger, Astoria, Ore; Walter E. Whitney, Bangor, Me., and Benjamin F. Zimmerman, Louisville, Ky.; Lieuts. James B. Ayer, Boston; John Alexander, John H. Arnett, Philadelphia; Frank R. Bailey, Pittsburgh; Robin C. Buerki, Madison, Wis.; William C. Chaney, Chaney, Md.; Thomas A. Clay, Paterson, N. J.; Leo J. Dretzka, Detroit; Lonnie M. Grove, Tuscaloosa, Ala.; Carl B. Hudson, Boston; Tom R. Knowles, Colorado Springs, Colo.; L. H. Landon, Pittsburgh; E. H. Lenderman, Wilmington, Del.; Horace P. Routh, Little Rock, Ark., and Samuel B. Sturgis, Lenoir, N. C.

The director of the School of Neurological Surgery is Dr. Charles H. Frazier, and the adjutant is Capt. Thomas M. Joyce, Portland, Ore. Its headquarters are located at the University Hospital.

## CANADA

**Personal.**—Lieut.-Col. Kenneth Douglas Panton, formerly city physician of Vancouver, B. C., who went to France with one of the earliest contingents from British Columbia, served for some time in field ambulance work, and then in base hospitals and was later placed in charge of Canadian General Hospital No. 5, Saloniki, has been sent to England in charge of Canadian General Hospital No. 14, Meads, Eastbourne.

## GENERAL

**Tuberculosis Congress Founder Dies.**—Clark Bell, president of the Medico-Legal Society of New York for sixteen terms, and for the last twenty-five years editor and publisher of the *Medico-Legal Journal;* the founder of the American Congress on Tuberculosis, died suddenly in the Union League Club, New York City, February 22, from heart disease.

**Hospital Treatment of Seamen.**—By a bill which passed the Senate, February 5, seamen on all vessels belonging to and used in the service of the United States or any department or branch thereof, whose care and medical treatment are not otherwise provided for by the government, shall be entitled to such privileges of care and treatment as are now accorded to the seamen on documented vessels of the United States.

**Tri-State Physicians Meet.**—The annual meeting of the Tri-State Medical Society of Virginia and the Carolinas was held in Charleston, S. C., February 20 and 21, and the following officers were elected: president, Dr. Robert S. Cathcart, Charleston, S. C.; vice presidents, Drs. Douglas Vanderhoof, Richmond, Va.; Lester A. Crowell, Lincolnton, N. C., and Francis A. Coward, Columbia, S. C., and secretary-treasurer, Dr. Rolfe E. Hughes, Laurens, S. C., reelected for a sixteenth term. Richmond was selected as the place of meeting for 1919.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Mt. Sinai Hospital, Montefiore Home, Hebrew Orphan Asylum and Stony Wald Sanatorium, New York City, each $1,000; Hospital for Deformities and Joint Diseases, and Society for the Relief of Cripples, New York, each $500, by the will of Rosalie Kaufman.

St. Rose's Home for Consumptives, and Molly Fancher Memorial for Cripples, New York City, each $1,000, by the will of Florence Starr.

Society for the Relief of Respectable Aged Women and Baptist Home Society, Newark, N. J., each $12,500 by the will of Aula S. Bailey.

Hygienic Institute, La Salle, Ill., $350,000 by the will of F. W. Matthiessen, LaSalle.

St. Elizabeth's Hospital, Dayton, O., $3,000 by the will of Mrs. Emily Plattfaut.

For an antituberculosis camp for negroes in Louisiana, a donation of $1,000 by Miss Kate Gordon.

## FOREIGN

**Scotch Physician Dies.**—Dr. Elsie Maude Ingles, L.R.C.P. (Edin.), L.F.P.S. (Glas.), 1892; M.B.C.M. (Edin.), 1899; head of the Scottish hospital in Serbia, died recently in England as a result of hardships sustained in line of duty with the Serbian troops.

**Retirement of Luciani.**—Professor Luigi Luciani, of the chair of physiology at the University of Rome, retires this semester, having reached the age limit. He has been a member of the senate, of the national board of public instruction, and of many scientific societies. The Neurologic Society of London elected him to the place left vacant by the death of Brown-Sequard. His main fields of research have been the topography of the cerebellum and other parts of the brain, and the physiology of alimentation.

**Cortezo Elected to Spanish Academy.**—The editor of the *Siglo Medico* of Madrid, C. M. Cortezo, who has filled many high public positions, was recently elected a member of the national academy which has charge of the Spanish language, the Real Academia Española de Lengua. This is regarded as a tribute to the medical profession in general and also to the medical press as well as to Cortezo himself. In Spain and France, spelling and pronunciation are not left to individual initiative, but are decided by the official board, the language academy.

**Osiris Prize to Be Awarded in 1918.**—The Institut de France has decided to award the Osiris prize, representing about $20,000 (100,000 francs) to the author of the most remarkable discovery or work in the sciences, belles lettres, arts or industry, in other words, everything that touches the interests of the public. Since this prize was established by the Paris philanthropist, Osiris, it has been given to Roux, of the Pasteur Institute, for his work on diphtheria antitoxin, to Albert Sorel, to Blériot and Voisin for their contributions to the science of aviation, and, the last time, it was divided among Widal, Chantemesse and Vincent for their work on vaccination against typhoid.

**Deaths in the Profession Abroad.**—**J. S. Cameron** of Leeds, England, aged 73, a pioneer in public health work.——**T. F. Ricketts** of London, aged 54, whose profusely illustrated "Diagnosis of Smallpox," based on fifteen years of study, threw much light on that previously dark field.——**Sir George H. Philipson,** aged 82, professor of medicine for fifty years at the College of Medicine, Newcastle-on-Tyne, and vice chancellor of the University of Durham. In 1893 he was president of the British Medical Association.——**E. Bozzi,** professor of surgical pathology at the University of Genoa, aged 54, author of important works on the liver and kidneys.——**G. Weiss,** professor of general pathology at the University of Messina.——**G. A. Petrone,** aged 44, instructor in pediatrics at the University of Naples.

## PARIS LETTER

Paris, Feb. 7, 1918.

### Mechanism of Shock

At one of the recent meetings of the Academy of Sciences, Dr. Marage discussed the grave phenomena observed among soldiers as the result of the explosion of large shells. He said that while there was no apparent lesion, the wounded presented the following symptoms, all of which might be present in any one patient: loss of memory, of equilibrium, of vision, of hearing and of speech. These symptoms disappear gradually in from six to eight weeks, or they may persist for years, and unless treated, they may become permanent. Marage explains these symptoms as being due to the effects produced by the high explosives employed in this war. It is known that the velocity of the sound wave is 333 meters per second under the atmospheric pressure; but in the neighborhood of an exploding shell the speed of the shock wave may be as great as 2,000 meters per second, a velocity happily attenuated very quickly, for even at 60 meters the velocity becomes merely that of sound. But in that danger zone of 60 meters, the pressure is increased as high, even, as 200 kilograms to the square centimeter, but this pressure lasts only 1 or 2 hundredths of a second. Furthermore, in the danger zone the increase of pressure is not uniform, and in the zone of action there may be dead sectors. The intensity of these zones of action is unequal, being stronger toward the sides than toward the front and rear. This explains why soldiers in the same zone present extremely variable central lesions. Under the influence of this enormous increase in pressure, the blood is forcibly driven toward the center, hence toward the brain. This sudden tidal wave of blood would be always fatal if the capillaries by their resistance did not check it somewhat. Marage concludes from this that it is not by any means always the middle ear which is the cause of war deafness, but that the whole body surface is responsible. The ear protectors are very useful in certain cases, but unfortunately they do not protect against this kind of deafness.

### Extraction of a Machine Gun Bullet from the Wall of the Heart

Dr. Hartmann, professeur de clinique chirurgicale à la Faculté de médecine and chirurgien des hôpitaux, recently reported to the Academy of Medicine a new case of a projectile embedded in the wall of the heart and which was extracted successfully. This foreign body gave rise to the following alarming symptoms: precordial pain, palpitation, and arrest of the heart action with the sensation of imminent death, all these symptoms occurring especially during the night. Roentgenoscopy showed a bullet lodged in the wall of the right ventricle. Two ribs were resected, the pleura and pericardium were opened and the projectile was extracted. Immediately all of the symptoms disappeared and the patient made a very speedy recovery with only a slight increase in frequency of the pulse, 80 to 90 per minute.

### Resignation of Monsieur Justin Godart

Monsieur Godart, the undersecretary of state for the army medical department, recently presented his resignation to the Chamber of Deputies as the result of an interpellation. He had been summoned to explain the case of a soldier who was illegally acting as a medical officer. Monsieur Godart requested a postponement of the case until the investigation under way at the time by the war department had been concluded, but the Chamber would not accede to this request and, therefore, Monsieur Godart felt obliged to resign. The cabinet designated as his successor Dr. Mourier, deputy from the department of the Gard.

### Medical Victim of an Aerial Bombardment in Paris

Among the many victims of the bombardment of Paris during the night of January 30-31 by German aviators, was Dr. Salmon, formerly member of the Paris City Council. Dr. Salmon was just leaving his house with the intention of going to the assistance of the wounded. He had just stepped across the threshold when the concussion from the explosion of a bomb falling in the vicinity wrecked the door and threw it on the doctor who was partly crushed. He was conveyed to a hospital at once but died on arriving there.

### The Bread Card

As stated in a previous letter, a bread card has been instituted. This food restriction was only intended to be observed up to Jan. 29, 1918, but the daily ration has now been diminished. It is henceforth fixed at 300 gm. per person without distinction of sex, age, profession or financial standing. The new régime is applicable to Paris and all of the communities situated within a radius of 25 kilometers. After March 1, the regulation will become national in scope.

### Foundation of Medical School in French Africa

The Official Journal has published a decree providing for the foundation of a medical school for French Africa at Dakar. This school will be under the authority of the director of the Service de Santé, inspector general of the sanitary and medical services of French West Africa, and will have for its mission the training of native physicians and midwives. The construction and organization of this school shall be, according to the decree, undertaken at once by the governor general so that the necessary funds will be forthcoming as provided for by this law.

### Death of Dr. César Allemand

We are advised of the death of Dr. César Allemand, formerly senator of the department of the Basses-Alpes. The doctor was 71 years of age.

## LONDON LETTER

London, Feb. 5, 1918.

### Mobilization of the Medical Profession in New Zealand

The New Zealand Branch of the British Medical Association is asking for a mobilization of the whole medical profession, including every member on the register. In view of the fact that the requirements of the military authority are depleting the ranks of the civil profession, it is suggested that the advisory board should have control in a military sense over every physician. When medical officers are required for the army medical corps, or physicians are needed for civil practice, the minister for defense or the minister for public health, as the case might be, would apply to the advisory board for the number of physicians needed. The government would render itself liable for the remuneration, not only of those taken for military service, but also for those sent to districts in the dominion in need of a physician. It is requested that an income of $3,000 a year with $1,250 a year for motor car, drugs and other expenses should be guaranteed. If the physician earned this sum, no claim would be made from the government.

### Refusal of Direct Representation of the Medical Corps on the Army Council

It may be remembered that the late director-general of the army medical service, Sir Alfred Keogh, advocated in vain the representation on the army council of the army medical corps. In the House of Commons, Major D. Davies has asked whether in view of the resignation of Sir Alfred Keogh and the appointment of his successor, the secretary of state for war was now prepared to reconsider the question of direct representation on the army council of the Royal Army

Medical Corps, thus raising the status of the army medical service to the position accorded to it in the military organization of our allies. The undersecretary of state for war replied that it is not intended to place the director-general of the army medical service on the army council; but whenever matters affecting medical organization or administration are before the council, the director-general will be called in to give the council the benefit of his advice.

### Call for Medical Students

The deans of the leading hospitals have summoned meetings of medical students to put before them the request from the authorities of an additional 400 students every six months for service with the army and navy. Those required are "fourth-year men," who are to act as surgeon probationers. The students, many of them who wish to serve, point out, however, that the interruption of their studies would throw them back greatly—a consideration when parents are struggling professional men—but it is hinted that should the necessary quota not be forthcoming, the authorities will conscript the men who hold back.

### Increase of Medical Fees

The increased cost of living, which as regards the necessities of life is doubled, has led physicians in various parts of the country, but not universally, to increase their fees. The physicians of Wimbledon, an important London suburb, have unanimously agreed that, owing to the increased cost of living and the still greater increase in the cost of conducting medical practices, there shall be a general increase in the fees charged for professional attendance and consultations, such increase to be subject to variation or remission in individual cases in which some good reason is shown. When messages arrive after a physician has left home and these entail inconvenience to other patients by compelling physicians to postpone or break appointments, it has been agreed to charge an extra fee for the special visit.

### Henry Maudsley

Henry Maudsley, M.D., Lond., F.R.C.P., Lond., LL.D., Edin., a foremost writer on the physiology and pathology of the mind, has died in his eighty-third year. One of his first appointments was that of resident physician to the Manchester Royal Lunatic Hospital in 1859. In 1864 he came to London and was appointed physician to the West London Hospital, and in 1869 professor of medical jurisprudence at University College. From an early period he devoted himself to literary work, and in 1862 became editor of *Mental Science*. His first important publication was his Goulstonian Lectures on the "Relations Between Body and Mind, and Between Mental and Other Diseases of the Nervous System." Other works followed which soon became standard: "Responsibility in Mental Disease" (1874), "Physiology of Mind" (1876), "Pathology of Mind" (1879), "Body and Will" (1883), "Natural Causes and Supernatural Seemings" (1887), "Life in Mind and Conduct" (1902), "Studies of Organic and Human Nature" (1903), and "Heredity, Variation and Genius" (1908). He was not only a great alienist, but also a philosopher who took a leading part in the controversy between "materialists" and "vitalists" or "spiritualists." His views were certainly materialistic. They are well summed up in his own words: "Recognizing the unity of body and mind, and viewing mind in its moral manifestations as the supreme and, so to speak, sublimated expression of vital function, it plainly appears that the study of its unsound manifestations can only become fruitful by means of a thorough and complete observation of all the bodily functions and of all their manifold disorders." Seeing the great want of a hospital for the early treatment of mental disease, he founded one in London by the munificent donation of $150,000. When the war broke out, this hospital was hastily completed. It is now used as a military hospital for the treatment of war psychoses and neuroses.

### Science in the War

The staff of the Natural History Museum has been of assistance to various public departments in connection with the war. The following are examples of some of the questions which its members have been asked to answer: (1) nature of some organisms which caused blocking up of certain sea-water pipes; (2) as to some mite-infested oats at the front; (3) application of a remedy for the rice weevil in connection with the disease of beriberi; (4) as to methods of destruction of bedbugs; (5) the identification of specimens of larvae found in drinking water; (6) nature of wood used in the construction of a propeller of a Zeppelin brought down in this country; (7) inquiries as to certain wood stated to possess luminous properties; (8) questions arising out of the Canadian commission to consider the alleged depredations of sea lions on the Pacific coasts of North America, in connection with the fishing and canning industries; (9) identification of certain animal forms of tinned food, such as Pacific lobsters, sardines or sprats; (10) the identification of poisonous fishes in the West Indies; (11) the sponge fishery in the West Indies, and (12) the introduction of reindeer and other animals into South Georgia.

## Association News

### HOTEL HEADQUARTERS FOR THE CHICAGO SESSION

The following hotels have been tentatively designated as general and section headquarters for the Chicago Session, June 10 to 14:

General Headquarters: Hotel Sherman, North Clark and West Randolph.

Practice of Medicine: Hotel Morrison, 83 West Madison.

Surgery, General and Abdominal: Auditorium Hotel, 430 South Michigan.

Obstetrics, Gynecology and Abdominal Surgery: Congress Hotel, South Michigan and Congress.

Ophthalmology: Hotel LaSalle, LaSalle and West Madison.

Laryngology, Otology and Rhinology: Hotel LaSalle, LaSalle and West Madison.

Diseases of Children: Congress Hotel, South Michigan and Congress.

Pharmacology and Therapeutics: Auditorium Hotel, 430 South Michigan.

Pathology and Physiology: Auditorium Hotel, 430 South Michigan.

Stomatology: Congress Hotel, South Michigan and Congress.

Nervous and Mental Diseases: Blackstone Hotel, South Michigan and East Seventh.

Dermatology: Blackstone Hotel, South Michigan and East Seventh.

Preventive Medicine and Public Health: Auditorium Hotel, 430 South Michigan.

Genito-Urinary Diseases: Auditorium Hotel, 430 South Michigan.

Orthopedic Surgery: Congress Hotel, South Michigan and Congress.

Gastro-Enterology and Proctology: Auditorium Hotel, 430 South Michigan.

Scientific Exhibit, Registration Bureau, Commercial Exhibit, Information Bureau, and Branch Post-office: Hotel Sherman, North Clark and West Randolph.

## Marriages

Lieut. Harold Wilson, M. R. C., U. S. Army, Conneaut, Ohio, on duty at Camp Sherman, Chillicothe, Ohio, to Miss Maude Kerr of Greenfield, Ohio, at Hillsboro, Ohio, February 9.

Lieut. Benjamin Walter Provost, M. C., U. S. Army Peru, Ill., on duty in Washington, D. C., to Miss Katherine Bell Conway of Peru, Ill., in Springfield, Mass., February 12.

Major Joseph Gamewell Evans, M. R. C., U. S. Army, Los Angeles, on duty at Fort Lawton, Seattle, to Miss Mildred Marion Hunter of Tracy, Minn., at Seattle, February 14.

Howard Jackson Simmons, M.D., Blackfoot, Idaho, to Miss Hannah B. Lyon of Pocatello, Idaho, at Idaho Falls, Idaho, February 12.

Maxwell Kaufman, M.D., Brooklyn, to Miss Celia Pearl Buchner of the Bronx, New York City, February 15.

Joseph A. McGinnis, M.D., to Miss Monica G. Bolger, both of Germantown, Philadelphia, February 12.

Henry Keller Mohler, M.D., to Miss Nellie Whitely, both of Philadelphia, February 21.

Samuel Dickson Barr, M.D., to Miss Julia P. Hughes, both of Boston, recently.

# Deaths

**William Scott Kendrick, M.D.,** Atlanta, Ga.; Atlanta (Ga.) Medical College, 1874; aged 75; formerly a Fellow of the American Medical Association; a member of the Medical Association of Georgia; senior professor of medicine in his alma mater; medical director of the Southern State Life Insurance Company; from 1891 to 1895 dean and professor of physical diagnosis and clinical medicine in the Atlanta Medical College; later instrumental in the consolidation of the Atlanta Medical College and the Southern Medical College as the Atlanta College of Physicians and Surgeons in 1895, and in the consolidation of the Atlanta College of Physicians and Surgeons and the Atlanta School of Medicine in 1913, as the Atlanta Medical College; died at his home, February 22.

**Col. William Jerome Cronyn, M.D., M. C., Wis. N. G.,** Milwaukee, Wis.; University of Buffalo, N. Y., 1870; aged 69; formerly a fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; formerly professor of forensic medicine and military hygiene in Milwaukee Medical College; a veteran of the Civil War; surgeon-general of the Grand Army of the Republic for New York State in 1885; for three years acting assistant surgeon in the United States Navy; formerly a member of the Dunkirk (N. Y.) Board of Education, common council and board of health; chief of the consulting staff of Milwaukee Hospital; died at his home, February 20.

**William J. Whelan, M.D.,** Youngstown, Ohio; Northwestern University Medical School, Chicago, 1867; College of Physicians and Surgeons in the City of New York, 1875; aged 74; surgeon of U. S. Volunteers during the Civil War; one of the founders of the Youngstown City Hospital, and the last surviving member of the original staff; one of the organizers and an honorary member of the Mahoning County Medical Society; died at his home, February 19, from cardiac asthma.

**Conrad Diehl, M.D.,** Buffalo; University of Buffalo, N. Y., 1866; aged 74; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; coroner of Erie County in 1868; mayor of Buffalo from 1897 to 1902; from 1870 to 1878 major-surgeon of the Sixty-Fifth Infantry, N. G., S. N. Y.; also a druggist; died at his home, February 20, from the effects of a fall on a slippery sidewalk a week before.

**Anthony George Baker, M.D.,** Philadelphia; Jefferson Medical College, 1887; aged 69; a member of the Medical Society of the State of Pennsylvania; a specialist in pediatrics; physician-in-chief of the Chinese Medical Dispensary, Philadelphia, since 1897; a clergyman of the Presbyterian Church from 1873 to 1877, and of the Protestant Episcopal Church from 1878 to 1887; died at his home, February 17, from pneumonia.

Died in the Service

Capt. Milton Jay Lichty, M.D., M. R. C., U. S. Army, 1870-1918

*(See The Journal, Feb. 23, p. 556)*

**James G. Riddick, M.D.,** Norfolk, Va.; College of Physicians and Surgeons, Baltimore, 1883; aged 56; formerly a member of the Medical Society of Virginia; for ten years mayor of Norfolk; for twelve years health officer, and at the time of his death city sergeant; died at his home, February 15. At a called meeting of the Norfolk Medical Society, resolutions of sympathy and regret were unaminously adopted.

**David Warman, M.D.,** Trenton, N. J.; Bellevue Hospital Medical College, 1862; aged 81; acting assistant surgeon, U. S. Army, during the Civil War; formerly a Fellow of the American Medical Association; one of the founders, manager and vice president of the Children's Home Society of New Jersey, and a member of the state charities aid; died at the home of his daughter at Allenhurst, N. J., February 5.

**Daniel Joseph Sheehan, M.D.,** Spring Valley, N. Y.; Bellevue Hospital Medical College, 1884; aged 57; a Fellow of the American Medical Association; from 1899 to 1904 a member of the staff of the New York Board of Health; physician in charge of the Catholic Orphanage, Nanuet; visiting physician to St. Vincent's and St. Agatha's Home; died at his home, February 21, from pneumonia.

**Edwin I. Harrington, M.D.,** Yonkers, N. Y.; Jefferson Medical College, 1881; aged 60; a Fellow of the American Medical Association; formerly president of the Jenkins Medical Society of West Chester County, and health commissioner of Yonkers; consulting surgeon to St. Joseph's Hospital, and consulting physician to the Home for the Aged, Yonkers; died at his home, February 23.

**Alexander Dunlap Hagadorn, M.D.,** Lansing, Mich.; University of Michigan, Ann Arbor, 1871; aged 74; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; formerly president of the Bingham County Medical Society and health officer of Lansing; died at his winter home in St. Cloud, Fla., February 11.

**Edward W. Heim, M.D.,** Buffalo; University of Buffalo, N. Y., 1900; aged 40; a member of the Medical Society of the State of New York; who sustained a fracture of the skull and crushing injuries of the chest in a collision between his automobile and a street car, February 16; died a few hours later from his injuries at the Sisters' Hospital, Buffalo.

**George Henry Lathrop, M.D.,** Livingston Manor, N. Y.; Bellevue Hospital Medical College, 1875; aged 69; president of the Sullivan County (N. Y.) Medical Society in 1878; also a pharmacist; local surgeon of the New York, Ontario and Western Railroad; for several years town health officer; died at his home, February 15, from pneumonia.

**Harry Madison Cutts, M.D.,** Brookline, Mass.; Harvard Medical School, 1883; aged 59; a Fellow of the American Medical Association; Medical Examiner (coroner) of Norfolk County since 1898; president of the Norfolk District Medical Society; surgeon to the Naval Brigade, M. V. M.; died at his home, February 21, from pneumonia.

**LeRoy Allan Newton, M.D.,** Seattle; University of Pennsylvania, Philadelphia, 1895; aged 54; a Fellow of the American Medical Association; for many years a practitioner of Greenfield, Mass.; formerly chairman of the Greenfield Board of Health and a member of the Franklin County Public Hospital; died at his home, February 14.

**Augustus P. Taylor, M.D.,** Thomasville, Ga.; New York University, New York City, 1870; aged 68; a member of the Medical Association of Georgia; chairman of the city board of health; for many years physician to the Thomasville City Hospital; a member of the state board of health since 1903; died at his home, February 16.

**Charles Gustavus McManaway, M.D.,** Charlotte, N. C.; Kentucky School of Medicine, 1883; aged 60; formerly a member of the Medical Society of the State of North Carolina; for a quarter of a century a practitioner of Charlotte, and for several years a member of the board of aldermen; died at his home, February 15.

**Arthur Julius Holmquist, M.D.,** Denver; Denver College of Medicine, 1897; aged 45; formerly first lieutenant, M. R. C., U. S. Army, and on duty at Fort Riley, Kan.; died at his home in Globeville, Denver, February 13, from the effect of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

**Edward J. Norman, M.D.,** Eureka, Kan.; University Medical College of Kansas City, Mo., 1897; aged 44; formerly a Fellow of the American Medical Association; while driving in his automobile over a grade crossing near Eureka, Februray 18, was struck by a train, and died from his injuries four hours later.

**Antranig Ayvazian, M.D.,** New York City; New York University, New York City, 1887; aged 66; a Fellow of the American Medical Association; medical inspector of the health department of the city of New York since 1887; died in the Polyclinic Hospital, New York City, February 13, from pneumonia.

**Elbert P. Tibbals, M.D.,** Port Huron, Mich.; College of Physicians and Surgeons in the City of New York, 1864; aged 75; formerly a member of the Michigan State Medical Society; for many years parliament physician to the Prudent Patricians of Pompeii; also a druggist; died at his home, February 14.

**Edward Page, M.D.,** Boston; Harvard Medical School, 1870; aged 91; a graduate of the first dental class of Harvard University; first president of the Harvard Dental Association; treasurer of the Massachusetts Dental Society for twenty years; died in the Home for Aged Men, Boston, February 9.

**Frederick Childs Jones, M.D.,** Basking Ridge, N. J.; College of Physicians and Surgeons in the City of New York, 1877; aged 63; a Fellow of the American Medical Association, and president of the Somerset County (N. J.) Medical Society in 1916; died at his home, February 8, from pleuropneumonia.

**John MacLeod Martin, M.D.,** Boston; McGill University, Montreal, 1889; aged 58; a Fellow of the American Medical Association; F.R.C.S. (Lond.), L.R.C.P. (Lond.); professor of clinical medicine in the College of Physicians and Surgeons, Boston; died at his home in Roxbury, Boston, February 10.

**George R. Ogden, M.D.,** Grafton, W. Va.; Louisville and Hospital Medical College, Louisville, Ky., 1908; aged 53; formerly a Fellow of the American Medical Association; a member of the West Virginia State Medical Association; died in St. Mary's Hospital, Clarksburg, W. Va., February 16.

**Lieut. Alexander Cooke Butcher, M.D., M. R. C., U. S. Army,** Philadelphia; Medico-Chirurgical College of Philadelphia, 1891; on duty at Camp Lee, Georgia, formerly assistant medical inspector of the Philadelphia Bureau of Health; assigned to school work; died at his home, February 22.

**Albert Homer Burket, M.D.,** McKee's Rocks, Pa.; Miami Medical College, Cincinnati, 1877; aged 70; a member of the Medical Society of the State of Pennsylvania; for forty years a member of the Allegheny County Medical Society; died at his home, February 12, from senile debility.

**Elbridge H. King, M.D.,** Muscatine, Iowa; Detroit Medical College, 1870; aged 74; a Fellow of the American Medical Association; a veteran of the Civil War; local surgeon of the Chicago, Milwaukee and St. Paul system; died at his home, February 14, from lobar pneumonia.

**Arthur Barrett Eustace, M.D.,** Chicago; Northwestern University Medical School, Chicago, 1907; aged 32; formerly a Fellow of the American Medical Association, and instructor in surgery in his alma mater; died in Phoenix, Ariz., February 19, from tuberculosis.

**James Oliver, M.D.,** Athol, Mass.; Harvard Medical School, 1862; aged 81; a veteran of the Civil War; for five years representative in the legislature from the Athol District; for many years district medical examiner (coroner); died at his home, February 8.

**John C. McGillivray,** Denver (license, Colorado, 1889); aged 53; a member of the Colorado State Medical Society; for sixteen years police surgeon of Denver, and formerly assistant health commissioner; died at his home, February 11, from erysipelas.

**Isaac Howard Davis, M.D.,** Baltimore; University of Maryland, Baltimore, 1885; aged 58; a dentist and for many years professor of operative dentistry in his alma mater; died at his home in Roland Park near Baltimore, February 8, from pneumonia.

**George Mortimer Hill, M.D.,** Chicago; Hahnemann Medical College, Chicago, 1897; aged 46; professor of theory and practice of medicine in his alma mater; died in his apartment in the Hyde Park Hotel, February 10, from heart disease.

**Charles R. Gough, M.D.,** Wausau, Wis.; Marquette University, Milwaukee, 1913; aged 31; a Fellow of the American Medical Association; died in St. Mary's Hospital, Wausau, February 10, from paralysis following quinsy.

**George C. Chaney, M.D.,** Independence, Kan.; Eclectic Medical Institute, Cincinnati, 1877; aged 72; twice mayor of Independence; a veteran of the Civil War; also a pharmacist; died at his home, February 4, from lobar pneumonia.

**Grant Thomas Johnson, M.D.,** Wamego, Kan.; Kansas City (Mo.) Medical College, 1893; aged 54; formerly a member of the Kansas Medical Society; died in St. Francis' Hospital, Topeka, February 13, from pneumonia.

**William Earland Robinson, M.D.,** Oelwein, Iowa; State University of Iowa, Iowa City, 1893; aged 51; a member of the Iowa State Medical Society; at one time coroner of Fayette County; died at his home, February 14.

**Henry F. Fullerton, M.D.,** Buffalo; University of Buffalo, N. Y., 1875; aged 84; for nearly fifty years principal of Grammar School No. 16, Buffalo; never a practitioner of medicine; died at his home, February 13.

**Anton John Jindra, M.D.,** Chicago; Northwestern University Medical School, 1917; aged 24; an intern in Cook County Hospital; was shot and killed, February 15, by a woman to whom he is said to have been engaged.

**William David Craig, M.D.,** Henderson, Iowa; State University of Iowa, Iowa City, 1894; aged 51; a Fellow of the American Medical Association; died in Immanuel Hospital, Omaha, February 11, from uremia.

**Joseph E. Lowery, M.D.,** Homer, Ill.; Drake University, Des Moines, Iowa, 1885; aged 56; formerly a Fellow of the American Medical Association; died at his home, November 18, from cerebral hemorrhage.

**Lorenzo F. Scofield, M.D.,** New Philadelphia, Ohio; Starling Medical College, 1881; aged 64; for many years a practitioner of Columbus, Ohio; died at his home, February 12, from cerebral hemorrhage.

**Edward Manning Skinner, M.D.,** Boston; Harvard Medical School, 1862; aged 80; a member of the Massachusetts Medical Society; died at the home of his daughter in Chestnut Hill, Boston, February 8.

**John H. MacCallum, M.D.,** Rochester, N. Y.; Pulte Medical College, Cincinnati, 1889; aged 57; was stricken with heart disease and died while making a professional call in Rochester, February 10.

**James G. Williamson, Jr., M.D.** Columbia, Tenn.; Vanderbilt University, Nashville, Tenn., 1909; aged 32; a Fellow of the American Medical Association; died in Asheville, N. C., February 6.

**John A. Hagerman, M.D.,** Sciota, Pa.; University of Pennsylvania, Philadelphia, 1878; aged 67; a Fellow of the American Medical Association; died at his home, January 27, from pneumonia.

**George Washington Hammond, M.D.,** Franklin, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1890; died at his home, February 6, from pneumonia.

**Pliny W. Barber, M.D.,** Newark, N. J.; Hospital College of Medicine, Louisville, Ky., 1875; aged 63; district physician of the eighth district; died at his home, January 15.

**Anna M. Dalrymple McCullough, M.D.,** Philadelphia; Women's Medical College of Philadelphia, 1883; died at the home of her daughter in Germantown, February 10.

**Daniel Denison Whedon, M.D.,** San Diego, Calif.; Long Island College Hospital, Brooklyn, 1905; aged 39; died at his home, February 5, from cerebral hemorrhage.

**Howard Jackson Powelson, M.D.,** Middletown, N. Y.; Hahnemann Medical College, Philadelphia, 1895; aged 43; died at his home, February 5, from pneumonia.

**Ella Eliza Severance, M.D.,** Camden, N. J.; Boston University, 1901; aged 60; died at the West Jersey Homeopathic Hospital, Camden, N. J., February 8.

**Wenzel Majeski, M.D.,** Chicago; Bennett Medical College, Chicago, 1881; aged 73; died in the Alexian Brothers' Hospital, Chicago, February 1.

**A. A. Shobe, M.D.,** Jerseyville, Ill.; Missouri Medical College, St. Louis, 1869; aged 69; died at his home, December 5, from cirrhosis of the liver.

**Todd J. Wilson, M.D.,** Palmer, Mich.; University of Illinois, Chicago, 1913; aged 34; died at his home in Red Ridge, Mich., February 1.

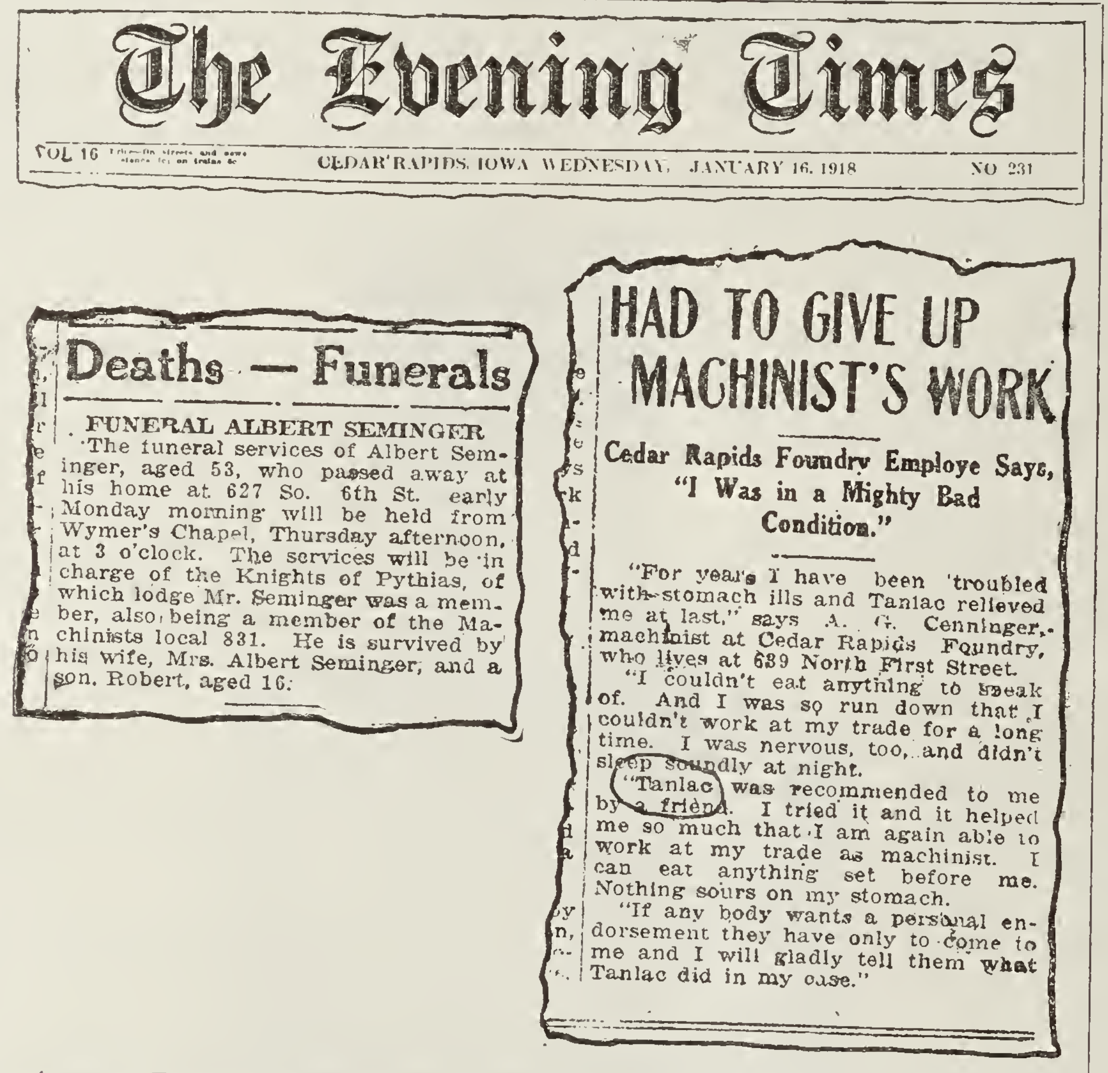
**Vincent C. Bidgood, M.D.,** Churchland, Va.; University of Virginia, Charlottesville, 1881; died at his home, February 5.

# The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## SOME MISBRANDED NOSTRUMS

**Hayssen's Goitre Cure.**—Minnie D. Hayssen trading as H. H. Hayssen Co., Chunchula, Ala., exploited two nostrums, a "Sure Goitre Cure Balsam" and a "Sure Goitre Cure Ointment." The products were declared misbranded by the federal authorities. Analysis showed that the "Balsam" was a solution of potassium iodid and sugar in alcohol and water with about 12 per cent. alcohol, 5.41 per cent. potassium iodid and nearly 50 per cent. sugar. It was sold as a permanent and sure cure of all obstinate cases of goitre. These claims the government declared were false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. The "Ointment" was found to be composed chiefly of petrolatum ("vaseline") and potassium iodid containing about 10.7 per cent. of the potassium salt. Practically the same claims were made for the "Ointment" as for the "Balsam" and in each case the purchaser was recommended to use both the preparations at the same time. Minnie D. Hayssen pleaded guilty and was fined $25.—[*Notice of Judgment, No. 4551.*]



The Evening Times

VOL 16 CEDAR RAPIDS, IOWA WEDNESDAY, JANUARY 16, 1918 NO 231

Deaths — Funerals

FUNERAL ALBERT SEMINGER

The funeral services of Albert Seminger, aged 53, who passed away at his home at 627 So. 6th St. early Monday morning will be held from Wymer's Chapel, Thursday afternoon, at 3 o'clock. The services will be in charge of the Knights of Pythias, of which lodge Mr. Seminger was a member, also being a member of the Machinists local 831. He is survived by his wife, Mrs. Albert Seminger, and a son, Robert, aged 16.

HAD TO GIVE UP MACHINIST'S WORK

Cedar Rapids Foundry Employe Says, "I Was in a Mighty Bad Condition."

"For years I have been troubled with stomach ills and Tanlac relieved me at last," says A. G. Cenninger, machinist at Cedar Rapids Foundry, who lives at 639 North First Street.

"I couldn't eat anything to speak of. And I was so run down that I couldn't work at my trade for a long time. I was nervous, too, and didn't sleep soundly at night.

"Tanlac was recommended to me by a friend. I tried it and it helped me so much that I am again able to work at my trade as machinist. I can eat anything set before me. Nothing sours on my stomach.

"If any body wants a personal endorsement they have only to come to me and I will gladly tell them what Tanlac did in my case."

Another Tanlac Testimonial from the Grave.—The testimonial and death notice appeared in the same issue of the local paper. They refer to the same individual. The difference in spelling of the names is due to typographical errors; the difference in the addresses due to the fact that the testimonial was given before moving to the address at which the death occurred.

**MacDonald's Atlas Compound Famous Specific No. 18.**—"The Greatest Remedy on Earth for Catarrh, Rheumatism, Blood, Stomach, Heart, Liver, Kidney and all Nervous Ailments" was, according to Jeremiah MacDonald of Binghamton, N. Y., the nostrum sold as "Dr. MacDonald's Atlas Compound Famous Specific No. 18." Also, according to the same authority, it was the "Safest and Best Blood Purifier in the World." Analyzed by federal chemists the "Famous Specific" was reported to be pills consisting essentially of sodium sulphate (Glauber's salt), sodium bicarbonate (baking soda), a laxative plant drug (apparently aloes), ginger, small amount of phosphate, a trace of alkaloid and talc. The pills were coated with starch, calcium carbonate and sugar and the coating colored with fluorescin. Naturally the federal authorities declared the claims made for these pills to be knowingly false and fraudulent. MacDonald, after pleading guilty, was fined $30.—[*Notice of Judgment No. 4559.*]

**Faucine.**—"Faucine" marketed by the Faucine Co., Meridian, Miss., was sold under such claims as:

> "The Most Wonderful Antiseptic and Blood Tonic in the World."
>
> "A warranted remedy for piles, old sores and ulcers, eczema, ringworm, tetter, cuts, burns, insect stings, diarrhoea and flux, cholera morbus, dyspepsia, indigestion, scratches on horses, saddle and harness galls."

Nor was this all. Faucine was also good for "female complaints" and "Hog Cholera"; for piles and pellagra, to say nothing of being a "sure cure for chickens that are diseased with cholera." The Government seized 21 dozen retail packages of this marvel, declaring the product misbranded in that the claims made for it were false and fraudulent. No claimant appeared for the property and judgment of condemnation and forfeiture was entered and the court ordered that the stuff should be destroyed by the United States marshal.—[*Notice of Judgment No. 4563.*]

**Contrell's Magic Troche.**—The Contrell Co., Tenafly, N. J., shipped into Massachusetts a quantity of "Contrell's Magic Troche." These were analyzed by the federal chemists who reported that the "Troches" had a total alkaloid per cent. of 0.031. The alkaloids present (cephaelin and emetin) indicated the presence of ipecac. Among the claims made for the troche was one to the effect that it was "the most wonderful remedy ever made to cure . . . Catarrh . . . Asthma and Diphtheria. . . ." This claim the authorities condemned as false and fraudulent and applied knowingly, recklessly and wantonly. The company pleaded guilty and was fined $25. — [*Notice of Judgment, No. 4569.*]

**Benn Capsules.**—Joseph Arthur Bennett, Lowell, Mass., was charged with making false and fraudulent claims for "Benn Capsules," sold as having been "manufactured for the Benn Chemical Co., Lowell, Mass." The capsules on analysis were found to contain strychnin, arsenic, iron and water soluble sulphates. They were sold as a cure for dyspepsia, headache, backache, insomnia, pains in the side, leucorrhoea and falling of the womb, no matter "of whatever gravity or standing." They were also sold as a preventive of consumption and as a kidney remedy. The claims were declared false and fraudulent. Bennett pleaded guilty and was fined $25.—[*Notice of Judgment No. 4570.*]

**Collins' Voltaic Electric Plasters.**—The federal authorities seized 4,608 "Collins Voltaic Electric Plasters" said to be distributed by Potter Drug and Chemical Corporation, Boston, on the charge that the claims made for them were false. The claims made for the plasters were, in part, to the effect that they would relieve pain and inflammation of the kidneys; that they were of great value in fever and ague, as well as in indigestion, bilious colic and affections of the liver; that they were good for simple bone fractures and would relieve many cases of bronchitis and asthma; also that they would give gratifying relief in cases of "female weakness." These claims were declared false and misleading and the federal authorities requested that the product be condemned. The Potter Drug and Chemical Corporation filed its claim for the property and, having given a bond, the court ordered that the product should be delivered to the concern on payment of the cost of the proceedings.—[*Notice of Judgment No. 4572.*]

**Mother Noble's Healing Syrup.**—"Mother Noble's Healing Syrup," according to the label, was "prepared by Dr. E. P. Huyler, successor to Abel King, M.D., Clark Johnson Medicine Co., Props., New York." It was sold under the claim made on the trade package that it was an effective remedy for all diseases of the liver, kidneys, stomach, bowels, skin and blood and an unfailing remedy for dyspepsia, fever, ague and rheumatism, as well as a cure for kidney disease, piles and dropsy. The federal chemists reported that the syrup was a watery solution of a vegetable cathartic drug containing a large amount of undissolved material, mostly licorice, and containing, too, iron chlorid, Epsom salts and sand. The authorities charged that the claims made were recklessly and wantonly false and fraudulent. The Clark Johnson Medicine Company pleaded guilty and was fined $40.—[*Notice of Judgment No. 4579.*]

**Stuart's Buchu and Juniper Compound.**—The government seized 144 packages of Stuart's Buchu and Juniper Compound put out by the Stuart Manufacturing Co. of Atlanta, Ga., and guaranteed by John B. Daniel of Atlanta, Ga. The stuff admittedly contained 16 per cent. alcohol and it was recommended as a remedy for "Weakness arising from Excesses, Habits of Dissipation, Early Indiscretion or Abuse"; for "inflammation of the Kidneys . . . Catarrh of the Bladder, Diabetes, Dropsy . . . and For All Diseases of the Urinary Organs in Either Sex." Many other equally extravagant claims were made for it. The government charged that the stuff was misbranded first in that the name "Buchu and Juniper Compound" was false and misleading because "in truth and in fact it contained no appreciable amount of buchu and juniper." It also charged that the therapeutic claims were false and fraudulent because the stuff contained no ingredient or combination of ingredients capable of producing the effects claimed. John B. Daniel (Inc.) filed its claims and admitted the facts set forth in the libel. Judgment of condemnation and forfeiture was entered. The court ordered that as in its judgment the stuff might be relabeled under the supervision of the United States Food and Drug Inspector so that it would not violate the law, the product should be released and restored to the claimant on payment of the costs and the execution of a bond in the sum of $125.—[*Notice of Judgment No. 4583.*]

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## MEDEOL SUPPOSITORIES

### Report of the Council on Pharmacy and Chemistry

The following report on Medeol Suppositories has been adopted by the Council, and its publication authorized.

W. A. Puckner, Secretary.

"Medeol Suppositories" (Medeol Company, Inc., New York) appear to be an imitation of "Anusol Suppositories" which, in 1907, were found to be inadmissible to New and Nonofficial Remedies. A comparison of the composition and of the claims made for the two preparations will be of interest in the present consideration of Medeol Suppositories.

| Anusol Suppositories (1909) | |
|---|---|
| Anusoli | 7.5 |
| Zinc oxid | 6.0 |
| Balsam Peru | 1.5 |
| Ol. theobrom. | 19.0 |
| Ungt. cerat. | 2.5 |
| for 12 suppositories | |

| Medeol Suppositories (1917) | |
|---|---|
| Medeol | 0.25 |
| Zinc Oxid | 0.5 |
| Acid. Tannic | 0.15 |
| Bals. Peru | 0.16 |
| Cocoa Butter and wax *q. s.* for 1 suppository. | |

"Anusol" was formerly said to be bismuth iodoresorcinsulphonate. The A. M. A. Chemical Laboratory published a report in 1909 showing that the suppositories contained only 1 per cent. of the iodin declared in the "formula," and were greatly deficient in bismuth and sulphur. After the publication of the report the American agents for the product disclaimed that "Anusol" was a definite chemical compound. Today Anusol Suppositories are said to contain unstated amounts of the indefinite "bismuth oxyiodid and resorcinsulphonate."

"Medeol" is said to be "resorcinated iodo bismuth," but no information is vouchsafed as to the character or composition of the ingredient. The therapeutic claims made for the two preparations are similar, as the following, taken from circulars, show:

| Anusol Suppositories | Medeol Suppositories |
|---|---|
| An innocuous, non-irritant remedy for anal, rectal and vaginal inflammatory affections, especially for Hemorrhoids! | An innocuous, Non-irritant, Efficient Antiphlogistic for use in inflammatory diseases of the rectum, anus and vagina especially in Hemorrhoids. |
| The local medicinal treatment of hemorrhoidal and other inflammatory ano-rectal conditions has always been unsatisfactory. The usual media cannot be applied in effective concentration without producing intense inflammatory reactions; they are either ineffective or intolerable. . . . | Hitherto most of the local remedies used in these conditions have either been too irritating to be employed in sufficient concentration to be efficient or they have lacked efficiency per se. . . . |
| Anusol suppositories are absolutely free from narcotic, caustic or other injurious ingredients and may unhesitatingly be used by both sexes, at any age and under all conditions. | Medeol suppositories do not contain any narcotic or any caustic or other constituent having violent action; their blandness permits of their use in either sex and at all ages. |

The claims made for these preparations—as for instance "that surgical treatment . . . should rarely be undertaken until Medeol Suppositories have been given a thorough trial" —are misleading in that they create the inference that the limitations in the palliative treatment of piles have been overcome. It is altogether untrue that these mixtures can be expected to "relieve the most obstinate cases," as stated in a Medeol circular. This, from an Anusol circular, is equally misleading:

> "If dietetic and other requirements are complied with, even the most obstinate chronic cases will frequently readily yield to treatment with Anusol Suppositories."

The Council declared Medeol Suppositories inadmissible to New and Nonofficial Remedies because their composition is secret (Rules 1 and 2); because unwarranted therapeutic claims are made for these (Rule 6); because the name is objectionable (Rule 8), and because the combination is unscientific (Rule 10).

In those cases of hemorrhoids in which palliative measures may be expected to enable the patient to avoid surgical interference and afford relief from attacks, the object should be to secure cleanliness, to avoid irritation, whether it be by friction or irritating fecal matter, to reduce inflammation by astringents and, when necessary, to relieve pain by analgesics. If an antiseptic dusting powder is desired boracic acid in impalpable powder with talc may be employed; if an astringent, finely powdered oxid of zinc may be added; if a local analgesic is necessary a little extract of belladonna may be incorporated with petrolatum or other ointment base. The main reliance in any event should be to effect normal bowel movements by regulating the diet rather than by the use of purgatives; the use of warm water to insure cleanliness; the avoidance of irritation, especially that caused by friction and secretions; a mild astringent to reduce inflammation.

[Editorial Note.—During the past year advertisements of Anusol Suppositories appeared in the following medical journals:

*Medical Record*
*Boston Medical & Surgical Journal*
*Woman's Medical Journal*
*Interstate Medical Journal*
*American Journal of Surgery*
*Medical Review of Reviews*
*Medical Council*
*New York Medical Journal*
*American Medicine*
*International Journal of Surger*
*Urologic and Cutaneous Review*
*Critic and Guide*
*Journal-Lancet*

Advertisements of Medeol Suppositories appeared with a good deal of regularity during the past year in the following:

*Medical Record*
*American Medicine*
*International Journal of Surgery*
*New York Medical Journal*
*Medical Times*]

# Correspondence

## "WHAT CONSTITUTES GOOD MILK?"

*To the Editor:*—In The Journal, Feb. 2, 1918, an editorial discusses our present methods of estimating the wholesomeness and value of grades of milk. It seems to me that this editorial does not express the views of the enlightened medical profession. It makes the statement, "We are forced to admit today that bacteria per se do not necessarily render the milk unfit for human consumption," and later, "there is very little connection between the amount of germ life in milk and the healthfulness of milk." It emphasizes this point of view by stating that the consumer has little interest in the germ content of milk except for a limited number of disease-producing forms except so far as the germ content produces souring or bad flavors. Although the writers of the article on which the editorial is founded are capable men, it should be remembered that they are not physicians and that they are interested in the dairy rather than in the infant.

As far back as 1902 and 1903, Dr. Holt and I, with a number of investigators connected with the health department, made a study of this question. We found very definitely that milk containing a few hundred thousand bacteria per cubic centimeter was usually harmful to infants in summer, and that milk containing millions of bacteria was still more harmful, and that even pasteurization did not make such a milk wholesome for infants. In cold weather and in older children, the harmful effects were absent or less noticeable.

So far as I know, all investigators since that time have come to similar conclusions. No one who has had experience claims that every variety of germ is harmful to infants; but it is impossible in ordinary commercial milk to arrange that only the harmless forms should enter it and, as a rule, the ordinary loose city milk has been shown to be harmful for infants in summer whether the milk was pasteurized or not, if the germ content was high.

The experts whose report led to the writing of the editorial were considering the best methods for grading milk and not the question as to whether excessive numbers of bacteria in market milk were wholesome or not. It would be, to my mind, a step backward to accept the views expressed in the body of the editorial.

William H. Park, M.D., New York.

[Comment.—The Journal's editorial did not take a definite stand on the question at issue, but merely presented the matter as seen in the light of the new evidence available: that presented by the experts of the American Dairy Science Association, Drs. H. A. Harding, R. S. Breed, W. A. Stocking, Jr., and E. G. Hastings. The Journal's editorial abstracted the pamphlet by these authors on "What is Meant by 'Quality' in Milk?" and concluded with the following editorial statement, by which it stands:

> In the light of what has been learned, then, good milk must exhibit several desirable qualities. It should have a high food value, of which the fat content is a good relative index, though by no means the sole criterion. It must be made safe from the standpoint of disease, and thus healthful by being produced under the competent supervision of cows and men or by being properly pasteurized. Milk ought to be clean in the sense of being reasonably free from obvious dirt. Even today it has become one of our cleanest foods. And it must be produced and handled so as to keep well. For these factors—food value, as expressed by composition; healthfulness, or elimination of dangerous contamination; cleanliness, or protection from dirt; keeping quality, as determined by care of utensils, cooling, and prompt delivery—there is a mutual responsibility on the part of producers, distributors, and even consumers.

The subject merits a scientific open discussion, and our columns are available for this purpose.—Ed.]

## THE NATIONALITY OF GRAVES

*To the Editor:*—I wish to point out a mistake made both by Charcot and your contributor Stewart R. Roberts in the issue of The Journal which has just come to hand (Dec. 29, 1917, p. 2204). In a letter from Stewart R. Roberts he quotes Charcot, and the mistake occurs in the last few lines of a quotation from the letters of the latter. It is his reference to the nativity of the distinguished physician, Graves. Graves, as every student of medicine should know, was born in Ireland and practiced medicine all his life in Dublin, which is the capital of Ireland.

Daniel T. Sheehan, M.B., Milltown,
County Kerry, Ireland.

[Note.—Following is a brief biography of Graves from Garrison's "History of Medicine":

> Robert James Graves (1796-1853), the son of a Dublin clergyman, took his medical degree in 1818, and, while making the usual continental tour, had such adventurous experiences as being arrested as a German spy in Austria on account of his fluency as a linguist, and of successfully putting down a mutiny on board ship during a storm in the Mediterranean, afterward assuming command and saving the vessel through his pluck. Returning to Dublin in 1821, he became chief physician to the Meath Hospital and one of the founders of the Park Street School of Medicine. Here he immediately went in for the widest reforms, introducing the continental methods of clinical teaching, such as making his advanced students handle and report on clinical cases, and suppressing the maltreatment and abuse which hospital patients had to endure from the rough-spoken Irish M.D.'s of the day. Tall, dark, and *distingué*, Graves had a warm heart, in spite of his sarcastic speech, and once even did a stint of literary work for a poor student. His *Clinical Lectures* (1848), which Trousseau read and reread with highest admiration, introduced many novelties, such as the "pin-hole pupil," timing the pulse by the watch, and discarding the old lowering or antiphlogistic treatment of fevers. He requested that the phrase "He fed fevers" should be his epitaph. Graves also left early accounts of angioneurotic edema and scleroderma, and, in 1835, he published a description of exophthalmic goiter so admirable that the disease still goes by his name.]

## CREATINURIA

*To the Editor:*—In an editorial with this title (The Journal, Dec. 29, 1917, p. 2186), the following appeared:

> Normal children, however, are now recognized to excrete creatin commonly during the period of adolescence. This was demonstrated in this country several years ago by W. C. Rose at Yale University and verified by Folin and Denis at the Harvard Medical School.

A similar statement has appeared a great many times in literature and I am, therefore, sending you herewith a reprint of my article on "Creatinin and Creatin Metabolism in Children" (The Journal, Oct. 1, 1910, p. 1178), which appeared before Rose's article. I would refer also to another reprint on the "Creatinin and Creatin Excretion in Recurrent Vomiting" (*Am. Jour. Dis. Child.*, April, 1912, p. 209).

Rose recognizes my work in his own article also.

J. P. Sedgwick, M.D., Minneapolis.

## INSTRUCTIONS FOR ADVISORY BOARDS, AND THE DIAGNOSIS OF TUBERCULOSIS BY ROENTGENOLOGY

*To the Editor:*—The manual of instructions, recently sent to members of the medical advisory boards, on the whole is an admirable compilation. The descriptions of the various conditions likely to be met are clearly and concisely described, in places with almost the simplicity of Greek art. In contrast to this general excellence stands the Cubist or Futurist description of the roentgenoscopic examination of the lungs in tuberculosis. This reminds one of a jumble of lines and colors which the artist labels a Nude (presumably woman) Coming Down Stairs (presumably in the sunlight), but which to others appears more like a railroad wreck in a fog than anything else. This is unfortunate, because the recent scientific work, particularly of Dunham and Miller, on the interpretation of the roentgenogram shadows of tuberculous and normal lungs makes it possible to have a simple, clear, scientific description of the roentgenogram of tuberculous lungs instead of the involved, muddled and unscientific description given in the manual. Such a description would be an aid to the roentgenologists on the advisory boards who have not had much experience with the interpretation of roentgenograms of the lungs. The description given can only lead to hopeless confusion of thought if one attempts to follow it. Descriptions of roentgenograms of internal organs as complex as the lungs are worthless unless based on careful clinical, pathologic and anatomic studies in conjunction with fluoroscopy and roentgenography. For the decade to which the drafted men belong, tuberculosis is the most important disease; and the latest and most scientific work should be utilized in keeping it from the Army.

C. R. Bardeen, M.D., Madison, Wis.

## THE WORK OF THE MEDICAL ADVISORY BOARDS

*To the Editor:*—I have seen the comment in The Journal (Feb. 23, 1918, p. 541) concerning the work of the medical advisory boards. As chairman of Board No. 3, Columbia University Group, I wish to express my appreciation of your suggestion, and hope that such recognition will be secured.

My particular board would prefer some insignia to wear and a certificate to put away in a strong box.

Henry E. Hale, M.D., New York.

# *Queries and Minor Notes*

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### JOURNAL ON PUBLIC HEALTH

*To the Editor:*—I am a member of our city board of health. We have a live city manager at the head of our city affairs, and we ask you to recommend to us the best journal of public health or city sanitation.

W. G. Hope, M.D., Albuquerque, N. M.

Answer.—A very good journal for your purpose is the *American Journal of Public Health,* the organ of the American Public Health Association. The *Journal* may be addressed at 126 Massachusetts Avenue, Boston. Other journals printing articles on public health topics are the *Journal of Infectious Diseases,* Chicago, and the *Journal of Hygiene,* University Press, Cambridge, England. Much important material on public health matters appears also in The Journal of the American Medical Association.

### METHOD OF WRITING CERTAIN ABBREVIATIONS

*To the Editor:*—1. Is it correct to write the abbreviations $\overline{ss}$, $\bar{e}$, $\bar{s}$, $\overline{aa}$ this way, or should they be written thus: $\overset{||}{\overline{ss}}$, $\overset{|}{\bar{c}}$, $\overset{|}{\bar{s}}$, $\overset{||}{\overline{aa}}$? The latter seems absurd.

2. Does the term "s. o. s." written after an order for medication or treatment mean just once (of whatever ordered) if necessary, or does it mean just once and repeat once, or does it mean something else? From the Latin it would seem to mean one dose a time if necessary.

S. B. Blakely, M.D., Binghamton, N. Y.

Answer.—1. The terms $\overline{aa}$, $\overline{ss}$, $\bar{e}$, $\bar{s}$ and $\overset{\perp\perp}{aa}$, $\overset{\perp\perp}{ss}$, $\overset{\perp}{e}$, $\overset{\perp}{s}$, are usually written without the lines or dots above the letters, thus: aa, ss, etc.; aa is sometimes written āā.

2. The term s. o. s. is an abbreviation for *Si opus sit,* meaning "if necessary," "if there be occasion" or "if there be opportunity." It is sometimes abbreviated si. op. sit.

### REMOVAL OF ARGYROL STAINS

*To the Editor:*—Please state in your "Queries and Minor Notes" Department the most satisfactory method of removing argyrol stains from linen, particularly as applied to our hospital laundry.

A. J. Guerinot, M.D., Pittsburgh.

Answer.—Argyrol stains on hands or clothing may be removed by rubbing with a salt grease, such as bacon grease, followed by soap and water. Silver stains on towels, etc., can readily be removed by the application of dilute solutions of mercuric chlorid.

### POTATO AND BRAN BREAD

*To the Editor:*—What is the nutritional value of bread made from flour composed of potatoes, one fifth, and bran flour, four fifths, as compared to ordinary white flour bread? What would be the effect of continued use of this bread? Please do not publish name.

N. R. W.

Answer.—If one-fifth potatoes and four-fifths ground bran were used, the resulting substance could hardly be called a bread. Its nutrition value, weight for weight, would be much less than that of ordinary white bread. The continuous use of such a substance to the exclusion of other breadstuffs would in time be harmful, owing to the excessive amount of undigestible bran. This substance would lack gluten—the structural "steel work" of the bread loaf—and hence would not form a pleasing substance. On the other hand, if by bran flour our correspondent means unbleached whole wheat flour, then the nutritional value would be essentially the same, weight for weight, as that for white bread made from "patent flour." From a standpoint of health, it would probably be better than white bread. It would contain a certain, but not excessive, amount of undigestible residue, certain mineral salts, and would be further enhanced by the absence of products resulting from artificial bleaching.

### HARRISON LAW REGISTRY NUMBER ON PRESCRIPTIONS

*To the Editor:*—Is it permissible to have the registry number under the Harrison law printed on one's prescription blank?

F. O. Young, M.D., Lexington, Ky.

Answer.—It is a good plan to have the registry number under the Harrison law printed on the prescription blank, as the law requires that the registry number, together with the physician's name and address, appear on all prescriptions containing narcotics mentioned in the narcotic law.

### INSULATION OF ROENTGEN-RAY TRANSFORMER

*To the Editor:*—I wish you would tell me whether there is any vital reason why the roentgen-ray transformer should have the coil insulated in oil.

C. Mayfield, M.D., Hutchinson, Kan.

Answer.—The oil is the insulator. For all high tension work the coil must be oil insulated, otherwise it will short circuit and burn out. The most effective roentgen-ray work today is high tension work.

# *Medical Education and State Boards of Registration*

## COMING EXAMINATIONS

Colorado: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

Connecticut (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

District of Columbia: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigly.

Illinois: Chicago, March 25-26. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Maine: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Mexico: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

Oklahoma: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

### Idaho April Examination

Dr. Charles A. Dettman, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, April 2-4, 1917. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Ten candidates were examined, including 1 osteopath, all of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| College of Physicians and Surgeons, Chicago | | (1902) | 83 |
| Northwestern University | | (1913) | 79 |
| Rush Medical College | | (1915) 86; (1916) | 85 |
| College of Physicians and Surgeons, Keokuk | | (1873) | 75 |
| State University of Iowa College of Med. | | (1903) | 81 |
| Jefferson Medical College | | (1914) | 84 |
| University of Pennsylvania | | (1914) | 87 |
| Sewance Medical College | | (1909) | 82 |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Northwestern University | | (1912) | Utah |
| Ensworth Medical College | | (1900) | Utah |
| John A. Creighton Medical College | | (1914) | Utah |
| Columbia University | | (1916) | Utah |
| Jefferson Medical College | | (1908) | Utah |

### Massachusetts September Examination

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Sept. 11-13, 1917. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 42 candidates examined, 22, including 3 osteopaths, passed, and 20, including 13 osteopaths, failed. The following colleges were represented:

| College PASSED | Year Grad. | Per Cent. |
|---|---|---|
| Yale University | (1913) | 80 |
| Johns Hopkins University | (1912) 78; (1915) | 83.5 |
| University of Maryland | (1914) | 79.3 |
| Boston University | (1917) | 75, 76.9 |
| College of Physicians and Surgcons, Boston | (1917) | 75, 79.7 |
| Harvard University | (1915) 79.4; (1917) | 81.1, 81.4 |
| Tufts College Medical School | (1910) 75; (1917) | 76, 78.9 |
| Missouri Medical College | (1879) | 79.2 |
| Eclectic Medical Institute | (1903) | 75 |
| University of Vermont | (1917) | 79 |
| Queen's University | (1915) | 75 |
| McGill University | (1908) | 84.9 |
| FAILED | | |
| Howard University | (1916) | 70.4 |
| Maryland College of Eclectic Med. and Surg | (1914) | 70.5 |
| Maryland Medical College | (1913) | 60.9 |
| University of Maryland | (1917) | 73 |
| College of Physicians and Surgeons, Boston | (1917) | 68 |
| University of West Tennessee | (1916) | 62.2 |
| University of Naples | (1912) | 72.9 |

### Nebraska May-June and July Examinations

Dr. Joseph J. Hompes, secretary of the Nebraska State Board of Examiners, reports the oral, practical and written examinations held at Lincoln, May 31-June 1, and July 2, 1917. The examinations covered 13 subjects. An average of 70 per cent. was required to pass. Fifty-nine candidates were examined, all of whom passed. Eight candidates were granted reregistration certificates. Twenty-eight candidates were licensed through reciprocity. The following colleges were represented:

| College PASSED | Year Grad. | Per Cent. |
|---|---|---|
| Hahnemann Medical College of the Pacific | (1916) | 76.5 |
| Chicago College of Medicine and Surgery | (1916) | 82.7 |
| Baltimore University | (1902) | 84.6 |
| Cotner University | (1914) | 77.9 |
| John A. Creighton Medical College | (1901) | 81.6, 82.9; (1902) 81.7; (1917) 76.5, 77.7, 78.2, 78.7, 79.1, 79.7, 79.7, 79.7, 80.2, 80.2, 80.5, 80.7, 80.9, 81, 81.6, 81.9, 81.9, 81.9, 82.5, 82,6, 82.6, 82.7, 83, 83.2, 83.2, 83.4, 84.6, 85.4, 86, 87.9, 87.9, *. |
| Lincoln Medical College | (1898) | 80.4; (1917) 81.5, 83.5, 84.6, 86.4 |
| University of Nebraska | (†) | 80.4; (1917) 79.6, 80.5, 80.9, 81.4, 82, 82.1, 82.4, 82.9, 83.2, 83.4, 83.7, 84.7, 85, 85.9. |

* No grade given.

† Work completed; will receive diploma later.

| College LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|
| Atlanta College of Physicians and Surgeons | (1902) | Mississippi |
| Lovola University | (1916) | Illinois |
| College of P. and S., Chicago | (1910) Illinois; (1915) | Iowa |
| Rush Medical College | (1906) (1915) | Illinois |
| State University of Iowa Coll. of Medicine | (1910) | Iowa |
| University of Louisville | (1907) | Mississippi |
| Tulane University of Louisiana | (1888) (1891) (1910) | Mississippi |
| Eclectic Medical University | (1917, 2) | Arkansas |
| St. Louis University | (1916) | Missouri |
| University Medical College of Kansas City | (1913) | Kansas |
| Washington University | (1906) | Illinois |
| Jefferson Medical College | (1895) Missouri; (1904) | Mississippi |
| Memphis Hospital Medical College | (1888) (1899) (1901) (1903) (1905, 2) | Mississippi. |
| Sewanee Medical College | (1900) | Mississippi |
| University of Nashville | (1906) (1908) | Mississippi |
| University of Virginia | (1894) | Mississippi |

### Missouri December Examination

Dr. George H. Jones, secretary of the Missouri State Board of Health, reports the oral and written examination held at St. Louis, Dec. 17-19, 1917. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 31 candidates examined, 23 passed and 8 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

| College PASSED | Year Grad. | Per Cent. |
|---|---|---|
| Howard University | (1916) 83.5; (1917) | 82.1 |
| Chicago College of Medicine and Surgery | (1917) | 82.1 |
| Loyola University | (1916) | 76.2 |
| University of Illinois | (1916) | 86.4 |
| Hospital College of Medicine | (1906) | 75 |
| Johns Hopkins University | (1917) | 85.6 |
| Boston University | (1917) | 80.5 |
| American Medical College | (1901) | 75 |
| Beaumont Hospital Medical College | (1887) | 75 |
| Kansas City Hahnemann Medical College | (1915) | 87.3 |
| St. Louis College of P. & S. | (1905) 75, 75; (1909) | 75 |
| St. Louis University | (1904) 83.2; (1917) | 79.5, 85.1 |
| Columbia University | (1903) | 82.1 |
| Meharry Medical College | (1915) | 75; (1916) 84.9; (1917) 75, 75.1, 83.5 |
| FAILED | | |
| Meharry Medical College | (1916) | 61.8, 69.3, 72.5; (1917) 57.1, 64.3 |
| University of West Tennessee | (1915) | 57.4, 68.1, 73.5 |

| College LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|
| Rush Medical College | (1897) | Indiana |
| Drake University | (1908) | Iowa |
| University of Kansas | (1910) (1916) | Kansas |
| Kentucky University | (1904) | Virginia |
| Louisville Medical College | (1907) | Penna. |
| University of Maryland | (1916) | Maryland |
| University of Michigan Medical School | (1902) | Iowa |
| St. Louis College of Physicians and Surgeons | (1915) | Tennessee |
| Eclectic Medical Institute | (1903) | Indiana |
| Meharry Medical College | (1916) | Tennessee |
| University of Tennessee | (1901) | Kentucky |
| Vanderbilt University | (1912) | Kentucky |

### Nebraska November Examination

Dr. J. J. Hompes, secretary of the Nebraska State Board of Health, reports the oral, practical and written examination held at Lincoln, Nov. 14-15, 1917. The examination covered 11 subjects. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Seven candidates were licensed through reciprocity, and 1 candidate was granted a reregistration license. The following colleges were represented:

| College PASSED | Year Grad. | Per Cent. |
|---|---|---|
| Rush Medical College | (1917) | 87 |
| Sioux City College of Medicine | (1901) | 82 |
| Boston University | (1917) | 86 |
| Jefferson Medical College | (1916) | 82 |

| College LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|
| College of Physicians and Surgeons, Chicago | (1883) | Iowa |
| Chicago College of Medicine and Surgery | (1917) | Illinois |
| State University of Iowa Coll. of Homeo. Med. | (1909) | Colorado |
| Kansas Medical College | (1906) | Kansas |
| Harvard University | (1909) | Mass. |
| Dartmouth Medical School | (1909) | Mass. |
| Eclectic Medical College | (1896) | Missouri |

### Ohio Reciprocity Report

Dr. Herbert M. Platter, secretary of the Ohio State Medical Board, reports that 15 candidates were licensed through reciprocity at the meeting held Oct. 2, 1917. The following colleges were represented:

| College LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|
| Rush Medical College | (1913) | Illinois |
| Medical College of Indiana | (1903) | Illinois |
| Tulane University | (1916) | Texas |
| Bowdoin Medical College | (1916) | Maine |
| University of Michigan Med. School | (1897) (1915) (1916) | Michigan |
| | (1902) | Vermont |
| University and Bellevue Hosp. Med. Coll. | (1909) | New York |
| Jefferson Medical College | (1903) | Penna. |
| University of Pittsburgh | (1912) | Penna. |
| Texas Medical College and Hospital | (1881) | Texas |
| University of Vermont | (1898) | Vermont |
| University of Virginia | (1911) | Virginia |
| University of Naples | (1891) | New York |

### New Mexico October Examination

Dr. R. K. McClanahan, secretary of the New Mexico State Board of Medical Examiners, reports that 18 candidates were licensed on satisfactory credentials at the examination held at Sante Fe, Oct. 9-10, 1917. The following colleges were represented:

| College PASSED | Year Grad. | Total No. Licensed |
|---|---|---|
| University of Alabama | (1910) | 1 |
| Yale University | (1912) | 1 |
| College of Physicians and Surgeons, Chicago | (1910) | 1 |
| Hahnemann Med. Coll. and Hosp. of Chicago | (1914) | 1 |
| Rush Medical College | (1914) | 1 |
| University of Louisville | (1892) | 1 |
| Tulane University of Louisiana | (1905) | 1 |
| College of Physicians and Surgeons, Baltimore | (1910) | 1 |
| St. Louis College of Physicians and Surgeons | (1904) | 1 |
| Syracuse University | (1916) | 1 |
| Jefferson Medical College | (1907) | 1 |
| University of Pennsylvania | (1900) | 1 |
| University of Pittsburgh | (1911) | 1 |
| University of Tennessee | (1916) | 2 |
| Fort Worth School of Medicine | (1906) | 1 |
| Milwaukee Medical College | (1912) | 1 |
| Kings Queens College of Physicians, Ireland | (1888) | 1 |

# Book Notices

Military Ophthalmic Surgery. By Allen Greenwood, M.D., Major, M. R. C., U. S. Army. Including a Chapter on Trachoma and Other Contagious Conjunctival Diseases by G. E. de Schweinitz, M.D., Major, M. R. C., U. S. Army; and a Chapter on Ocular Malingering by Walter R. Parker, M.D., Major, M. R. C., U. S. Army. Medical War Manual No. 3, Authorized by the Secretary of War and Under the Supervision of the Surgeon-General and the Council of National Defense. Leather. Price, $1.50. Pp. 115, with 16 illustrations. Philadelphia: Lea & Febiger, 1917.

This booklet contains three articles: the first, a general article on ophthalmic surgery, by Dr. Allen Greenwood; on trachoma and the common forms of conjunctivitis, by Dr. G. E. de Schweinitz; and the third, on the examination of malingerers, by Dr. Walter R. Parker.

Dr. Greenwood points out that 10 per cent. of the injured coming to a base hospital require some immediate examination or treatment of the eyes or surrounding structures. The most common conditions encountered are contusions and wounds of the eyeball. Less common are traumatic cataracts. In the way of prophylaxis, he believes that shields covering the eyes and temples should be of service if the soldiers will wear them. One of these has been designed by Dr. W. H. Wilmer, of Washington, at the request of the Ordnance Department. He suggests also that each base hospital be equipped to do refractions, and gives a list of eye instruments for an Army case for use in base hospitals. In an appendix he gives six indications for enucleation and four indications for evisceration. This material occupies about fifty-two pages of the small manual.

The article by Dr. de Schweinitz on trachoma and common forms of conjunctivitis occupies forty-six pages. It is illustrated with five colored plates as well as black and white pictures.

Parker's article on malingerers occupies eight pages. He enumerates the equipment necessary for complete examinations, and describes the methods of utilizing it for this purpose. A final appendix lists diseases of the eye and adnexa, eye injuries and eye operations.

This manual contains valuable material. But considering the object for which it was prepared, it should be available at at most one half its cost.

Problems of Mysticism and Its Symbolism. By Dr. Herbert Silberer. Translated by Smith Ely Jelliffe, M.D., Ph.D. Cloth. Price, $3 net. Pp. 451. New York: Moffat, Yard & Co., 1917.

The reason for translating this work, according to Jelliffe, is to show the essential relationships of what is found in the unconscious of present-day mankind to many forms of thinking of the middle ages. We thus arrive at a science that may be called paleopsychology. "Its fossils are the thought-forms throughout the ages, and such a science seeks to show fundamental likenesses behind the more superficial dissimilarities." The parable with which the author introduces his work is taken from a Rosicrucian work of the sixteenth century. This parable the author submits to a psychanalytic interpretation, regarding it as a dream or fairy tale, and endeavoring to interpret what it symbolizes. In this analysis he evidences a vast amount of ingenuity and undoubtedly goes as far in his interpretations as any of the believers in the symbolistic phases of Freud's theories. It is, of course, possible, and this must always be kept in mind, that the writer of the parable had no unconscious conception such as the author believes underlies his parable. Perhaps the only way to find this out would be to adopt the plan suggested for determining the famous Shakespeare-Bacon controversy. After a certain notoriously bad actor had played the part of Hamlet, it was suggested that the graves of the two be opened, and the one who had turned over during the night was the one who wrote the play. But the author's interpretation of the parable is undoubtedly quite convincing, and if our ancient hermit or Rosicrucian turned over, it was probably in shame at this public revelation of his hidden sexual thoughts.

Dr. Silberer then discusses alchemy, the hermetic art, Rosicrucianism and multiple interpretation. Particularly interesting is his tracing of the development of the order of free masonry from the Rosicrucianism of the middle ages, and here again his analysis of symbols, as shown in the writings and work of these organizations, is fascinating and quite convincing.

The final section of the work is devoted to introversion and regeneration. It is here that the author traces the development of thought and expression in the individual. It was shown that the imagination evinces a predilection for symbolic forms of expression. The term "introversion," coined by Jung, signifies the withdrawal of interest from the outer world and the development of interest and pleasure within one's own thoughts. There are, of course, certain neuroses in which this tendency is greatly exaggerated. This introversion is continually connected with regression, that is, the thinker harks back from thinking to gazing, from doing to hallucinating, from the pleasures of the adult to the pleasures of childhood. With this comes the desire for symbolic forms of expression and mysticism.

Now all of this is very complicated; and yet it may have a very definite relation to the study and treatment of human disease and to a more complete understanding of the human mind and its products. The single fact that the development of free masonry with its tremendous symbolism has captivated millions of men, including thousands of those who have been called great, is evidence of the importance of these factors in human life.

Virginia Health Bulletin, 1916. Volume 8. Annual Report of State Board of Health. Cloth. 1916.

The report of the state board of health and of the health commissioner are bound in one volume with the twelve monthly numbers of the *Health Bulletin*. The report for the year 1916 has been distributed and shows gratifying progress in all matters pertaining to health conditions, under a good organization working along modern lines of health conservation and disease prevention.

The monthly *Health Bulletin* and *Almanac* is prepared for the benefit of the laity as well as for the local health officers and the physicians of the state of Virginia, and it contains much educational and other interesting matter pertaining to wholesome living and the prevention of disease, news of the progress of health legislation and administration, reports on vital statistics, and a variety of information regarding the home, the school and the farm. The annual report of the state health board and its various officers shows a smooth working organization giving attention to all the features of a modern health machine, such as vital and morbidity statistics, publicity, school nursing, visiting and industrial nursing, sanitary engineering, water supply, malaria and hookworm prevention, laboratory work, and sanatorium treatment of tuberculosis.

Physical Diagnosis. By W. D. Rose, M.D., Lecturer on Physical Diagnosis in the Medical Department of the University of Arkansas. Cloth. Price, $4. Pp. 499, with 294 illustrations. St. Louis: C. V. Mosby Company, 1917.

The brief review of the clinical symptoms and pathology that precedes the description of the physical signs and diagnosis of the various diseases will make this volume of special value for constant reference by the general practitioner. A short description of the symptoms and pathologic features placed side by side with a discussion of the physical signs enables one more readily to understand the significance of one's observations when making a clinical examination. In a chapter devoted to an explanation of the blood pressure, the technic of applying the tests is explained, and the diagnostic importance of the results secured is carefully described. The illustrations effectively supplement the descriptions given in the text; but the fact that a large proportion are copied from other authors detracts from the originality of the volume. The Bárány tests for localizing intracranial lesions are given in condensed and practical form. The systematic tables showing the clinical facts on which these equilibrium tests are based are particularly instructive.

Three Clinical Studies in Tuberculous Predisposition. By W. C. Rivers, M.R.C.S., D.P.H., Tuberculosis Officer, Barnsley District, West Riding, Yorks. Cloth. Price, 12 shillings 6 pence net. Pp. 272, with illustrations. London: George Allen & Unwin, 1917.

In 1904, the author noticed a consumptive who gave a history of having nasal obstruction; further observation of other cases gave rise to the generalization that nasal obstruction is a contributory cause of tuberculosis of the lungs. Three years later he noticed a few ichthyotics among his consumptives, and later still, a few cases of squint. He has noted that ichthyosis and nasal obstruction are overfrequent in connection with surgical tuberculosis, but is not so sure that the same relation obtains in reference to squint and tuberculosis. He reports twenty-three cases of ichthyosis out of 1,600 consumptives, besides quoting cases of Tommasolli, Lewin, Garkoin, Du Mesnil and others. He concludes that the existence of ichthyosis may conduce to the acquisition of tuberculosis. This study, while not convincing, is interesting and should direct the attention of phthisiologists to the skin conditions present in their patients; for the skin picture is all too often slurred over during inspection. Rivers observed six cases of squint in 500 consumptives. In this connection, he goes into left-handedness, mentions idiocy and neurotic tendencies, and closes with the statement that "there is undoubted association between tuberculosis and concomitant strabismus, of predisposition to which latter disease squint forms a sign." One should not forget that a group of patients exhibiting strabismus, left-handedness, ambidexterity and other stigmata of degeneracy plus poverty might well be expected to show a high percentage of tuberculosis. It would appear that the author has spent unnecessary effort in trying to establish the relation referred to above. In the section on consumption and nasal abnormality are presented numerous citations to show that pulmonary tuberculosis and nasal defects are closely related, with the latter as causal factors, not excluding perforation of the septum. When, as the author shows, nasal obstruction produces mouth breathing and thus facilitates tuberculous infection, no one will take issue with him. Among the conclusions, to which forty-eight pages are devoted, Rivers states that when the lungs do not yield characteristic signs and symptoms, the presumption of tubercle must be strengthened a good deal in the presence of consumptive predisposition. The reader cannot help feeling that the matters in this book might have been presented with more regard for brevity.

The Treatment of Infantile Paralysis. By Robert W. Lovett, M.D., John B. and Buckminster Brown Professor of Orthopedic Surgery, Harvard Medical School. Second Edition. Cloth. Price, $1.75. Pp. 175, with 123 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

This book presents a subject to which the author has devoted more than the usual amount of study. A preliminary chapter on the pathology, symptoms, etc., is followed by four chapters on treatment, one on muscle training, and a final chapter on the author's spring balance muscle test. In his discussion of the serum treatment, Dr. Lovett limits himself to the use of convalescent serum, and makes no mention of the serums made by Rosenow and Nuzum from the streptococci that they found in this disease. The book is almost wholly orthopedic in character, discussing the various measures for restoring function to the disabled parts.

Surgical Nursing in War. By Elizabeth R. Bundy, M.D., Member of the Medical Staff, Woman's Hospital, Philadelphia. Cloth. Price, 75 cents. Pp. 184, with 37 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

This little manual is especially planned for the graduate nurse, who, of necessity, must become a guide to inexperienced co-workers in times of emergency, because of the many untrained nurses employed in the large base hospitals of the war zone. Much attention is paid to wounds made by the various missiles of modern warfare, so that the nurse may differentiate among those caused by pointed bullets, shrapnel, high explosive shells, bombs, hand grenades, and the like. It is questionable as to just how much of this nurses will require. In a well planned chapter on surgical dressings, the Dakin-Carrel method of treating wounds is set forth with great clearness and illustrated with drawings of the Carrel instillation apparatus. The nurse is instructed in the emergency measures to be carried out in cases of threatened gangrene and severe shock, and in the administration of tetanus antitoxin. Civilian nurses who are preparing for war service will find much that is helpful in the chapter on mechanical appliances, in which the various modern types of splints and bandages are described in detail, with special emphasis on the nurse's part in the setting of bone fractures.

A comprehensive chapter on bone injuries completes the discussion of this important subject.

# *Social Medicine, Medical Economics and Miscellany*

### Science and the Hours of Work

The application of science to the industries has been responsible for many of the advances of recent decades. The chief of these, says Frederic S. Lee (*Public Health Reports*, Jan. 11, 1918) have been mechanical engineering, which has invented and developed automatic machinery; and chemistry, which has discovered new chemical substances and new chemical processes. In industrial work on the physical side, the human equation has not yet been eliminated; but in this regard much improvement can be made by scientific attention to industrial physiology, as Lee calls it. The human machine, unlike the machine of steel and iron, is subject to the limitation of fatigue, which delays work, diminishes output, spoils goods, causes accidents and sickness, keeps workers at home, and thus is an obstacle to efficiency. How fatigue can be kept down, and the individual maintained so as to produce the maximum of output, is the great industrial problem. This problem has been studied, more particularly since the beginning of the world war, in Great Britain by the Health of Munition Workers Committee and in America by the Committee on Industrial Fatigue of the Advisory Commission of the Council of National Defense.

It has been found both from physiologic experiments and from careful observation of actual work that the greatest amount of work is not performed at the beginning of the working period, but the curve at first gradually rises to a maximum, indicating for a time a progressive improvement in working power. Following the maximum there is a gradual, slow decline in the curve, indicating fatigue, which may continue, in the case of the experimental muscle, to complete exhaustion. While in the human being the physiologic conditions are infinitely more complicated than in the single muscle, yet the curve of output closely resembles the muscle curve in work that requires close attention and exact muscle coordination. There is at first a gradual rise, continuing through the first hour or two, and then a fall, gradually increasing throughout the remainder of the working spell. After the luncheon hour, which provides rest and food, the curve repeats itself, and the lower point of the curve at the end of the second period, when compared with that at the end of the first period, signifies the cumulative fatigue of the day. The rise in the curve of each spell is often called the "practice effect." In occupations distinguished by their muscular character, the output curve seems to show progressive fatigue. Where work is monotonous and frequently broken by natural pauses a curve may be obtained which for both working spells is nearly straight, showing a slight practice effect, but no fatigue. The American committee found another type of output in which the total daily production of the individual from day to day and from week to week shows a striking uniformity. The inference is that the workers are not working to their full capacity. Individual curves sometimes show a marked spurt before the close of the spell, evidently intended to make for a certain production before closing time. To what extent fatigue enters into work in which this type of curve is found is a subject, Lee says, or further study. The point in the study has not yet been eached when it can be said which curves of output represent he ideal. Experiment is needed. A genuine, pronounced atigue fall in the curve indicates cessation of work. In England in the beginning of the war the feverish haste, the engthening of the daily schedule of labor, the overtime and Sunday work, all soon produced a condition of excessive fatigue. In America a closer adherence to established custom and to the legal hours for labor in most factories has so far apparently prevented the appearance of conditions of excessive fatigue. The American committee discovered that in one large munition factory on a night shift of twelve hours, after 5 a. m. the curve of output showed a rapid decline, and during the last forty minutes there was very ittle or absolutely no production. Evidence collected by the British committee in specific instances showed in one that a reduction of twenty hours in the weekly working time resulted in an actual increase of 9 per cent. in output, and a reduction of the hours in another instance from 58.2 to 51.2 resulted in an increase of 21 per cent. in the output.

The conclusions, as given by Lee, are that the interest of large output requires keeping the hours down to what experience has shown to be a reasonable limit, and choosing this limit in accordance with the fatiguing effects of the different specific occupations; that recess periods should be introduced into long spells; that Sunday labor should be omitted, and that overtime in emergencies should be compensated by free time later; that each worker has a rhythm best adapted to his own human machine, and it is advantageous to place in squads doing specific tasks workers having similar rhythms, eliminating faster and slower individuals, and then adjusting the speed to the common rate.

### New Food Products

Recent *Commerce Reports* contain information concerning new fishes and other food products, the use of which, as foods, is being encouraged by government authorities. Economic Circular 32 of the U. S. Bureau of Fisheries, issued October 10, urges the greater use of whiting as a good food fish that is not adequately utilized. It is said that if consumers would make inquiries for this fish, either fresh, frozen, canned, salted or smoked, it would encourage dealers to stock it. Numerous recipes for cooking whiting are given in the circular.

During the summer of 1916 in the laboratories of the Bureau of Fisheries at Woods Hole, Mass., the use of shark flesh for food was tried. It is said that six species of sharks, including the sand shark, have been tested as foods, the meats having been eaten by about fifty persons. The meats of these species were pronounced not only good, but especially pleasing in flavor and texture. Methods of smoking and salting have been worked out. Shark meat, it is said, is best salted dry, since in any wet process it has a tendency to develop a disagreeable ammonia smell. Not having a great amount of oil, shark meat is not an ideal meat for smoking. When a light smoke is applied for about three days, shark meat makes an agreeable product which is said to keep well.

The *Fisheries Bulletin* for June, 1917, has an article on the use of whale meat as food. Porpoises and dolphins have also been recommended as important sources of human food. In May, 1917, fresh whale meat was on sale in Seattle, and whale steaks were served in hotels and restaurants in that city. The Pacific Whaling Company at Grays Harbor, Washington, finds a ready market for whale meat. In San Francisco, whale meat was on sale in August at 22½ cents a pound. It was being served in the leading hotels. The meat has also been placed on the market canned, in which form it was sold at the time of the report at from 10 to 15 cents a pound.

The U. S. Bureau of Fisheries has sent representatives into the South Atlantic gulf states in an effort to increase the production and consumption of smoked fish. These representatives are equipped with a small portable smoke house of recent design, and are prepared to instruct persons desiring to develop the smoked fish industry. They are giving special attention to the smoking of menhaden, sharks, and other species common to this region. Smoked shrimps have been found to be especially palatable.

In British Columbia, the canning of evaporated vegetables is becoming a considerable industry. The product of one concern called "Julienne mixture," six vegetables all canned together, consists of first quality carrots, turnips, potatoes, onions, peas and beans. The vegetables are evaporated separately, after being properly prepared, as each requires a different degree of heat in its evaporation. They are packed in tins containing 15 pounds, various proportions of the different vegetables being included in each tin. Large contracts for Army use have been filled, and it is said that not a single can of the product has been thrown out by the British inspector at Montreal.

The Department of Agriculture of Trinidad, British West Indies, has published a bulletin on the use for bread making of various meals made from products of the tropics, such as bananas, plantains, tannias, dasheens, sweet potatoes, yams and breadfruit. All the meals, it is said, can be readily prepared in any household without the use of expensive machinery at a cost of from 1½ to 2½ cents a pound in small quantities. Tests show that all the meals excepting breadfruit meal make a palatable bread when mixed with equal parts of wheat flour. Two parts of the meal may be used to one part of flour, but this makes a darker and heavier bread. Bread can be made with all of these meals with yeast or baking powder, but difficulty is sometimes experienced with yeast. Banana meal is recommended as being probably the one that will be most generally used and the cheapest to produce. A bread made from sweet potato flour is said to be perhaps the best, the bread being light brown, of a pleasant, sweet flavor, and very light.

### Wood Alcohol

Dangers in the manufacture and use of wood alcohol are set forth in a special Bulletin 88 of the New York Department of Labor, December, 1917, prepared by the Division of Industrial Hygiene. In New York there are twenty-eight establishments for the manufacture of wood alcohol, employing 400 persons. Many of the stills are of rather crude construction, and in a number of them the processes are not well guarded, so that poisoning and accidents in the way of explosions and fires occur. As is known, blindness and death occur from inhaling the fumes of wood alcohol, and symptoms and physical deterioration of less extreme degree occur among the workers, including headaches, dizziness, conjunctivitis and dermatoses, both among the employees in the stills and among those in industries employing wood alcohol. Among the latter are breweries, where the alcohol is used in varnishing the interior of vats, and from which a considerable number of deaths have occurred in New York, according to the bulletin; hat manufacturing, in which the alcohol is used in shellac for stiffening frames, artificial flowers, etc.; pencil manufacturing, furniture varnishing, picture frame factories, and in the manufactories of varnishes, in all of which industries the alcohol is used for the most part in dissolving the gums and shellacs in varnishes. In some industries, ethyl alcohol denatured with wood alcohol is used; but this product, if it contains as much as 5 per cent. of wood alcohol, is as dangerous as the wood alcohol itself. A number of cases of poisoning, with death, blindness and other disability, are set forth in the report. Rules proposed by the department for eliminating the dangers of handling wood alcohol are proper provision for ventilation in factories in which wood alcohol fumes exist to the extent of 1 part in 10,000 volumes of air; the labeling of all receptacles containing wood alcohol, calling attention to its poisonous nature; in processes requiring contact of the hands with the alcohol, the use of impervious gloves, to be furnished and kept in good condition by the proprietors; gas helmets for use in entering stills, retorts or brewery vats, etc., with fresh air supplied through a hose; and the posting of printed signs in factories and work rooms, calling attention to its dangerous nature.

# Medicolegal

### Catching of Nerve in Fracture—Evidence—Failing to Use Roentgen-Ray Machine

*(Ingwersen vs. Carr & Brannon et al. (Ia.), 164 N. W. R. 217)*

The Supreme Court of Iowa, in reversing a judgment obtained by the plaintiff and remanding this cause for a new trial, says that the petition alleged that the plaintiff sustained a fracture of his left arm, the humerus being broken at the juncture of the upper and middle thirds, and the broken ends of the bone being so separated and not in apposition that the musculospiral nerve was drawn in between the pieces of bone. There was evidence that, to show the plaintiff's daughter where the break was, the defendant then in attendance, who had given the plaintiff an anesthetic, raised the arm on a level with the shoulder, then straightened out the arm, and applied splints and a bandage. The plaintiff's theory was that the oblique fracture of the humerus involved the musculospiral groove, containing the nerve, and that when the defendant manipulated the arm, and bent it at the point where it was broken, the nerve slipped in and was caught when the two pieces of bone closed up, and that it was negligence to fail to find out that the nerve was caught before the splints and bandage were applied, which should have been done by the getting of crepitus. For the defendants there was evidence which tended to show that crepitus was obtained, the fracture reduced, temporary splints applied, the forearm and hand placed in a sling, and the arm encased in a muslin swath extending around the body. The defendants contended that the plaintiff had two injuries—the fractured humerus and an injury to the nerves; that they treated the fractured humerus and treated the nerve expectantly; that is, waited to give Nature a chance to clear up the paralysis without surgical interference, relying on Nature to clear up the injury to the nerve. The discovery of the musculospiral nerve between the broken ends of the bone was made by another surgeon, who cut down on the fracture something like eight weeks after that was sustained, and the defendants contended that the fact that the nerve was between the broken fragments of the bone then did not tend to prove that it was there two months before, when the arm was first dressed by the defendants; that presumptions do not relate backward. But the court thinks there were circumstances which tended to show, and from which the jury could have found, that the nerve was caught prior to or at the time of the defendants' first visit. There was a conflict in the testimony which made this a jury question.

The jury was instructed that it was not to take for granted that the statements contained in the hypothetic questions were true, but that it should scrutinize the evidence and determine what, if any, averments were true, and that if it should find that some of the material statements were not correct and were of such a character as entirely to destroy the reliability of opinions based on the hypothesis stated, it might attach no weight whatever to the opinions based thereon; that an opinion based on a hypothesis wholly incorrectly assumed, or incorrect in its material facts, and to such an extent as to impair the value of the opinion, is of little or no value. It was contended that the jury should not be permitted to determine the materiality of assumed facts incorporated in hypothetic questions; that the materiality of such facts is a question to be determined by the court; and the supreme court holds that it was for the error in this instruction that the case must be reversed.

It was also error not to permit the defendant who performed the most of the services in the treatment of the plaintiff to be asked as to whether the best of his professional ability was brought to bear on the case; whether or not he exercised his best skill and knowledge in the treatment of the case; and what was the fact about his having exercised the utmost good faith as well as his best skill and ability in the treatment of this case. These questions were not leading or suggestive, nor did they call for the conclusion of the witness.

There was no error in admitting evidence as to there being roentgen-ray machines in the town in which the defendants were practicing that were available to them. That they did not use a roentgen-ray machine was a circumstance to be considered by the jury as bearing on the question as to whether they failed to use ordinary care to discover that the nerve was caught.

### Prohibiting Public Gatherings to Prevent the Spread of Disease

*(Community Chautauquas, Inc., vs. Caverly et al. (U. S.), 244 Fed. R. 893)*

The United States District Court in Vermont dissolves a restraining order, and denies a preliminary injunction in this action to restrain the enforcement of an order of the board of health of the state of Vermont, dated July 17, 1917, directing that "no fairs, Chautauquas, street carnivals or circuses be held in the state of Vermont until further notice." The plaintiff, which owned and gave that form of entertainment known as a Chautauqua, and had a large number of contracts to give such entertainments in Vermont during the summer season of 1917, asked that the defendants, who were all of the health officers in the state in regions in which it was intended to hold Chautauquas, be restrained from making or enforcing any order designed to prevent the performance of such contracts. It was admitted that the reason for the order in question was, as set forth therein, a belief that "large general gatherings of people . . . have distributed" the infection of infantile paralysis. But the plaintiff complained that the order unjustly discriminated against it and its entertainments, for public gatherings induced by an intellectual entertainment such as a Chautauqua do not tend to spread infection, and that such is the opinion of some physicians.

Thus, the court says, the question primarily presented was whether the professional opinion of a board of physicians, honestly exercised, should be overturned by the chancellor on the ground that it was "unreasonable." Undoubtedly there are cases wherein police regulations cannot be held justifiable unless there are reasonable grounds for a belief that the necessary protection of the public health requires their passage. This is a simple doctrine, and means no more than that it is the duty of the court to examine into the facts of every case, and if a responsible, honest and presumably reasonable body of professional opinion is found on the side of the regulation, it is the duty of the court to uphold it, even though the chancellor should entertain the view of professional dissidents. The point is not whether the court agrees with the professional conclusion of a body of physicians, or engineers, or clergymen, but whether it is evident that the professional view is a reasonable view for men of the proper profession to entertain. They may be wrong, but is there any reasonable probability of their being right? If that question is answered in the affirmative, the professional regulation cannot be said to be unreasonable, as a matter of law. The court, therefore, is not called on to come to any conclusion whether the propagation of poliomyelitis is actually assisted by crowds; but it is persuaded that (1) a very responsible body of professional opinion is that way; (2) the Vermont board of health shares that view; (3) it has just as much right to entertain that view as the court has to entertain an opinion on a point of law, and (4) such a point of view cannot be held to be unreasonable.

That the prevention of disease, or its spread, by any means based on responsible medical opinion is a competent and constitutional exercise of police power is a proposition so plain as scarcely to require citation. And that the board of health acted within its statutory authority is plain from Chapter 194, Vermont Laws of 1917, which explicitly authorizes local health officers to forbid and prevent the assembling of people in any place, when the state board of health deems that the public health and safety so demand. This is not a delegation of lawmaking authority; for the assembly laid down the law, but intrusted its application to medical men who would presumably be better informed as to local conditions. No constitutional rights of the plaintiff were invaded.

Therefore the application cannot be granted, a result the more willingly reached because the papers presented (especially the results of poliomyelitis observations in Vermont for some years past) conclusively show to the court that the moves of this mysterious disease are so little understood that any honest medical efforts to effect its extermination should meet assistance rather than hostility.

### Jurisdiction of Prosecutions for Illegal Practice of Medicine

(*State vs. Amsden* (*Ore.*), *166 Pac. R. 942*)

The Supreme Court of Oregon affirms a judgment sustaining a demurrer to the charge against the defendant of practicing medicine without a license, on the ground that the circuit court did not have original concurrent jurisdiction of the subject-matter of the action, inasmuch as the statute regulating the practice of medicine and surgery provides that justices of the peace and the respective municipal courts shall have jurisdiction of violations of the provisions of this act. The court says that the amendment of the statute in 1895, giving inferior courts jurisdiction of alleged violations of the act regulating the practice of medicine and surgery, was probably induced by the fact that, in some of the counties of the state where terms of the circuit court were held only biennially, unlicensed persons pretending to be practitioners of medicine would pursue their assumed vocation in some village or hamlet until the grand jury convened, when the pseudodoctors would suddenly leave and seek other fields for exploitation. In order to prevent such illegal practice and speedily to convict and punish persons for violating the provisions of the act, the legislative assembly altered the statute and conferred on justices' courts and municipal tribunals jurisdiction of such offenses.

### Interest on Physician's Account from Verdict Only

(*Gearhart vs. Hyde* (*S. D.*), *164 N. W. R. 58*)

The Supreme Court of South Dakota holds that ordinarily interest is not allowable on a physician and surgeon's account, except from date of verdict. The court says that this action was brought to recover on an account the value of certain services performed by the plaintiff as a physician and surgeon in treating and caring for a minor son of the defendant, who had received an injury by coming into contact with an electric light wire. The plaintiff alleged that such services were performed on the express request of the defendant, and were reasonably worth $9,400. The defendant admitted that the services were performed on his request, and alleged that they were worth not to exceed $350. The account was closed, Dec. 9, 1912, that being the date when the plaintiff ceased performing professional services under the contract. The jury was instructed that the plaintiff was entitled to recover interest at the rate of 7 per cent. per annum from Dec. 9, 1912, to the date of the verdict, on whatever amount they should determine was due him, and they allowed him $2,600 as the value of his services, and $491.40 interest. The supreme court holds that the giving of this instruction was error, and that the plaintiff should be allowed only the $2,600, with interest thereon from Aug. 21, 1915, the date of the verdict.

Ordinarily, under the provisions of the Civil Code of South Dakota, money due and payable on an account draws interest from the date of the ascertainment of the balance or amount payable thereon. In many jurisdictions it seems to be held that when the value of the services, or other subject of account, is readily ascertainable by either party by resort to well known and fixed standards of customary or market values, such an account will draw interest from the time that the amount payable thereon should have been ascertained and paid; but when the value of the services performed, or other subject of account, is of such a nature and character as not to be susceptible of ascertainment by computation, or by reference to well known standards of market values, the plaintiff is not entitled to interest prior to the verdict.

This court is of the opinion that the character of the services performed by the plaintiff in this case was of such a nature that the value thereof was not susceptible of ascertainment by computation, or by reference to well known standards of value, and that, therefore, no interest could accrue on the plaintiff's claim until the amount had been ascertained by a jury, or by an accord between the parties. In such cases the criterion or test as to whether interest will run or not, prior to the verdict, is not to be determined alone from the fact that the parties have been unable to agree on the amount payable. Neither should a defendant be relieved from paying interest by reason of the fact alone that the plaintiff made too large a demand. But the true test is whether or not the balance or amount payable can be readily ascertained by resort to standard or customary market values. This case clearly falls within the class in which interest is not allowable prior to the verdict, except by accord between the parties.

### Not Practicing Medicine

(*Martin vs. Commonwealth* (*Va.*), *93 S. E. R. 623*)

The Supreme Court of Appeals of Virginia reverses a judgment of conviction of defendant Martin of practicing medicine without first having procured a certificate from the board of medical examiners. The court says that the essential facts were these: The accused was graduated from a Kansas school with the degree of "Doctor of Optometry." In March, 1912, he obtained for himself and his associates a charter of incorporation under the name of "Dr. Harry Martin, Incorporated." The principal office of the corporation was located in the city of Roanoke, and its chief business was manufacturing and dealing in optical goods. The accused, at the time of the prosecution, was a nonitinerant optician engaged in the practice of optometry, and had been so employed since the year 1884. He had the following display letters on the front door and windows of his place of business: "Dr. J. Harry Martin, Incorporated, Eyes Exclusively," and "Dr. J. Harry Martin, Incorporated, Optometrist." It did not appear that he had ever practiced or offered to practice medicine or surgery, either in the city of Roanoke or elsewhere. On this evidence the trial court, over the objection of the accused, instructed the jury that, if they believed from the evidence that he had used the display letters and words indicated above on the door and windows of his shop, then, as a matter of law, he was practicing medicine, and was guilty as charged in the indictment. The prosecution was founded on Chapter 84, Section 12, Acts of 1916, pp. 138, 147. The parts of Section 12 held to be applicable to this case read as follows:

> *Definition of Practice of Medicine.*—Any person shall be regarded as practicing medicine within the meaning of this act . . . (2) or who shall use in connection with his name the word or letters "Dr.," "Doctor," "Professor," "M.D." or "Healer," or any other title, word, letter or designation intending to imply or designate him as a practitioner of medicine in any of its branches, or of being able to heal, cure or relieve those who may be suffering from injury or deformity or disease of mind or body. This section shall also apply to corporations.

If, standing alone, the display signs or letters employed by the accused could be said to bring him within the condemnation of Section 12 (which the court need not decide), nevertheless, when that section is read in connection with Section 11, it is quite clear that he was not guilty of the offense of which he was convicted. Under "Exemptions from Examinations—Exceptions," Section 11, after declaring: "Nothing in this act shall be construed to affect commissioned or contract medical officers serving in the United States Army," etc., continues: "Or any nonitinerant person or manufacturer who mechanically fits or sells lenses, artificial eyes, . . . or is engaged in the mechanical examination of eyes for the purpose of adjusting spectacles, eyeglasses or lenses." Thus it plainly appears that the business or avocation of the accused is included in the foregoing exemption or exception, and that he was not amenable to this prosecution. The court also directs attention to Acts of 1916, Chapter 148, p. 251, which defines and regulates the practice of optometry, and makes provision for the establishment of a board of examiners in optometry, etc. For these reasons, the judgment of the corporation court of the city of Roanoke must be reversed, and the case remanded for further proceedings.

# Society Proceedings

## COMING MEETINGS

American Medical Association, Chicago, June 10-14.

Alabama State Medical Association, Birmingham, April 16.
Am. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
American Orthopedic Association, Washington, D. C., April 22-23.
Georgia State Medical Association, Savannah, April 17-19.
Kansas Medical Society, Kansas City, May 1-3.
Louisiana State Medical Society, New Orleans, April, 16-18.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25.
North Carolina State Medical Society, Pinehurst, April 16-18.
South Carolina Medical Association, Aiken, April 16-18.
Tennessee State Medical Association, Memphis, April 9-11.

## NEW YORK ACADEMY OF MEDICINE

*Meeting held Feb. 7, 1918*

The First Vice President, Dr. George D. Stewart,
in the Chair

The program of this meeting was furnished from the Camp Upton Base Hospital, Major J. Whitham, commanding.

### Classification and Results of Treatment of Pneumonia at Camp Upton

Capt. Russell L. Cecil: Health conditions at Camp Upton have been unusually good. It was not until the arrival of the colored troops from the South that there was an increase in the morbidity rate of the camp. The incidence of pneumonia by months was: October, 1 case; November, 4; December, 47, and January, 46 cases. The maximum number of troops in the camp was 35,000, the number of colored troops 3,500; yet 50 per cent. of the pneumonia cases have occurred among this 10 per cent. of the troops. Of the 100 cases of pneumonia, 75 were primary and 25 secondary, 19 of the latter following measles. Five of those following measles were streptococcus pneumonias. The classification of pneumonia cases according to the causative agent, comparing the Rockefeller series of cases with the Camp Upton series, showed that the pneumococcus was the cause of pneumonia in 94.50 per cent. of the Rockefeller cases and in 67.79 of the Camp Upton cases; the streptococcus was the causative agent in 3.1 per cent. of the Rockefeller cases and in 24.7 per cent. of the Camp Upton cases; the influenza bacillus in 1.2 per cent. of the Rockefeller series and in 2.2 per cent. of the Camp Upton series. There have been no cases in the Camp Upton series due to the Friedländer bacillus or the *Staphylococcus aureus,* though each of these organisms caused 0.6 per cent. of the Rockefeller series. The *Micrococcus catarrhalis* was not found as the causative agent in any of the Rockefeller group, while it caused 5.4 per cent. of the Camp Upton cases. The incidence of the four types of pneumococci in the Rockefeller groups of cases was, respectively, 33.9, 31.9, 12.9 and 24.9 per cent., while the relative incidence of the four types in the Camp Upton series was, respectively, 27.9, 12.79, 9.5 and 50.8. The average duration of the disease with each type of pneumococcus was: Type I, seven days; Type II, six and one-half days; Type III, six days, and Type IV, six and one-half days. There were a larger number of Type IV pneumonias than in civil life, and the cases of this type were a little more severe than in civil life. Of the twenty-three streptococcus cases, 24 per cent. were hemolytic and 76 per cent. nonhemolytic. The mortality rates for the different types were: Type I, 5.8 per cent.; Type II, 0.0; Type III, 16.6; Type IV, 18.7 per cent. The mortality of the streptococcus cases was 30.4 per cent. For the treatment of the cases the government supplied a Type I serum and a polyvalent serum (Mulford). We have tried one or the other of these serums in nearly all of the pneumococcus pneumonias, the serum being employed in 77 per cent. of all cases. Five-tenths c.c. of normal horse serum was given several hours before the administration of the antipneumococcus serum as a protection against anaphylaxis. In many of the streptococcus cases, as well as in the different types of pneumonia cases, the administration of the serum was followed by a marked drop in the temperature, which appeared to be a sort of foreign protein reaction. The serum as shown in other series of cases is most effective in pneumonia cases due to Type I pneumococci. The most frequent complication was empyema, which occurred in 12.9 per cent. of the pneumococcus cases and in 24.9 per cent. of the streptococcus cases. There were several cases of pneumococcus septicemia and a few relapses. Serum sickness occurred in about 25 per cent. of the cases. There were two cases of acute anaphylaxis. There was a mortality of 15 out of 100 cases of pneumonia, which was a very good showing. The mortality among the white troops was 14 per cent.; among the colored troops, 16 per cent., occurring mostly among the empyema patients. The lessons to be derived from our study of pneumonia at Camp Upton are: 1. All pneumonia cases should be typed. 2. Serum should be given in all Type I cases, as there is convincing evidence that the serum is of value in these cases. 3. The serum should be given early in the disease. 4. In the streptococcus cases one should be on the lookout for empyema, and as soon as pus is detected, free drainage should be established.

### Measles from the Standpoint of Military Medicine

Capt. F. J. Hackett, in Charge of the Contagious Wards: Since an Army barracks provides nearly all the conditions favorable to the development and spread of the measles, the disease is a large problem in National Army cantonments. The conditions that appear to play the most important rôle in its spread and control are (1) the character of the camp strength, whether urban or rural, and (2) early recognition with prompt and efficient methods of sanitation—of inspection, quarantine and isolation, and finally hospital treatment. That measles appears to be distinctly an urban disease is shown by the experience in a neighboring camp, in which, previous to the arrival of a large number of troops from a country district, the measles admissions were low; following the arrival of evidently nonimmune troops, the measles admission rate shot up week by week. At Camp Upton the experience has been very similar. During the fall and early winter there were few measles admissions. Since Jan. 1, 1918, the white measles cases have amounted to 25 per cent. of the total admissions, and it has been found that with one possible exception, all of these men were born or raised in rural communities, and had acquired city residence at a comparatively recent period. As a further precaution, trains arriving at Camp Upton with colored troops from measles-infected camps are inspected before the troops are allowed to detrain. With the advent of measles, the Y. M. C. A. hut was ordered closed, the post exchange was allowed to serve but two men at a time, and the regimental infirmaries were kept free from visitors. Measles patients returning to duty have been observed to fall easy victims of pneumonia; for this reason the Surgeon-General's Office has ordered measles patients held on the sick list two weeks longer than the usual quarantine period. Sixty measles patients have been admitted to the isolation wards of Camp Upton between Sept. 1, 1917, and Feb. 1, 1918. Medical treatment is purely symptomatic; a close watch is kept for pulmonary complications. Of the sixty admissions, pneumonia—probably bronchopneumonia, but massive and simulating the lobar type—was seen in seventeen cases, or 35 per cent. When pneumonia develops, the patient is immediately removed to the measles-pneumonia ward, where slightly more air space is allowed. Type I pneumococci were found in 11.7 per cent. of the cases; Type II was not found; Type III, in 5.8 per cent., and Type IV in 35 per cent. In 17.6 per cent. of the cases, the *Streptococcus viridans* was found, and the *Micrococcus catarrhalis* in a like percentage of the cases. There was but one death among the pneumonia patients following measles.

### Hyperthyroidism in the Recruit

Major Harlow Bbooks, Chief of the Medical Service of the Camp Upton Base Hospital: One of the greatest medical surprises to which I have been treated since on active service has been the large number of cases of hyperthyroidism, which in civil life I considered almost exclusively a disease of women, and particularly of women rather unstable in their youth. I lay no claim to having made a discovery in bringing this type of cases to your attention, for the British have described the same condition as the effect syndrome, or as

"D. A. H."—discovered action of the heart. This group of circulatory phenomena form an important and inseparable part of that condition known as shell shock, which occurs in many persons who have never heard the sound of a shell, but more particularly among many who most earnestly desire never to do so. The most striking feature of these cases in nearly every instance is tachycardia, this being the symptom which brings the patient to the regimental officer. This symptom is present alike in recruits presenting themselves for initial examination and in those who report later after army routine may have further served to upset their emotional and circulatory equilibrium. The tachycardia is rarely accompanied by arrhythmia; the rate is practically always increased by exercise, though in exceptional cases it may be slowed by exercise, particularly when the attention is distracted. Other symptoms observed are a throbbing of the superficial vessels, notably the carotids, brachials, and even the femorals; in thin persons that of the aorta is also evident. The polygram would absolutely differentiate this condition from aortic incompetence. The heart sounds are usually difficult to analyze, though in a good many cases there is a soft systolic murmur at the apex, transmitted at times with decreasing intensity toward the axilla. There are many symptoms apparently secondary to the tachycardia. The capillary return is almost always delayed, and a capillary pulse is simulated. Patients frequently complain of an oppressive bursting pain in the region of the heart, and one is often able to demonstrate areas of hyperesthesia. Other symptoms are rapid flushing and paling, fainting and dizziness. The blood pressure is very low except in hypersensitive patients. Epinephrin causes an increase in the symptoms, and there is apparently a hypersensibility to thyroid. The nitrites markedly increase the symptoms, and there is hypersensibility to vasomotor dilators. The tachycardia cannot be controlled by digitalis. The sedatives, notably the bromids, give marked relief in some instances, but are apparently without effect in others. Next to the tachycardia, the manifestation that is most striking is the emotional instability, which is an invariable accompaniment of this disease. This is manifested in epileptoid attacks, outbursts of passion, tears, profanity, or possibly convulsive muscular spasms. Outbursts of emotionalism are followed by a stage of great exhaustion in which the patient may be so prostrated as to appear moribund. Neurovascular instability may be further shown by the tache cérébrale, by dermographia, by urticarial rashes, and by the almost constant symptom of tremor. A very certain index of the strong emotional element in the disease is furnished by the types of nationalities chiefly affected. The Jews lead with 50 per cent. of the cases which have come under my observation, then next in the order come the Italians, the Irish, and last of all the negroes, among whom in about 5,000 recruits only a single case, and that one questionable, was seen. Most of the patients are above the average in mental acuity, and the condition is lamentably frequent among promising material for noncommissioned officers. In about two thirds of these cases one may see a definite thyroid hypertrophy, or at least a prominence of the thyroid. A notable factor having direct bearing on the question of the rôle that hyperthyroidism plays in this condition is the certain part that heredity plays in the syndrome. A very considerable number of the cases give a history of ancestral goiter, particularly on the maternal side. There is also in most instances a familial history of hysteria, insanity, perversions, or of genius. Exophthalmos is present in the long standing cases. Thus it may be seen that these cases present all the cardinal symptoms of true exophthalmic goiter. Rest is the one factor that relieves these patients, and mental and emotional rest is second in importance. The rôle that emotional shock, fright or mental traumatism plays in the activation of exophthalmic goiter is too well established to admit of question, and explains the reason so many of these cases occur among young men of draft age. Thus far the question has been as to whether the subjects have the making of soldiers in them. Many of these patients recover under the really healthful and normal routine of camp life. If in these cases careful training is imposed, not too severe, until the recruit is prepared for heavy work; if the worry and strain are sufficiently relieved by reaction, by games, camp shows, etc., these men—often of the finest patriotic and spiritual fiber—are certain to make good soldiers; but if they are unhappy, or if overheavy or premature work is imposed, the recruit either may break nervously, or cardiac incompetence may ultimately develop.

### Auto-Inoculation in Syphilis

CAPT. JOSEPH KLAUDER, Philadelphia, in Charge of the Syphilis Ward: A review of the literature shows that persons infected with syphilis are susceptible to a second inoculation or superinfection with syphilis, not only during the period elapsing between the infection and the appearance of the chancre, but also at periods shortly subsequent to the appearance of the primary sore. In my analysis of 200 cases of chancre, 24 per cent. were found to be multiple; in some of these cases, according to the statement of the patient, the second lesion appeared subsequent to the first. The cases that I am herewith reporting are probably instances of superinfection with syphilis. The possibility of superinfection should be considered in the diagnosis of a genital lesion containing the spirochetes when appearing in a person giving a history of having had the disease. If in such a lesion the spirochetes are found in profusion and the Wassermann reaction is at first negative, later becoming positive, it is evidence of the lesion being a primary sore, a reinfection; whereas if the spirochetes are present in scant numbers and the Wassermann reaction is positive at the time of its appearance, it is evidence of a possible superinfection. Genital lesions that I have observed and regarded as superinfections were papular ulcerative and ulcerative in type, with slight induration; they were clinically not chancre. It is probable that many so-called second attacks of syphilis, or reinfection, are cases of superinfection. There is nevertheless evidence that so-called secondary attacks of syphilis may at times occur. By a second attack should be understood the occurrence, twice in a patient's life, of a primary sore followed by secondary symptoms; and if this definition were accepted, the phenomenon would be rather rare. In the differential diagnosis of genital lesions of the nature herein considered, besides reinfection and superinfection, the following possibilities should be considered: (1) ulcerative processes over foci of syphilitic lymphangitis on the penis, which might in rare cases simulate a recrudescence of the primary sore; (2) a mucous patch or an abrasion; (3) a localization of spirochetes at the point of lessened resistance as the result of trauma. Trauma in a syphilitic subject is often the determining point for the development of gumma.

#### DISCUSSION

DR. SIMON BARUCH: I may be able to throw some light on Dr. Brooks' paper by mentioning the fact that in my experience in a number of institutions in this city I have seen this type of cases with enlarged thyroid and the same type of nervous instability which has been described by Dr. Brooks, and I have observed that the mental condition of the patient is frequently responsible for intensifying the symptom. Such persons may go along fairly well until they are subjected to some great nervous or emotional strain, and immediately this will bring out more active symptoms of thyroid disease.

DR. WILLIAM P. NORTHRUP: I have been trying for many years to keep measles out of institutions, and have found it a most difficult thing to do when there are large groups of children in one building and new groups are frequently introduced. When an epidemic starts in a large institution, it seems that nothing will stop it until it has run its course. In order to see whether these children with measles could be kept from having complications and also to prevent the spread of the disease, Dr. Freeman tried keeping measles patients outdoors, and he found that the children treated outdoors did better than those treated indoors. When a case of measles occurs among the Indians, they place the patient in a tightly closed tent and keep a pot of water boiling with a brick in it. Under this treatment nearly every measles patient dies. I should like to know whether Captain Hackett has made any comparison of the results of treating measles in the adult indoors and in the open air.

Dr. William M. Leszynsky: From my observations I feel confident that it is the emotional strain rather than a disturbance of the thyroid secretion that is responsible for the symptoms described. Many of these men who have been under observation will never reach the other side, and I feel that it will be an advantage to the government if they do not get over, because men showing this instability are more likely than others to suffer from war neuroses. It would be interesting to know what percentage of these men have been found suitable for the Army when the tachycardia has disappeared.

Major Harlow Brooks: A small percentage become fit for military service, but many may be found useful to the government in other lines of work.

Capt. F. J. Hackett: In reply to Dr. Northrup's question I would say that we treat all measles patients in warm, well ventilated wards. I believe this is the reason our mortality has been so low. I had one man with measles who developed a *Micrococcus catarrhalis* pneumonia in a poorly warmed ward. He was removed to a warm ward and the improvement that followed was remarkable.

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Ophthalmology, Chicago

Jaunary, 1918, **1**, No. 1

1 Essential Atrophy of Iris. M. Feingold, New Orleans.—p. 1.
2 Luxation and Avulsion of Eyeball During Birth. H. Friedenwald, Baltimore.—p. 9.
3 Aneurysms of Retinal Arteries. J. E. Jennings, St. Louis.—p. 12.
4 Primary Syphilis of Palpebral Conjunctiva. E. E. Maxey, Boise, Idaho.—p. 13.
5 Cyst of Dural Sheath of Optic Nerve. W. C. Bane, Denver.—p. 17.
6 Adaptability of Phoro-Optometer Stereoscope for Haitz and Bissell Charts. D. W. Wells, Boston.—p. 20.
7 Massive Spontaneous Hemorrhages into Vitreous. L. F. Appleman, Philadelphia.—p. 24.
8 Rise and Progress of Ophthalmology as Specialty in Philadelphia. S. D. Risley, Philadelphia.—p. 28.
9 Composite Ophthalmia Neonatorum Law. T. H. Shastid, Superior, Wis.—p. 43.

### Annals of Ophthalmology, St. Louis

October, 1917, **26**, No. 4

10 Ocular Palsies in Infantile Paralysis; Report of Two Cases. A. C. Sautter, Philadelphia.—p. 541.
11 Case of Cavernous Angioma of Orbit. B. Chance, Philadelphia.—p. 547.
12 Treatment of Trachoma with Bulgarian Bacillus Culture. J. P. Crawford, Nashville, Tenn.—p. 557.
13 Inflammation of Conjunctiva Resembling Trachoma. C. J. Broyles, Johnson City, Tenn.—p. 560.
14 Transitory Hyperopia in Diabetes. F. A. Kiehle, Portland.—p. 564.
15 Cocain Keratitis. R. I. Lloyd, Brooklyn.—p. 568.
16 Case of Hereditary Bilateral Upward Coloboma of Iris with Remarks on Hereditary Blindness. C. Loeb, Chicago.—p. 573.
17 Treatment of Vitreous Opacities. W. H. Peck, Chicago.—p. 580.
18 History of Operation for Cataract. W. H. Crisp, Denver.—p. 585.
19 Comparison of Results of Elliot Trephine Operation and Iridotasis, on Same Patient, for Relief of Glaucoma. T. H. Odeneal, Beverly, Mass.—p. 601.

### Boston Medical and Surgical Journal

Feb. 14, 1918, **178**, No. 7

20 Suggestions on Care of Mental Cases. F. H. Packard, Waverley.—p. 211.
21 Relation of Industrial Surgeon to Industry and to Society. J. F. Curran, Worcester.—p. 215.
22 Organized Provision for Care of Sick in Massachusetts. G. E. Whitehill, Everett.—p. 217.
23 *Gastroduodenal Perforation: New Diagnostic Sign. M. T. Field, Salem.—p. 220.
24 Differentiation of Streptococci. D. M. Lewis, New Haven, Conn.—p. 222.
25 Case of Severance of Chorda Tympani Nerve. I. Sobotky, Boston.—p. 224.

23. **Gastroduodenal Perforation.**—Of aids to diagnosis of gastroduodenal perforation that are independent of parietal peritoneal pain and sensitiveness. Field regards the presence of free air in the peritoneal cavity as being the most important. Every perforation large enough to allow fluid to escape, also allows some gas to pass through. When air is free within the peritoneal cavity, in sufficient amount, it may pass between the liver and diaphragm, causing obliteration of liver dulness. Roentgen-ray examination verifies this. Study and experience have led Field to the conclusion that obliteration of liver dulness is not so much absolute as relative, and depends much on the position in which the patient is examined. This practical point may be of the greatest value in differential diagnosis.

### Cleveland Medical Journal

January, 1918, **17**, No. 1

26 Calcium Deposit in Tendon Sheath, Simulating an Osteoma. L. A. Pomeroy, Cleveland.—p. 1.
27 First Signs of Insanity. H. H. Drysdale, Cleveland.—p. 6.
28 Effect on Eye of Tincture of Iodin. R. B. Metz, Cleveland.—p. 18.
29 Two Cases of Cerebellar Abscess and One of Epidural Abscess of Otitic Origin, Presenting Similar Symptoms. D. A. Prendergast, Cleveland.—p. 20.

### Journal of Bacteriology, Baltimore

January, 1918, **3**, No. 1

30 Toxicity of Victoria Blue 4 R. for B. Paratyphosus A and B and B. Enteritidis. O. Teague, New York.—p. 1.
31 Automatic Water Level for Arnold Sterilizers. I. C. Hall, San Francisco.—p. 7.
32 *Aerobic Spore-Forming Bacillus Giving Gas in Lactose Broth Isolated in Routine Water Examination. E. M. Meyer, Cincinnati.—p. 9.
33 *Simple Method for Classification of Bacteria as to Diastase Production. P. W. Allen, Urbana, Ill.—p. 15.
34 Simple and Practical Medium for Differentiating B. Typhosus, B. Paratyphosus A and B. B. Enteritidis and B. Coli. K. I. Moishima, New York.—p. 19.
35 New Apparatus for Obtaining Simultaneous Cultures of any Desired Age for Comparative Study. R. G. Perkins, Cleveland.—p. 23.
36 Studies in Nomenclature and Classification of Bacteria. R. E. Buchanan, Ames, Iowa.—p. 27.
37 Study of Green Fluorescent Bacteria from Water. F. W. Tanner, Urbana, Ill.—p. 63.

32. **Aerobic Spore Forming Bacillus.**—An aerobic bacillus giving gas from lactose, and demonstrated to be spore forming, has been isolated by Meyer eight times between January 30 and April 20, 1917, from the tap water of Newport, Ky. This organism is believed to be a species whose isolation has never before been described.

33. **Classification of Bacteria as to Diastase Production.**—During the last two years in the Dairy Bacteriology Laboratory of the University of Illinois the use of potato slants for the determination of diastase production by bacteria has been replaced by a simple plate method as follows: A starch agar is made by adding 0.2 per cent. of water soluble starch to the regular plain agar. This starch agar can be sterilized in the autoclave along with other mediums. Some hydrolysis takes place, but not enough to interfere with the test. The agar is poured into Petri dishes and allowed to cool, when a stroke 2 inches long is made with a loopful of an agar slant growth of the organism to be tested. The plates are incubated for two days at 37 C. and five days at 20 C., after which they are flooded with a saturated solution of iodin in 50 per cent. alcohol. A clear area about the stroke averaging more than 2 mm. in width classifies the diastatic action as strong, while a width of 2 mm. or less marks it as feeble and the absence of a halo as absent.

### Journal of Cancer Research, Baltimore

January, 1918, **3**, No. 1

38 *Experimental Study of Pathogenesis of Carcinoma. K. Yamagiwa and K. Ichikawa, Tokyo, Japan.—p. 1.
39 *Histologic Study of Heterologous Tumor Grafts. F. D. Bullock and G. L. Rohdenburg, New York.—p. 31.
40 *Significance of Cartilage in Carcinochondrosarcoma of Mouse. W. H. Woglom, New York.—p. 47.
41 Growth of Tumors in Chick Embryo. H. N. Stevenson, New York.—p. 63.
42 *Part Played by Hydroxy-Benzol Radical in Acceleration of Growth of Carcinomas by Cholesterol and Tethelin. T. B. Robertson and T. C. Burnett, San Francisco.—p. 75.
43 Cases of Typical and Atypical Lymphosarcoma. G. M. Mackenzie, New York.—p. 93.

38. **Pathogenesis of Carcinoma.**—Papillomatous new growths (which Yamagiwa and Ichikawa's term folliculo-epitheliomas) may be produced on the rabbit's ear by the application of coal tar for thirty to 100 days. The proportion of folliculo-epitheliomas to the total number of ears treated gradually

rises. By the repeated application of coal tar, eight cases of carcinoma in its earliest stage, sixteen in an early stage, and seven complete carcinomas were produced. The carcinomatous change was discovered between the fifty-fifth and the three hundred and sixtieth day; in most of the cases it was found after the one hundred and fiftieth day. The hyperkeratotic pedunculated or sessile folliculo-epitheliomas produced by irritation with coal tar continued to grow after the irritant had been discontinued, and eventually developed into cutaneous horns. Some of these horns grew for years after the withdrawal of the coal tar, while others fell off spontaneously; in the great majority of the latter animals new cutaneous horns grew again from the same base, or from the neighboring epithelium, as is the case in man. The seventh and sixteenth cases of carcinoma in its early stage developed from cutaneous horns about 300 days after the tar had been discontinued. The presence of metastasis was microscopically proved in the regional lymph nodes in the fourth and sixth cases of carcinoma. The animals which bore folliculo-epitheliomas did not begin to emaciate while the new growth maintained its benign character. Yamagiwa's hypothesis has been confirmed: The repetition or continuation of chronic irritation may cause a precancerous alteration in epithelium previously normal. If the irritant continue its action, carcinoma may be the outcome, even though no specific agent has been interpolated.

39. **Heterologous Tumor Grafts.**—This paper records three series of experiments on closely related factors in tumor immunity: (*a*) a study of the relation between the local tissue reaction and the heteroplastic tumor graft; (*b*) the effect of removal of the spleen on the growth of heterologous tumor; (*c*) a study of the immunizing power of one heterologous tumor on the growth of a second heterologous tumor of different type, and the possible influence of splenectomy on such immunity. Bullock and Rohdenburg claim that while the death of some heteroplastic tumor grafts may, perhaps, be attributed to the action of lymphocytes and connective tissue, there is no histologic proof that it is always determined by these factors. Tumors elicit in foreign species a reaction of much the same character as that produced in homologous animals. Removal of the spleen has no influence on the receptivity of an animal toward heteroplastic tumor grafts. Splenectomy does not favor the growth of heteroplastic tumor grafts. One inoculation of a heterologous tumor does not always render an animal immune to the temporary growth of a subsequent heterologous graft.

40. **Significance of Cartilage of Carcinochondrosarcoma.**—Woglom says that the presence of cartilage in the sarcomatous portion of a carcinosarcoma in the mouse strongly suggests that the sarcomatous part was of connective tissue, rather than of epithelial origin.

42. **Acceleration of Growth of Carcinomas by Cholesterol and Tethelin.**—Robertson and Burnett summarize their work as follows: The accelerative action of cholesterol on the growth of carcinoma is dependent on the hydroxyl radical. Other hydroxy-benzol derivatives, namely, metacresol, benzyl alcohol, hexahydrophenol, borneol and inosite, do not cause any decisive acceleration of tumor growth. They infer that the accelerative actions of cholesterol and tethelin are not due to their possession of a hydroxybenzol group, but that the accelerative action of cholesterol is in some way rendered possible by its possession of a hydroxyl group. The hydroxyl group may act as an anchoring group, fixing the cholesterol to the tissue, or it may merely facilitate the distribution of cholesterol throughout the tissue fluids by rendering the cholesterol emulsifiable.

### Journal of Immunology, Baltimore

January, 1918, 3, No. 1

44 *Rapid Method for Production of Precipitin Antigen from Bacteria: An Attempt to Apply it to Determination of Type of Pneumococcus in Sputum. C. Krumwiede, Jr., and W. C. Noble, New York.—p. 1.
45 *Von Dungern's Indigo Test for Syphilis. B. Fujimoto, Tokyo, Japan.—p. 11.
46 *Extracts of Antibodies Obtained from Specific Precipitates of Typhoid Antityphoid Serum Complex. I. Weinstein, New York. —p. 17.
47 *Specificity of Intracutaneous Absorption. G. H. Smith and M. W. Cook, Glenolden, Pa.—p. 35.
48 Specific Reactions of Body Fluids in Pneumococcic Infections. G. R. Lacy and C. C. Hartman, Pittsburgh.—p. 43.

44. **Production of Precipitin Antigen from Bacteria.**—Krumwiede and Noble describe their method as follows: To a heavy suspension of bacteria in distilled water, add sufficient alkaline hypochlorite solution to give a final concentration of 5 per cent.; boil over the free flame or heat in a water bath for several minutes. If the bacteria have not dissolved, add more of the alkaline hypochlorite solution and reheat. Repeat this process till the bacteria are completely dissolved. This is shown by the appearance of translucency. Add several drops of an alcoholic solution of phenolphthalein. Then add a normal hydrochloric acid volumetric solution till the color is just discharged. To this neutralized solution, add several volumes of 95 per cent. alcohol. A copious precipitate which increases on standing, should result. The precipitate is collected by centrifuging and decanting the supernatant fluid. Add normal saline solution to the sediment to give approximately a 1:20 solution by volume and extract at the temperature of boiling water or boil over the free flame for from three to five minutes. Then centrifuge to clear the solution of the insoluble débris. The supernatant fluid is the finished antigen. It can be prepared in a half hour or less if necessary. This antigen can be reheated for sterilization at 100 C. apparently indefinitely.

45. **Von Dungern's Indigo Test for Syphilis.**—Fujimoto claims that von Dungern's indigo test for syphilis is practically unavailable for the serum diagnosis of syphilis, because there is no difference as to this test between syphilitic and nonsyphilitic serums. Among the substances that the reagent contains, neither indigo nor salts play any part in the inhibition of the coagulation, as von Dungern formerly thought. The coagulation of serums in this reaction is prevented only by the alkali, as Flood proved. The degree of alkalinity that can prevent the coagulation of serum, varies according to the individual, not according to the presence or absence of syphilis. On the other hand, the alkalinity that prevents the coagulation of serums varies according to the concentration of the serums; that is, the more diluted the serum, the more easily may its heat coagulation be prevented by alkali.

46. **Antibodies Obtained from Precipitates of Typhoid Antityphoid Serum.**—An extract of typhoid bacilli, formed by digesting the bacteria in 2.5 per cent. antiformin and neutralizing the solution with normal hydrochloric acid, produces a voluminous precipitate when mixed with antityphoid serum. An equal amount of such an antigen solution and serum produces the maximum precipitate. Weinstein says that such precipitates contain not only precipitins, but also agglutinins, complement fixing, bactericidal and protective bodies. By passing stock cultures of typhoid bacilli through guinea-pigs, whose resistance is lowered by the simultaneous injection of streptococcus vaccine, it is possible so to increase the virulence of the culture that small doses will kill mice and guinea-pigs in a short time. One c.c. of extract will protect guinea-pigs against 2 c.c. of typhoid bouillon culture, a fatal dose; 0.2 c.c. of extract will protect mice against 0.2 c.c. of culture, which is likewise a fatal dose.

47. **Specificity of Intracutaneous Absorption.**—In the present work guinea-pigs immunized to one antigen were tested by the intracutaneous injection of the specific and also of a heterologous antigen to demonstrate to what extent absorption depends on a specific factor. It is evident from the data given that precipitin and agglutination tests are satisfactory means for measuring the transference of antigen. The agglutination titrations run parallel with the precipitin tests. The process of immunization develops a mechanism whereby the specific antigen is removed from the cutaneous tissues to reappear in the serum at a rate far in excess of that occurring in normal animals. The conclusion drawn by Smith and Cook from this work is that the immune state so alters the process of antigen absorption from the skin that the specific antigen is removed more readily than in the normal state. Moreover, it is of especial interest that in an immunized

animal the nonspecific antigen is not eliminated as rapidly as is the same antigen from normal tissues, for in the animals immunized to horse serum the rate of disappearance of goat serum was delayed over that found in normal pigs. It would seem, therefore, that in immunized animals, a specific mechanism has been developed at the expense, in some measure, of the normal process.

### Journal of Pharmacology and Experimental Therapeutics, Baltimore

January, 1918, **10**, No. 7

49 *Quantitative Study of Effect of Digitalis on Heart of Cat. G. C. Robinson and F. N. Wilson, St. Louis.—p 491.
50 *Absorption of Drugs and Poisons Through Vagina. D. I. Macht, Baltimore.—p. 509.
51 *Local Hemostatic Properties of Cotarnin and Some other Agents. P. J. Hanzlik, Cleveland.—p. 523.

49. **Effect of Digitalis on Heart.**—The experiments made by Robinson and Wilson indicate that the action which digitalis exerts on the cat's heart is altered when the vagi are cut. The inversion of the T wave occurs practically with the same dosage and to the same extent as it does when the vagi are intact, but the auriculoventricular conduction and the heart rate are almost unaffected by digitalis intravenously injected to the lethal dose after the vagi have been cut. These findings indicate that the drug exerts its action on the heart of the cat both directly and through its effects on the vagus center. The direct action on the heart as shown by the change in the T wave of the electrocardiogram is the first definite effect to appear when a constant percentage of the lethal dose of the drug is injected at intervals intravenously. The moderate slowing of the heart rate which followed the injection of digitalis in vagotomized cats may be an indication of the stimulation of the peripheral end of the vagi.

50. **Absorption of Drugs Through Vagina.**—Macht shows that a large number of drugs and poisons—alkaloids, inorganic salts, esters and antiseptics—can be and are easily absorbed through the vaginal wall, and that poisoning through the vagina, of a grave character, is not very rare. These experiments indicate, on the one hand, the possibility of administering drugs therapeutically for their constitutional effects through the vaginal route; and on the other hand emphasize the great danger of the indiscriminate employment of various poisonous substances in the form of douches, tampons, "uterine wafers," etc.

51. **Local Hemostatic Properties of Cotarnin.**—Hanzlik states that as compared with epinephrin, the salts of cotarnin (styptol and stypticin) and sodium phthalate are certainly inferior hemostatics, and probably entirely inactive in this respect.

### Kansas Medical Society Journal, Topeka

February, 1918, **18**, No. 2

52 Freudian Psychology. M. S. Deland, Topeka.—p. 29.
53 Relationship of Gastric Ulcer to Malignancy. A. Smith, Parsons. —p. 36.

### Medical Record, New York

Feb. 16, 1918, 93, No. 7

54 Wounds of Thorax in War. J. R. Eastman, Indianapolis.—p. 265.
55 *Report on Ten Thousand Cases from Clearing House for Mental Defectives. M. G. Schlapp and A. E. Paulsen, New York.—p. 269.
56 Flatfeet and Two Opinions. D. H. Stewart, New York.—p. 275.
57 Symptomatic Atelectasis. A. Abrams, San Francisco.—p. 276.
58 Uterine Fibroid Tumors. F. D. Reese, Cortland.—p. 278.
59 Accidents and Complications of Fistula Operations. C. J. Drueck, Chicago.—p. 280.
60 Some Costly Illusions in Management of Tuberculosis Patients. H. Crutcher, Tularosa, N. M.—p. 282.
61 Radium Emanation in Hay-Fever. F. E. Park, Stoneham, Mass.—p. 284.

55. **Clearing House for Mental Defectives.**—The Clearing House for Mental Defectives was established by Dr. Schlapp in 1911, at the Post-Graduate Hospital in New York City. The institution formulated as its aim the detention, scientific diagnosis, registration and research into mental deficiency, and recommended that all persons found to be socially unfit, actually or potentially, possibly as a result of mental defect, should be referred to the Clearing House by the agent of the department or society which discovers them, and that at the Clearing House they should be subject to the following procedure: (1) complete registration and identification of the person by means of photographs and by mental and physical measurements, combined with a complete history of the case and all relative facts obtainable; (2) diagnosis; (3) recommendations for care, treatment and training proper to each case; (4) follow-up work. In the beginning the Clearing House received its patients from chance applicants at the hospital and from miscellaneous social workers who know of its existence. In 1913, Commissioner Drummond of the Department of Public Charities recognized the Clearing House as the official examining place for admission to Randall's Island. Since the summer of 1915 the official relationship between the Department of Public Charities and the Clearing House has been severed. In 1913, the state legislature passed a bill providing for proper examination of children passing through the courts, and in January, 1917, the courts, basing their authority on this law, established a separate clinic for their own cases. The original Clearing House, however, continues its work just as it always did receiving patients from any agency which may find occasion to use it. On the average, about 1,500 new cases are seen every year. The Clearing House has now examined over 10,000 cases. An analysis of these cases is given.

### Mental Hygiene, New York

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62 Management of War Neuroses and Allied Disorders in Army. J. Collie.—p. 1.
63 Mental Health for Normal Children. W. H. Burnham.—p. 19.
64 Consideration of Conduct Disorders in Feebleminded. L. P. Clark, New York.—p. 23.
65 Feeblemindedness and Industrial Relations. C. S. Rossy, Ossining.—p. 34.
66 Practical Function of Psychiatric Clinic. J. T. MacCurdy, New York.—p. 53.
67 Family of Neurosyphilitic. H. C. Solomon and M. H. Solomon, Boston.—p. 71.
68 Better Statistics of Mental Diseases. H. M. Pollock, New York. —p. 81.
69 Study of Six Hundred and Eight Admissions to Sing Sing Prison. B. Glueck, New York.—p. 85.

### Military Surgeon, Washington, D. C.

February, 1918, **42**, No. 2

70 *Epidemic of Measles and Pneumonia in 31st Division, Camp Wheeler, Ga. L. C. Duncan.—p. 123.
71 Treatment of Pneumonia in Base Hospital. Camp Wheeler, Ga. J. Sailer.—p 133.
72 *Disposition of Patients and Candidates for Enlistment who Present Symptoms and Signs of Heart Disease. J. M. Swan. —p. 139.
73 Effects of High Altitudes on Efficiency of Aviators. E. G. Seibert. —p. 145.
74 *Study of Aerobic Bacteria Found in Wounds Received on Battlefield of Somme. J. S. Lawrence.—p. 149.
75 Medicomilitary Notes. R. W. Hinds.—p. 169.
76 Laboratory of Experimental Sanitation at Medical Officers' Training Camp, Fort Riley, Kan. D. M. Shewbrooks.—p. 179.

70. **Measles and Pneumonia at Camp Wheeler.**—The following measures were adopted at Camp Wheeler to combat the measles and pneumonia epidemic: A sufficient amount of woolen clothes, including overcoats and blankets, was secured. Through the effective action of the Surgeon-General sufficient tents were secured to place but five men in a tent, allowing 50 square feet of floor space per man. Greater efforts were made to secure systematic furling of tents, and the keeping open of tent hoods and doors at night. A sentry was placed in each company street to enforce this order. Tent floors were required to be mopped out daily with a 2 per cent. creolin solution. Spit boxes, filled with sand wet with creolin solution and emptied daily, were required in each tent. Mess kits were required to be boiled and the use of dish rags was not allowed. Careful supervision of dental work was required, with sterilization of instruments by boiling. Sterilizing rooms were constructed at the base hospitals and in all infirmaries, for sterilization of effects of pneumonia patients. Formaldehyd solution and phenol were used in these. Pneumonia convalescents were segregated and not returned to regiments, but later sent to Fort McPherson hos-

pital. The spraying of throats of convalescents with dichloramin-T was required. Measles patients were separated by screens in the hospital, and retained for a much longer time than previously. From an early date, pneumonia patients were segregated in the base hospital and the types, so far as possible, separated, measles pneumonia being isolated from independent pneumonia. Sprinklers were secured and a general system of road sprinkling was instituted, though at rather a late date. The stopping of all gatherings was considered long and carefully, but never adopted. Prophylactic vaccination was advised by Duncan as an experiment, but has not yet been tried.

72. **Disposition of Recruits with Heart Disease.**—The following data are presented by Swan for the guidance of recruiting officers and ward surgeons: 1. A candidate for enlistment who presents definite evidence of mitral stenosis, aortic regurgitation, aneurysm or hypertrophy of the heart should be rejected. 2. A candidate who presents an apex systolic murmur, transmitted into the axilla and heard at the angle of the scapula, accompanied by definite evidence of cardiac hypertrophy and subjective symptoms, should be rejected. 3. A candidate who presents an apex or a basal systolic murmur of irregular transmission, not accompanied with cardiac hypertrophy, and unattended, except occasionally, with subjective symptoms, should be accepted. It is altogether likely that such a candidate, under regular outdoor life with systematic muscular exercise, would prove satisfactory material for the development of a good soldier. 4. A candidate who presents an extrasystolic arrhythmia or a respiratory arrhythmia should be accepted, provided there is no evidence of organic heart disease. 5. A candidate who presents a pulsus irregularis perpetuus (auricular fibrillation) should be rejected. 6. Cases of functional cardiac disease which have, in the past, been termed irritable heart of soldiers, etc., should not be treated as cardiac cases. They should not receive digitalis. They should not be kept in bed. They should be employed at tasks which require a gradually increasing expenditure of muscular effort. Calisthenics should form a part of their treatment. 7. Candidates for enlistment who give a history of syphilis and of recurring attacks of rheumatic fever should be rejected.

74. **Study of Aerobic Bacteria Found in Wounds on Battlefield.**—The purpose of this paper is to give the American surgeon and bacteriologist an idea of the types of organisms that contaminate gunshot wounds made on the western front, their relative frequency and importance and simple methods for their identification. The material was collected in the summer of 1916 from wounds inflicted on all parts of the body and received about Peronne at the time of the English and French drive. About 1,500 wounds were studied culturally, and more than 5,000 stained preparations were examined from July until November. Lawrence says that every wound will be contaminated sooner or later, while the vast majority are infected at the time of making. Another source of infection may be the dressing. The microscopic findings were often hastily reported as streptococci, staphylococci or gram-negative or gram-positive bacilli. The great mass of organisms were micrococci, both gram-negative and gram-positive, and gram-negative bacilli of the colon proteus group. In more than 80 per cent. of the wounds studied culturally, streptococci (cocci appearing in chains of four or more units) were found. In the deep or pocketed wounds the streptococci flourished, but in the shallow wounds, or when the deep pockets were opened wide, they were replaced by staphylococci in the course of healing. Gram-negative and gram-positive varieties of both streptococci and staphylococci were observed. Varying degrees of anaerobiasis were manifested in the deep cultures examined after twenty-four hours' growth. The pneumococcus, *M. catarrhalis, M. tetragenus* and *enterococcus,* in addition to *M. aureus* and *M. albus,* were recognized.

Gram-negative bacilli, usually of the typhoid colon size but occasionally some that were larger, were present in 95 per cent. of the wounds. The following organisms were isolated in pure culture with the frequency indicated. *B. coli* was found in more than 50 per cent. of the wounds. *B. vulgaris* was found in about 40 per cent. of the wounds, *B. aerogenes* and *B. pseudodysentericus* (Müller, 1902) were isolated from about 25 per cent. of the wounds. *B. cloacae, B. rhinoscleroma* and *B. alcaligenes* were each isolated from 10 to 20 per cent. of the wounds. *B. pyocyaneus* was isolated from only about 10 per cent. of the wounds while they were still fresh, but as the wounds grew older it was found more frequently. Larger bacilli, both gram-negative and gram-positive, were observed in about 20 per cent. of the wounds and, when cultured, proved frequently to be aerobic spore-bearing organisms. Of these the following varieties were isolated. Arranged in the order of their frequency, they are: *B. cereus, B. mesentericus, B. vulgatus, B. subtilis, B. fusiformis, B. albolactus, B. aterrimus, B. megaterium, B. brevis, B. terminalis* and *B. circulans.* These organisms usually disappeared very promptly from wounds under treatment. Other gram-positive bacilli, but nonspore-bearing, were very like *B. diphtheriae* in morphology. These organisms were more prevalent in the winter than in the summer. These observations indicate that: (*a*) The type of contamination may vary with the location of the battlefield, with the time of the year, with the age of the wound and with the care exercised in making the dressings. (*b*) The contaminating organisms are saprophytes or parasites from the air or intestinal tract. (*c*) They are mostly nonpathogenic, but, when exceptionally situated, may produce toxic conditions.

### Minnesota Medicine, St. Paul

February, 1918, **1**, No. 2

77 Colles' Fracture. O. W. Parker, Ely.—p. 53.
78 Military Surgeon in Service. H. Greenleaf, Fort Snelling.—p. 62.
79 Medical Advisory Boards. W. J. Mayo, Rochester.—p. 66.

### New Jersey Medical Society Journal, Orange

February, 1918, **15**, No. 2

80 From Nursery to Dining-Room. W. W. Riha, Bayonne.—p. 37.
81 Malingering. W. J. Chandler, South Orange.—p. 41.
82 Loose Kidneys. F. M. Donohue, New Brunswick.—p. 46.
83 Inversion of Uterus with Spontaneous Replacement. J. A. Maclay, Paterson.—p. 48.

### New York Medical Journal

Feb. 16, 1918, **107**, No. 7

84 Relation of War to Nourishment of Children. S. J. Baker, New York.—p. 289.
85 Cure of Heart Disease in America as Replacing Heart Cures of Europe. L. F. Bishop, New York.—p. 293.
86 Tuberculosis and Roentgenograms. M. E. Lapham, Highlands N. C.—p. 294.
87 Epilepsy. F. R. Starkey, Detroit.—p. 298.
88 Control of Communicable Diseases in City of New York.—S. D Hubbard, New York.—p. 303.
89 Practical Points Concerning Diphtheria. D. M. Lewis, New Haven Conn.—p. 306.
90 Exanthematous and Other Forms of Influenza. B. Frankel, New York.—p. 308.

### Southern Medical Journal, Birmingham, Ala.

February, 1918, **11**, No. 2

91 Present Outlook on Tuberculin Therapy. P. H. Ringer, Asheville, N. C.—p. 83.
92 *Fundamentals of Vaccine Therapy. E. D. Holland, Hot Springs, Ark.—p. 87.
93 *Value of Triple Typhoid Vaccine in Civil as Well as Military Life R. Lyons, New Orleans.—p. 89.
94 Natural Starting Point of All Rational Medical Thought. J. C Johnson, Atlanta, Ga.—p. 94.
95 Some Manifestations of Malaria Relative to Digestive Disturbances J. E. Knighton, Shreveport, La.—p. 98.
96 *Relative Value of Public Health Nurse in Solution of Tuberculosis Problem. W. L. Heizer, Frankfort, Ky.—p. 103.
97 Medical Inspection of Schools in North Carolina. G. M. Cooper Raleigh, N. C.—p. 112.
98 Medical Supervision of Employees in Large Industries. J. A Gentry, Atlanta, Ga.—p. 115.
99 Recent Progress in Treatment of Cancer of Prostate, Seminal Vesicles and Bladder. H. H. Young, Baltimore.—p. 120.
100 *Tumors of Urinary Bladder. E. S. Judd and S. W. Harrington, Rochester, Minn.—p. 129.
101 Interpretation of Lumbosacral Backache in Women. E. H. Richardson, Baltimore.—p. 139.
102 Blood Transfusion in Emergency Surgery—Sodium Citrate—Indirect Method. E. T. Newell, Chattanooga, Tenn.—p. 145.
103 Late Infection After Elliott Operation Not Always Fatal. M. Feingold, New Orleans.—p. 150.
104 Tests by Bárány Method. J. J. Shea, Memphis, Tenn.—p. 152.

92. **Fundamentals of Vaccine Therapy.**—Holland has had some good results in injecting the sciatic nerve with vaccines in sciatica. This she does not consider due to an immunizing effect of the vaccine, but to the consequent trauma of the vaccine reaction in and around the nerve. She finds that the safest, surest and easiest way to space the doses is to watch the local reaction at the point of infection and give the next dose at the time that this local reaction disappears, which is usually three days, although she has had them take eight days.

93. **Value of Triple Typhoid Vaccine.**—In his experience with the triple vaccine Lyons has found it advisable to begin with 0.25 c.c. for the first dose, advancing the dosage to 0.5 c.c. for the second and 1 c.c. for the third dose. In civil work this is a good plan, as many individuals are discouraged from taking their second and third doses if they happen to have some reaction with the first dose. During the past six years Lyons has inoculated over 150 persons with a mixed vaccine. Of these he has been able to follow fifty from periods of one to six years. None have developed any infections of enteric type. His own blood was examined a few weeks ago. It still agglutinated *B. typhosus* up to 1 : 100 dilution in forty-five minutes, but no longer agglutinated paratyphoid "A" and "B." This is quite an unusual reaction after a lapse of over six years, and possibly depends on the fact that the last dose was a large one containing 1,000 million of each organism. This brings out an interesting point that while the dosage of each organism was the same the highest agglutination titer was always against *B. typhosus.*

Lyons is of the opinion that if such a vaccine were generally employed in civil life the morbidity from fevers of unknown origin and many so-called typhoids with negative bloods would be greatly lessened.

96. Abstract in The Journal, Dec. 22, 1917, p. 2143.

100. Abstract in The Journal, Dec. 15, 1917, p. 2066.

### Tennessee State Medical Association Journal, Nashville

February, 1918, **10**, No. 10

105 *Fractures of Neck of Femur. W. C. Campbell, Memphis.—p. 385.
106 Breast Tumors. E. H. Adkins, Chattanooga.—p. 389.
107 Herniotomy. W. A. Bryan, Nashville.—p. 391.
108 Blood Vessel Anastomoses. E. T. Newell, Chattanooga.—p. 395.
109 What Is the War About? B. Moynihan, Leeds, England.—p. 401.

105. Abstract in The Journal, April 28, 1917, p. 1287.

### Vermont Medicine, Rutland

January, 1918, **3**, No. 1

110 Reconstructive Surgery in War. A. M. Forbes, Montreal, Canada. —p. 1.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### Archives of Radiology and Electrotherapy, London

January, 1918, **22**, No. 8

1 Two Cases of Rare Deformity of Feet and Hands. C. T. Holland. —p. 234.
2 Study of Interrelation between Radiography and Surgery of Gunshot Wounds of Head. H. E. Gamlen and S. Smith.—p. 240. To be continued.

### British Medical Journal, London

Jan. 26, 1918, **1**, No. 2978

3 *War Surgery of Chest. A. L. Lockwood and J. A. Nixon.—p. 105.
4 *Treatment of Septic Hemothorax and Empyema. J. Campbell.—p. 109.
5 Endotoxin of Meningococcus. M. H. Gordon.—p. 110.
6 Asthma. J. Adam.—p. 113.
7 Survey of One Thousand and Sixty-Four Operations for Complete Removal of Tonsils and Adenoids. E. D. D. Davis.—p. 114.
8 *Treatment of Amebic Dysentery with Emetin and Bismuth Iodid. A. C. Lambert.—p. 116.

3. **War Surgery of Chest.**—While the treatment of wounds involving the chest alone consisted in the early stages in absolute rest and noninterference, and later operations were dictated by infection of the thoracic cavity, nevertheless, injuries extending to the abdomen and involving the diaphragm were recognized by the authors and their associates as demanding immediate operation, and not being necessarily fatal. As early as the middle of July, 1916, it was realized that practically all wounds of the diaphragm left unrepaired proved fatal. From that period all cases diagnosed or suspected of having a diaphragmatic lesion were operated on. Repair of the diaphragm was found to be of greater urgency than the repair of any hollow or solid viscus in the abdomen. But repair of the diaphragm was not always sufficient. In some cases there existed a serious lesion of the thorax or its contents. The stages by which treatment of thoracic and abdominothoracic injuries was gradually evolved were briefly as follows: 1. The parietal wound was excised, the comminuted fragments of rib removed, and the pleura, if possible, closed. No attempt was made to clear out the hemothorax, or to follow the missile into the chest. Repair of the thoracic contents was not attempted. 2. In July, 1916, repair of the diaphragm became a routine procedure by the adbominal route. 3. Extensive injuries to the bony skeleton of the thorax were seen to be almost invariably fatal. The principal cause of death was not sepsis. The patients did not recover from the shock and exhaustion of gross bony lesions until all comminuted bone and sharp spicules were removed. From this time it became an established rule to operate on the parietes on all stove-in chests. 4. An important advance was made when a case was recognized in which the diaphragm was injured by a purely thoracic wound. A successful operation was performed by the thoracic route instead of, as previously, by the abdominal. Thenceforward the practice of dealing with thoracic injuries of the diaphragm through the thoracic wound was adopted. 5. Up to the end of 1916 open (sucking) wounds of the chest—traumatopnea—had shown a mortality of almost 100 per cent. Various methods of plugging the hole in the chest wall were found to postpone, but not to avert, the fatal result. At this time it was realized that it was practicable to excise the parietal wound, clear out completely the hemothorax, and close the opening in the chest wall.

At the advanced dressing station, apart from patients that die before they can be moved, certain patients are received that are not fit to travel until they have rallied to some extent. Into this category come cases of traumatopnea. This type of wound requires to be carefully cleaned without an anesthetic and the skin sutured with silkworm gut through a plug of gauze so that there is no leakage of air. The improvement in the patient's condition is often marvellous within an hour or two of being sutured. The mental distress which accompanies traumatopnea is at once relieved. The lung often expands and the respirations become deeper, easier, and more regular. Patients should travel direct from the advanced dressing station to the surgical unit dealing with chest wounds. Chest cases requiring early operative treatment require it as urgently and as promptly as abdominal cases.

Immediately on admission to the casualty clearing station these patients are dressed in clean pyjamas, laid between warmed blankets in a heater in the position most comfortable to the patient, but, if possible, with the injured side dependent. Continuous rectal administration of sodium bicarbonate and glucose (5 per cent. each in water) is started. Intravenous sodium bicarbonate (2 per cent.) is given if required, and in a large percentage of severe cases immediate blood transfusion (600 to 800 c.c.) is administered with the minimum of disturbance to the patient, preferably by the new "No. 17" or the Kimpton Browne tube. Hot drinks by the mouth, especially cocoa, are given freely, but no stimulants whatever. Sleep is the great restorative, and should be procured by every means and device. Urgent dyspnea from hemothorax or pneumothorax should be relieved before operation by aspirating. If fresh hemorrhage is suspected, the aspiration should be partial and combined with oxygen replacement.

4. **Treatment of Septic Hemothorax.**—Under a general anesthetic the wound is explored, the fractured portions of

rib resected and the wound sewn up if its condition allows. The pleural cavity is then drained in the usual fashion, resecting about 3½ inches of rib, as far forward and as low as possible; that is, usually the eighth rib in the mid or anterior axillary line. Through this opening the cavity is explored, and an easily accessible foreign body and fragments of loose bone lying in the cavity or on the surface of the lung removed. Blood clot and fibrin are swabbed out so far as possible, and any septa forming loculi broken down. The cavity is next washed out with a warm mixture of hydrogen peroxid and eusol, or neutral solution of chlorinated soda. A rubber tube of a quarter of an inch internal diameter, with a large lateral opening a quarter of an inch from one extremity is then inserted, so that this end lies in the most dependent part of the pleural cavity when the patient is lying on the normal side; that is, in the costovertebral recess behind the pericardium. Finally, the wound is loosely sewn up, but no attempt is made to effect an airtight closure round the tube. When the patient has recovered from the operation, the size of the cavity is estimated by filling it carefully (but usually incompletely) with warmed neutral solution of chlorinated soda, and then emptying it. After this the cavity is filled through the tube every four hours to about one-third of its capacity or less with neutral solution of chlorinated soda. At the end of two hours another long tube is attached to the tube in the chest and the fluid siphoned out, the patient meanwhile lying on the sound side with the chest opening uppermost, or as nearly so as possible. The patient is told to pant or cough slightly at frequent intervals as long as the fluid remains in the chest, and by this means splash the fluid about inside the cavity, and so bathe with it the entire infected surface and any recesses that may exist. In this way the pleural cavity contains for two hours a large quantity of sodium hypochlorite solution and is more or less empty for a like time. During the former period the patient lies rigidly on the sound side, without any raising of the shoulders, to prevent escape of the fluid and consequent flooding of the bed; during the latter he is free to lie as he chooses. Thus the patient gets a reasonable amount of rest and comfort and is saved the exhaustion associated with the maintenance of one constant position. In addition, once daily, the tube is removed, sterilized, and replaced, and the cavity washed out as in the usual treatment for empyema. To overcome the disadvantages of injecting cold fluid into the chest, Campbell has found that it is better to make the neutral solution of chlorinated soda of double strength and, prior to filling, to dilute it with an equal quantity of warm sterile water. When treatment is carried out in this way, it is found that pus formation and offensive odor largely disappear at the end of thirty-six hours and are absent at the end of three to four days; the patient's tongue becomes clean and moist almost at once; delirium and emaciation, so frequently seen in these cases, are absent, and the temperature and pulse rates fall much more rapidly than usual; indeed when looking at them, it is hard to distinguish these cases from those that are not infected.

8. **Treatment of Amebic Dysentery.**—Judging by the results obtained by Lambert in a small series of cases, it would seem: 1. That we have in emetin and bismuth iodid a combination of considerable potency in the treatment of amebic dysentery, particularly when the amebae are assuming their resistant stage. When given in pill form in doses not exceeding 2 grains its emetic effects are slight, at all events in Indian cases. Its use in conjunction with hypodermic injections of emetin hydrochlorid in acute amebic dysentery would seem to be beneficial, in that convalescence is established earlier, and patients are less likely to become carriers. It cannot be considered in the light of a substitute for emetin, as attempts to treat acute cases with it alone ended in failure, until emetin was used in addition. 2. In carriers, and in those convalescents who continue to harbor cysts, emetin and bismuth iodid should prove superior to emetin, and it would seem a wise proceeding, from a public health point of view, to subject all cases of amebic dysentery to a course of emetin and bismuth iodid during convalescence.

## Glasgow Medical Journal

January, 1918, **89**, No. 1

9 Explanation of Color and Color Vision. C. R. Gibson.—p. 1.
10 *Most Unusual Case of Pathologic Fracture Myeloid Sarcoma and Cystic Disease of Bone. A. G. Faulds and J. H. Teacher. —p. 17.
11 Obstructive Alimentary Toxemia. A. Jones.—p. 22.

10. **Myeloid Sarcoma and Cystic Disease of Bone.**—A woman, aged 30 years, was suffering from an ununited fracture. While going downstairs three months previously her leg gave way. She was unable to rise. At the hospital a splint was applied, and she remained there for nearly three months. It was found, however, on attempting to get up, that her leg had not recovered. The roentgen rays showed a fracture somewhat comminuted about the junction of the upper and middle thirds. It was evident that disease had been the cause of the fracture. The usual operation of amputation of a thigh through the upper third was entered on, but when the surgeon reached the bone, he found the whole shaft from the seat of fracture to beyond the trochanters was diseased in so far that it was extremely fragile, had the appearance of being eaten away, and the color of rotting oak. On putting his knife against the bone, he found that he could easily pierce the outer shell, and testing it in this way up to the trochanters he found the same condition pervading the whole upper part of the shaft. The bone was then dissected up to the acetabulum, when, on manipulating the limb, the head broke off at the anatomic neck like a rotten piece of wood, and remained in the acetabulum. After opening the capsular ligament, the head of the femur was removed and the limb disarticulated.

The patient on admission was of an unhealthy appearance, being sallow, and a low cachectic complexion. She looked like a patient suffering from pernicious anemia or from some form of toxemia. The Wassermann reaction was negative. After the operation the patient steadily improved and was dismissed very much better, and with the stump healed, complaining, however, of the same kind of pain in her remaining thigh which she had suffered from before the fracture. On examination cysts were found in various parts of the bones removed. The cystic condition was very advanced in the whole of the upper part of the femur, and there were two or three small areas of it below the fracture; it was present at the soft spots in the tibia. There was nothing but atrophy in the bones of the foot. Only one small brown nodule projecting into a cyst showed the structure of myeloid sarcoma, but traces of this tissue, apparently undergoing fibrosis, were seen at one or two other points. One small brown mass which was picked out of the side of a small cyst was myeloid sarcoma.

## Lancet, London

Feb. 2, 1918, **1**, No. 4927

12 War Psychoneurosis. F. W. Mott.—p. 169.
13 Repression of War Experience. W. H. R. Rivers.—p. 173.
14 *Predisposing Factors of War Psychoneuroses. J. M. Wolfsohn. —p. 177.
15 *Prognosis with Special Reference to Condition Described as Irritable Heart of Soldiers. T. Lewis.—p. 181.

14. **Predisposing Factors of War Psychoneuroses.**—Wolfsohn made a study of 100 cases of war psychoneuroses and 100 cases of somatic injuries produced in the firing line. He says that cases of war neurosis are very rarely associated with external or somatic wounds. The vast majority of the psychoneurotic cases studied were among soldiers who had a neuropathic or psychopathic soil. In 74 per cent. of these cases a family history of neurotic or psychotic stigmata, including insanity, epilepsy, alcoholism, and nervousness, was obtained, while a previous neuropathic constitution in the patient himself was present in 72 per cent. A gradual psychic shock from long continued fear, together with the sudden change from quiet peaceful environment to the extraordinary stress and strain of trench fighting, is the chief predisposing cause of war psychoneurosis in soldiers with neuropathic predisposition. In fact, these factors may be the cause of the neurosis per se. The history of the patient previous to enlistment has an influence on the character and gravity of the symptoms of the neurosis. Acquired neuroses

with their less severe symptoms appeared only after excessive fatigue, with the concussion from the high explosive detonation acting as the exciting factor. On the other hand, in the same abnormal environment, and with the same powerful factors obtaining, wounded soldiers do not suffer from war neuroses except in rare instances. In the wounded soldiers studied no neuropathic or psychopathic stigmata occurred in the family history. Previous neuropathic tendencies were found in 10 per cent. of these patients (controls), all of which number presented mild neurasthenic symptoms. Hysteric manifestations, such as monoplegia in a wounded limb are occasionally encountered in injured soldiers.

15. **Prognosis of Irritable Heart of Soldiers.**—The plea which is urged by Lewis is a plea for a wider consideration and trial of exercise tests as a chief means of grading soldiers generally, but of grading invalid soldiers in particular, to various categories of duty. Lewis strongly advocated that every general military hospital should have at its disposal a training ground on which its patients may be submitted to physical exercises under the supervision of the medical officers who treat them and sort them. No patient in regard to whose physical capacity there is a doubt should be discharged from the hospital (as fit or unfit) until his tolerance or intolerance of physical strain has been established. The author outlines the actual results of the method employed in sorting those soldiers for duty who are admitted to the hospital for cardiac disabilities. All soldiers admitted to the Military Heart Hospital are submitted to a full physical examination, and within the first few days of their stay all patients presenting unequivocal signs of mitral stenosis, aortic disease, aneurysm, or material cardiac enlargement are recommended for discharge as permanently unfit. At this examination also are eliminated patients who suffer from manifest diseases of other systems, such as pulmonary tuberculosis, exophthalmic goiter, epilepsy. All are eliminated in whom a positive decision can be reached, none are eliminated in regard to whom a divergence of opinion may exist. Approximately, 3,000 patients have passed through Lewis' hands, the average stay of the patients in the hospital being between two and two and a half months. Of 558 men, examined during six months, 286, or approximately 50 per cent., were judged to be unfit for any category of duty. The remaining 272 men were recommended for one of the several duty categories. Of the whole group, only 38 have been discharged as permanently unfit from the army since they left the hospital, 5 additional men are unfit in lesser degree and are under treatment; 16 men are on sedentary duty at home.

### Practitioner, London

February, 1918, **100**, No. 2

16 Value and Limitations of Sanatorium Treatment for Tuberculosis. S. Thomson.—p. 101.
17 Enuresis and Other Common Disorders of Conduct in Childhood. H. C. Cameron.—p. 112.
18 Recent Advances in Dermatology in Connection with War. J. M. H. Macleod.—p. 124.
19 Importance of Diastolic Readings in Differentiation and Treatment of High Blood Pressure Cases. O. K. Williamson.—p. 134.
20 Case of Persistent Tachycardia; Its Cause and Its Cure. C. E. Lea.—p. 141.
21 Germicidal and Therapeutic Action of Garlic. W. C. Minchin.—p. 145.
22 Reflex Phenomena Produced by Commencing Abdominal Hernia. W. B. Cosens.—p. 155.
23 Neurasthenia Pura—Its Etiology, Symptomatology and Pathogeneses, with Special Reference to Prodromal Period of Disease. S. H. Bennett.—p. 157.

### Sei-I-Kwai Medical Journal, Tokyo

January, 1918, **37**, No. 1

24 Experimental Study on Influence of Excision of Liver on Constituent of Blood. H. Saito.—p. 1.
25 Distribution of Iodid Compounds in the Animal Body. K. Fujisawa.—p. 2.

### Archives des Maladies de l'Appareil Digestif, Paris

December, 1917, **9**, No. 7

26 *Palpation with Cancer of the Rectum. Desmarest.—p. 361.
27 *Glycosuria in Diabetes during Intercurrent Disease. E. Cottin and C. Saloz (Geneva).—p. 371.
28 *Colon Hemorrhage. R. Goiffon and J. Nordmann.—p. 384.
29 *Recent Works on Dysentery. Savignac.—p. 391.

26. **Cancer of the Rectum.**—Desmarest has encountered fifty cases of rectal cancer in his surgical service in the last three years. The large proportion that were inoperable impels him to preach the necessity for earlier diagnosis, and for this, he declares, there is only one means, namely, *le toucher rectal*, exploration of the rectum with the fingers. This is within the reach of every one and he declares that every patient complaining of intestinal trouble and passing any blood by the anus should be examined in this way. Interrogating his cancer patients disclosed that very few had been examined in this way. The physician is too apt to assume merely enteritis or mucomembranous colitis, and put the patient on a special diet, when all the while the unsuspected cancer is progressing; or he ascribes the blood merely to hemorrhoids. Desmarest reiterates that the diagnosis of even hemorrhoids should never be made without rectal exploration. The rectum should be explored as systematically as is the vagina; it is fully as important in disease of the intestines as examination of the vagina with uterine mischief. When the cancer is in the lower half of the ampulla or below, rectal exploration alone is sufficient, but if located above this, rectoscopy is indispensable. With periprostatitis and perimetritis the rectal wall may be swollen and feel abnormal and it may be secreting abnormally. But these findings do not resemble those with malignant disease.

Cancer of the rectum is rarely located on the front wall of the rectum alone; the ulceration usually spreads on the front and side walls. It generally forms a raised patch. The finger bumps against the lower edge and the induration of the base produces a very characteristic sensation. The finger can feel whether the patch is irregular and more or less friable and whether there is a crater-like depression. Almost always the slightest touch is extremely painful and exaggerates the tenesmus. The finger is covered with purulent matter and some blood when it is drawn out if the cancer is ulcerating. A short finger may not reach a cancer high up, but by pulling down the anus, pushing in the suprapubic region if the patient is thin, the lower limit of the cancer may be reached, the finger hits against something. In dubious cases the rectoscope will solve the problem, but even this does not always inform as to the upward extent of the neoplasm, the depth, etc., and an exploratory laparotomy is indispensable.

27. **Diabetic Glycosuria During Intercurrent Diseases.**—Cottin and Saloz describe four cases of diabetes in men of 33 to 50 in which the sugar disappeared from the urine during a febrile intercurrent infectious disease. They describe the few similar experiences recorded in the literature, and theorize to explain this disappearance of the glycosuria. The most reasonable hypothesis, they think, is the assumption that the infectious agents consume the sugar by the fermentations which they induce in the tissues. If this assumption is tenable, it sustains the theory that diabetes is due to a lack of sugar-destroying ferments in the tissues. The fact that during infectious fevers the sugar disappears from the urine and reappears in convalescence testifies to a glycolytic action on the part of the microbes. Only diabetes which is the result of lack of glycolytic ferments would be modified in this way by a febrile infection, and this might serve as a touchstone for differentiation of different forms of diabetes.

28. **Colon Hemorrhage.**—Goiffon and Nordmann report five cases of the passage of red blood by the anus, either acute and profuse or chronically repeated in which the source proved to be in the colon although there were no symptoms to call attention to this part of the bowel at the time of the hemorrhage. With dysentery, tuberculosis, cancer and other lesions, there is generally pus with the blood. They found hot enemas useful, with calcium chlorid, ergot and other measures to check the hemorrhage; in the chronic cases, emetin and kosam. The treatment of the colitis is a difficult matter; they were unable to cure their patients completely in this respect.

29. **Dysentery.**—Savignac analyzes the various publications on dysentery during the last two years as the war has made this one of the questions of the day. The old dysenteric is

the source of danger. The adult ameba is fragile, but the man sowing ameba cysts here and there is the danger. Lebœuf found the ameba in 28 of 436 dysentery cases, and 20 of the 28 men had never been outside of France. Fiessinger's report shows that all the regiments taking over trenches that had been occupied by colonials, were touched with dysentery, and amebic dysentery was found in 5 of 27; 10 of 64, and 19 of 57 cases of diarrhea in different ten day periods. Lesieur found 20 cases in 1,230 of acute diarrhea. All the writers comment on the insidious nature of the first attacks. There may be nothing to suggest dysentery, or only one blood-streaked stool. In other cases the clinical picture simulated typhoid, or peritonitis. In some the amebic dysentery ran a fulminating course; in two, three or six weeks the entire colon was found ulcerated, the liver honeycombed with abscesses. Mattei noted a phase resembling cholera in 6 of 260 cases of amebiasis; there were always signs of renal incompetency and treatment of the uremia was imperative. The kidneys in these cases, as in Lesieur's "uremigenous gastro-enteritis," were already damaged.

There may be suppuration in the liver with the mildest form of amebiasis; in one case a man who had never had diarrhea and never been outside of France, died the tenth day after being taken sick, and necropsy showed amebic abscesses in the liver and suppuration in the colon. Job warns to suspect amebiasis whenever the liver is a bit enlarged. There should be no hesitation as to exploratory puncture; polynucleosis replacing eosinophilia points to abscess production. The diagnosis is especially important now that emetin promises a cure for an abscess with or without the aid of a simple puncture. The effect of the emetin should be evident in forty-eight hours; if not, surgical measures should be no longer delayed. Successive courses of emetin are advocated by most writers. Hurst advises during an epidemic a daily preventive ⅙ grain tablet of emetin by the mouth. All agree that other treatment must be applied for the encysted forms of the ameba, but progress seems to have been realized here also.

### Archives de Médecine des Enfants, Paris

October, 1917, **20**, No. 10

30 Congenital Stridor from Muscular Anomaly. G. Variot.—p. 530.
31 Frequency of Adenoids with Phimosis. M. Lassalle.—p. 535.
32 Mongolian Spot in Children in Brazil. C. Ferreira.—p. 537.
33 Acute Peritonitis in Children. J. Comby.—p. 538.

November, 1917, **20**, No. 11

34 Lichenoid Eruption Around Intradermal Test Injection of Tuberculin. L. Brocq.—p. 590.
35 *Bacteriology of Whooping Cough. J. Comby.—p. 593.

December, 1917, **20**, No. 12

36 *Mongolian Idiocy. J. Comby.—p. 617. Commenced in No. 10, p. 505.
37 *Epidemic Meningitis of Different Origins. P. Bézy.—p. 639.
38 Progressive Lipodystrophy. J. Comby.—p. 647.

35. **Bacteriology of Whooping Cough.**—Comby cites a recent publication to the effect that the sputum from 156 Copenhagen children with whooping cough showed the presence of the Bordet-Gengou bacillus in all who had been coughing for two weeks; in two-thirds of those who had had the paroxysmal cough for two weeks; in one third after three weeks, and only in three out of thirty-six in the fourth week, and only once later than this. In the incipient, catarrhal stage, it is difficult to obtain sputum. A Petri dish was held at a distance of 10 cm. from the child's mouth and he was made to cough by holding down the tongue with a spoon. All but seven plates thus inoculated by the droplets from the thirty-nine children examined gave positive cultures of the bacterium. This droplet method gives positive results even before the symptoms warn of the disease. The findings confirm the old assumption that whooping cough is not contagious after the fifth week. Children can thus be sent back to school after four weeks of the paroxysmal cough, even although it still keeps up. Agglutination was found positive in twenty-two of the twenty-three cases tested, while it was constantly negative in 102 healthy controls. It usually appeared at the third week and was constant by the fifth week up to several months. Comby's own experience confirms that whooping cough is contagious only in the first two or three weeks, and he reiterates that there is no use in imposing isolation after the fourth week from the first symptoms. In his service, cases sometimes develop in the general ward but none has ever developed in the ward set apart for the actually whooping children, although children with merely laryngitis, measles, grip and other spasmodic cough have sometimes been admitted by mistake. In measles, scarlet fever and mumps, as well, contagion is to be feared at the beginning, not after the disease is long under way.

36. **Mongolian Idiocy.**—Comby relates that he has encountered sixty-nine cases of mongolian idiocy during the last thirteen years at Paris, showing that it is not so rare in France as hitherto supposed. He cites the literature on the subject, remarking that mongolian idiocy has probably often been confused with myxedema, rachitis and athrepsia. In his series described in detail, there were no consanguineous marriages and no special inherited taints, but the advanced age of the mother and the coincidence of the pregnancy with unusual grief, worry or privations seemed to be a causal factor in a certain proportion of the cases. The prognosis is bad, and these children seem peculiarly susceptible to pneumonia and tuberculosis, so that few live to grow up. The cause of the mongolian idiocy is some old definite lesion before birth, some arrest in development which nothing can remedy. All that can be done is to protect the child against catching cold and isolate him away from tuberculosis. Moderate thyroid treatment might hasten the growth, and medicopedagogic measures might play a useful rôle.

37. **Epidemic Meningitis of Various Origins.**—Bézy has been impressed with the number of cases this last year in which meningeal symptoms formed part of the clinical picture. In 11 cases described there was undoubted tuberculous meningitis, in 10 the meningococcus was found; in 5 no germs could be detected. This series of 26 cases in his service is remarkable; he never had more than 5 a year before. He warns that the meningeal reaction does not constitute the whole disease any more than albuminuria is the whole of nephritis.

### Archives de Médecine at de Pharmacie Militaires, Paris

July-August-September, 1917, **68**, No. 1, 2 and 3

39 *The Interallies Surgical Conference.—p. 1.

39. **The Surgical Conference.**—The 510 pages of this number of the *Archives* present the discussions on eighteen different topics determined in advance. The leading surgeons from the allied armies took part and the work thus represents the consensus of opinions last March and last May, when the two sessions were held. The subjects discussed included the organization of the medical department in the armies of the Allies, the general principles for treatment of wounds, traumatic shock, gas gangrene, fractures, amputations, prosthesis, wounds of joints, of vessels, of the chest, the brain, the spine, the nerves, and of the abdomen, and the laboratory technics for keeping the surgeon posted as to the progress of the wound. Among those who shared in the discussions were Moynihan, Almroth Wright, Depage, Castellani, Arbuthnot Lane, Willems, Nigrisoli, Tuffier, Leishman and Sacquépée. The addresses are all given in Franch and there are a few illustrations. This number was received at this office Feb. 6, 1918. Another *Conférence chirurgicale interalliée* is now being organized.

### Bulletin de l'Académie de Médecine, Paris

Jan. 8, 1918, **79**, No. 1

40 *Inflammation of the Glands in the Vestibule of the Larynx. A. Robin and J. Renaut.—p. 20.
41 *Record of Urine Findings. P. Hollande and R. Pancot.—p. 33.
42 *Electric Treatment of Bilharziosis. E. Desnos.—p. 37.
43 *Treatment of Keloid with Creosote. Lesieur.—p. 40.

40. **Laryngovestibulitis.**—Robin and Renaut apply this term to a common form of infectious sore throat in which the sputum is difficult to expel and gives the impression of a foreign body impacted in the vestibule of the larynx, at each breath tickling the epiglottis, and inducing a guttural spasmodic cough with violent efforts at expectoration, sometimes concluding with a sneeze which dislodges the sputum. The

glands in the portion of the larynx above the inferior vocal cords are involved in the inflammatory process. They are vascularized like the salivary glands, and their outlets are in an area abounding in intra-epithelial nerve terminals and hence peculiarly liable to start reflexes. They have studied these glands on the dog, and emphasize the intense phagocytic action displayed by the cells in normal conditions. Gargling does not reach the seat of this gland laryngovestibulitis, so they treat it with a spray night and morning and after lunch and dinner. The fluid which meets the various conditions which they describe in detail is a mixture of 25 gm. sodium salicylate; 5 gm. antipyrin; 80 gm. glycerin and 15 gm. each of cherry laurel water and orange flower water, with 1 liter distilled water. This spray applied perseveringly has cured in from three to four weeks even the most inveterate and chronic trouble of the kind.

41. **Record of Urine Findings.**—The findings in question relate to the freezing point of the urine, especially as determined on wounded soldiers with fistulas. By study of the freezing point it is possible to supervise the functioning of the kidneys. A medical cure is as important as the surgical cure, and measures to realize it should not be neglected after the wound and fistula have healed.

42. **High Frequency Electric Current in Treatment of Bilharziosis.**—Only one case is described by Desnos, and the cure took months, but the success was apparently complete. His idea was that the electrocoagulation would destroy the lesions in the bladder and the heat of the diathermy would kill the ova in the tissues.

43. See Paris Letter.

### Paris Médical

Dec. 29, 1917, 7, No. 52

44 Malarial Psychoses. A. Porot and R. A. Gutmann.—p. 518.
45 *Aseptic Resection of Stomach or Intestine. Gudin.—p. 522.
46 Cirrhosis of Pancreas in Hard Drinker. D. Denéchau and R. Picard.—p. 526.
47 Amputation of the Leg. A. Mouchet.—p. 529.

45. **Aseptic Operations on Digestive Tract.**—Gudin's method ensures automatically asepsis and hemostasis; the anastomosis is done as one step, and no sutures are taken in the mucosa. The blades of the clamp must be long enough to take in a 15 cm. stretch. The pressure is applied gently and progressively by turning a thumbscrew. Then two Kocher forceps are placed on the crushed segment, and exclusively on this, and the resection is made between them. Then the edges of the serosa are sutured together back and forth over the forceps; the forceps are withdrawn, and the ends of the suture material are drawn tight and tied. He gives illustrations showing the various applications of this principle. After the forceps are withdrawn, a grooved sound is introduced through the small hole left and the lumen is worked open before the sutures are finally tied.

### Presse Médicale, Paris

Jan. 3, 1918, 26, No. 1

48 *Functional Paralysis and Contracture. H. Claude and J. Lhermitte.—p. 1.
49 *Detection of Tuberculous Soldiers. E. Sergent.—p. 4.
50 *Treatment of Gonorrheal Urethritis. M. Lacombe.—p. 5.

Jan. 7, 1918, 26, No. 2

51 *Symptoms from Compression of Nerve Trunks. (Névrodocites et funiculites vertébrales.) J. A. Sicard.—p. 9.
52 *Minor Heart Disease. G. Lian.—p. 11.
53 *Repair of the Tendon Synovial Membrane with Graft from Vein. J. Duvergey.—p. 14.

48. **Importance of Early Neurologic Treatment of Contracture and Paralysis After War Wounds.**—From their detailed and extensive study of nervous disturbances in the wounded, Claude and Lhermitte conclude that the motor disturbances are sometimes the result of reflex action from the wound itself. As this heals, the functional derangement properly treated from the first may disappear with it. If not, these functional disturbances may be perpetuated by a psychic mechanism, and their persistence engenders dynamic modifications in the corresponding nerve centers. These modifications become plainly evident in the sensory, motor and reflex phenomena during general anesthesia. The longer the period during which the functional disturbances persist, the deeper the psychic impression, and the harder it becomes to throw it off. There is no fundamental difference, they say, between the hysteria paralysis and contractures known of old and the motor and functional disturbances in the wounded. The peculiar features of the latter are due merely to the long period during which they have been left to themselves or inadequately treated, along with the special mentality induced by the war atmosphere, exaggerating all psychoneuropathic tendencies. Given specialist neurologic treatment early, before they get ingrained, they promptly yield to it, and never reach the stage of "physiopathic disturbance." Physiotherapy alone is not enough; it requires psychotherapy to be effectual.

49. **Tuberculosis in the Soldiers.**—Sergent reported a year ago that 15 per cent. of the soldiers sent to him to confirm the diagnosis of tuberculosis proved to be clinically free from it. This proportion has increased since to 35 per cent. In another large group are men with signs of tuberculosis but no tubercle bacilli to be found in the sputum. He urges that those in this class should be reexamined at intervals. Some throw off all the symptoms but others finally show the bacilli in the sputum.

50. **Treatment of Acute Gonorrhea.**—As the gonococci lurking in the depths of the urethra are liable to escape the action of the usual local measures, Lacombe applies a gas under pressure. This penetrates into the remotest crevices, and the gas he uses, sulphur dioxid ($SO_2$) has considerable antiseptic effect while it does not impair the vitality of the mucosa. He generates the gas in the urethra by mixing a solution of 6 gm. of picric acid in 1,000 c.c. of water with a 1.7 per cent. solution of anhydrous sodium hyposulphite. The mixture contains 4 c.c. of the picric solution to 1 c.c. of the hyposulphite solution. The chemical reaction between them generates soluble sodium picrate and the gas, sulphur dioxid. He gives three injections a day during the early stage; if the posterior urethra is involved, he injects a little more of the mixture, 4.8 c.c. of the picric solution and 1.2 c.c. of the other. In chronic cases only one injection a day is made. The injections are not painful in the least, and the 130 patients thus treated were promptly cured, with no recurrence to date. No complications of any kind were ever observed. The most striking results were those obtained in cases long rebellious to other measures. Proper internal treatment, a suspensory and repose, are important adjuvants.

51. **Inflammatory Processes in Bony Passages.**—Analogous to the term "radiculitis," Sicard has coined the term "funiculitis" to express inflammation in the lining of the bony passages in the spine through which the nerve roots emerge. The nerve gets squeezed in the resulting proliferation of bone, fibrous tissue or aponeurosis in or close to the passage of the nerve root just after it emerges from the bony passage. The inflammation of the intrameningeal stretch is known as radiculitis; of the extrameningeal stretch, from the dura mater to the plexus, funiculitis. The pathologic condition of the nerves between the dura mater and the plexus causes pains and sensory-motor disturbances, with contracture of the muscles in the vicinity. With the exception of tabes, zona and acute meningitis, the cases of radiculitis on record should have been labeled funiculitis. Sciatica, coccygodynia and brachial and intercostal neuralgia are funiculitis. The vertebral muscles in the vicinity all contract to relieve the pain; another sign is the exacerbation of the pain when the spine is bent. With tabes and zona, true types of radiculitis, the muscles are not contracted and the pain is not increased by bending the spine. Syphilis prefers the root, tuberculosis and cancer the funiculus. Lymphocytosis in the spinal fluid is a sign of radiculitis; with funiculitis the albumin content is increased but not the cell count. This increase in the albumin comes from the impediment to the return of the venous blood offered by the compression from the inflammatory reaction in the bony passage. Radiculitis interrupts the tendon reflexes, while funiculitis may exaggerate them. Treatment of radiculitis should be general medical measures with or without intraspinal injection, or an operation on the

root or the ganglion. With funiculitis, on the other hand, injection of a cocain-salicylate mixture directly into the contracted muscles and epidural injections are called for with or without surgical measures, to restore ample permeability to the passage.

52. **Disordered Action of the Heart.**—Lian found in about 20 per cent. of 350 men with disordered action of the heart that the cause of the slight disturbance was some comparatively insignificant derangement of toxi-infectious origin. He calls them *les petits cardiaques*, and says that after a few days of rest, it is better for the men to return to light duty rather than to have further repose enforced which only makes them exaggerate the importance of their heart trouble. Treatment can be only palliative in the chronic forms. He tests them with the gymnastic marking-time step and balancing a weight. By this means he has been able to sift out a number of these *petits cardiaques* and return them to light duty only.

53. **Repair of Tendon with Saphenous Vein.**—Duvergey remarks that war wounds involving tendons usually heal with a cicatrix binding down the two stumps of the tendon and fusing into one solid mass the skin, the bone and sometimes the adjacent tendons, but there is little if any retraction. It is necessary to loosen up these adhesions, free the adjacent tendons and bridge the gap between the stumps of the severed tendon. The latter he accomplishes by utilizing the cicatricial tissue already in place. He carves it in the shape of the normal tendon, then cuts it across in the center and works over each stump in turn, the ends of a corresponding segment cut from the patient's own internal saphenous vein, below its junction with the femoral vein. The vein is slipped over the upper stump and the whole is worked up on this stump. Then the two stumps are sutured together again and the lower half of the vein is pulled down over the lower stump until it fits smoothly and forms a smooth sheath for the rebuilt tendon. Seven illustrations show the various steps of the procedure.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 29, 1917, **47**, No. 52

54 *Whole Wheat Flour. E. Feer.—p. 1777.
55 *Harelip. H. Matti.—p. 1785.
56 Rupture of the Biceps. A. Wydler.—p. 1793.

Jan. 5, 1918, **48**, No. 1

57 *Deafmutism in Switzerland. F. Siebenmann.—p. 1.
58 *Differentiation of Smallpox and Chickenpox. Tièche.—p. 14.

54. **Coarse Wheat Flour in Infant Feeding.**—Feer pleads that we should use foods more as Nature provides them, and not denature flour by fine bolting, and vegetables by boiling and throwing away the water in which they were boiled. He has been giving to 100 infants whole wheat flour, up to 87 per cent., and found that those who could bear wheat flour at all thrived on the coarse flour just as well. This was the more surprising as the infants in his service were suffering from various diseases. Only a very few in the series were normal. He is inclined to think that young and old will benefit by the use of the coarser flour, as the war has cut off the supply of finely bolted flour. One great advantage from it is that the teeth will get the ingredients they need for proper growth and repair. The coarse war bread has to be chewed more carefully, and this will aid in warding off decay from the teeth. The prehistoric skulls found in Switzerland have fine teeth, few with any traces of caries, but the biting and grinding edges are much worn. Caries of the teeth has become shockingly prevalent in Switzerland in the last fifty years except in remote cantons where the people live on coarse food with little sweets. He says that Switzerland stands at the head of the countries with defective teeth. The coarse war bread may improve matters in this respect. Good bread should have a hard crust 8 or 10 mm. thick. Another disadvantage of fresh soft bread is that particles adhere to the teeth.

55. **Harelip Operation.**—Matti gives sixteen illustrations showing the technic and fine cosmetic and durable results of his method of utilizing the protruding tissues to close the gap with bilateral harelip.

57. **Deafmutes in Switzerland.**—Siebenmann relates that the number of deafmutes in Switzerland has never been accurately recorded, but the census of 1870 showed 24½ deafmutes to 10,000 inhabitants, while the average for the other European countries is scarcely 8. In the Bern district the figure was 42, in Lucerne 44, and in Wallis 49. The districts in which goiter and cretins are most numerous also seem to be endemic foci of deafmutism. The proportional number of deafmutes seems to decrease progressively from the Alps down to sea level. Only about two-thirds of the deafmutes in Switzerland are found in the institutions for deafmutes; the other third are in institutions for the feebleminded.

58. **Differentiation of Varicella.**—Tièche is in charge of the smallpox hospital and in 1907 he noticed that applying to his own arm vaccine and lymph from patients with smallpox or varioloid induced a constant reaction similar to the Pirquet tuberculin skin reaction. It was a simple matter therefore for him to test on his own arm lymph from patients suspected of smallpox or varioloid. With varicella there was no reaction. He urges physicians to test their own skin in this way and, if it is in a condition of allergy like his skin, they will have thus a simple method for control always with them. In his ten years of experience with it, this test has proved conclusive in 98 per cent. He describes eleven cases here in which the findings were most instructive, and saved all concerned from the annoyance of isolation for smallpox. He points out further that the eruption in the smallpox group usually takes a centrifugal form, spreading to the extremities, while with varicella the location is more centripetal, the abdomen, chest and face being mainly affected. With varioloid the outlines of the efflorescences are roundish, with varicella more of a rosette type. They scrape off easily but it is difficult to scrape off a variola pustule; this is Brocq's *grattage méthodique* test. Sketches are given of the appearance on his own arm of the reaction to the suspected lymph and to the control actual vaccine test, as seen at intervals of from two to five hours in the course of twelve or sixteen hours. He has found a number of other persons with similar allergy that can be utilized for the test inoculation. With none of his sixty varicella cases was there ever a reaction like that of the variola group.

### Annali d'Igiene, Rome

October, 1917, **27**, No. 10

59 *Hemorrhagic Icterus. P. D. Siccardi and G. Bompiani.—p. 609.
60 Differentiation of Botryomyces. E. Fattore.—p. 621.

59. **Spirochete Jaundice.**—Siccardi had made a special study of the infectious jaundice in the troops, caused by the *Spirochaeta icterohemorrhagiae;* his death from laboratory infection has recently been recorded. In this article he described a case with exclusively hemorrhagic manifestations. The blood findings showed some of the spirochetes intertwined in pairs. A guinea-pig inoculated died in from three to twelve days with hemorrhagic lesions in the viscera. Other animals inoculated from the guinea-pig developed the typical hemorrhagic jaundice. The symptoms in the young man were those of purpura associated with rheumatic pains in bones, joints and muscles, with swelling of the tissues around the joints—a typical example of rheumatoid purpura with fever of the epidemic jaundice type with the Inada spirochete in the urine.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Jan. 3, 1918, **39**, No. 1

61 Linear Gooseflesh. (Dermografismo oripillatorio.) A. Campani. —p. 2.

Jan. 6, 1918, **39**, No. 2

62 Rheumatic Sepsis. U. Baccarani.—p. 11.

### Policlinico, Rome

Jan. 13, 1918, **25**, No. 2

63 *Mercurial Treatment of Rat-Bite Disease. E. Borelli.—p. 25.
64 Induced Edema Sign of Heart Disease. G. Galli.—p. 30.
65 The Surgical Service at the Front. G. Gatti.—p. 32.

63. **Mercurial Treatment of Rat-Bite Disease.**—Borelli has only one case to report but the benefit was apparently striking, the local edema, lymphangitis and eruption promptly subsiding. The patient was a frail boy of 13 and a piece

of the rat's tooth had been left in the wound, which had cooperated in the severity of the case. Borelli argues that treatment known to be effectual in other spirochete diseases are certainly indicated also here.

### Riforma Medica, Naples

Jan. 5, 1918, **34**, No. 1

66 *Tuberculosis and Gassing. E. Tedeschi.—p. 2.
67 Facial Spasm Cured by Electricity. V. Desogus.—p. 3.
68 Overlooked Laryngeal Tuberculosis D. Tanturri.—p. 4.
69 Italian Mentality in Medicine. A. Ferrannini.—p. 9.
70 The Venereal Diseases in Wartime. A. Botti.—p. 13.

66. **Tuberculosis and Gassing.**—Tedeschi remarks that it is of comparatively frequent occurrence that a man, who has been gassed and had apparently thrown off all the ill effects, develops infarcts and hemoptysis from congestion later, showing hemorrhagic inflammatory lesions in the lungs. In two cases described in detail there had never been any signs of tuberculosis before in one case; in the other an old process had evidently flared up anew. In this case the prognosis is grave, but the other patient seems to be overcoming the disease and improving.

### Brazil-Medico, Rio de Janeiro

Dec. 8, 1917, **31**, No. 49

71 Flagellated Parasites. V. (Waskia wenyoni n. sp.) O. O. R. da Fonseca.—p. 417.
72 Simultaneous Presence in the Blood of Antigen and the Respective Antibody. A. Moses.—p. 418.
73 *Cicatricial Binding of Arm to Chest. A. F. de Magalhães.—p. 419.

73. **Cicatricial Adhesion of Arm to Thorax.**—The brachiothoracic coalescence, as de Magalhães calls it, was corrected by a cautious and tedious operation with autoplasty, in the two cases described with illustrations.

### Cronica Medico-Quirurgica, Havana

November, 1917, **43**, No. 11

74 *Opacity of the Cornea. J. Santos Fernandez.—p. 283.
75 *Helminths in Cuba. I. G. Agostini.—p. 285.

December, 1917, **43**, No. 12

76 Utility of Scientific Congresses. J. E. L. Silvero.—p. 324.
77 Purulent Pleurisy in a Parturient. G. Casuso.—p. 329.
78 *Tender Point with Gastric Ulcer. F. G. Rossi.—p. 330.
79 Tests of Hearing in Aviation Service. E. Martinez.—p. 331.
80 Diacono's Urine Typhoid Reaction. V. Cabrera.—p. 333.

74. **Opacity of the Cornea.**—Santos Fernandez refers to vague opacities not well defined, and discusses the possible etiology. He relates that in 378 cases of interstitial keratitis among his 48,000 patients, the cornea sometimes recuperated and became normally transparent again, leaving at most transient astigmatism or myopia. This restoration of transparency is particularly striking after total opacity from ophthalmia neonatorum. He queries how this can be explained.

75. **Helminthiasis in Cuba.**—Agostini states that during seven years of service with the Nipe Bay Company at Preston he found intestinal parasites in 33 per cent. of 1,433 persons examined. The findings were about the same in children as in adults. The hookworm was found in 33 per cent., and nearly as often the *Trichocephalus dispar*. The drinking water was taken from a river; one family living on the banks of the river had eight members with hookworm.

78. **Tender Point with Gastric Ulcer.**—Rossi's tender point is 4 cm. from the umbilicus, under a line bisecting the second quadrant. The patient reclines supine, the abdominal walls relaxed. The intensity of the pain grows less as the ulcer heals. He has found this sensitive point constant in over 400 cases, the findings confirmed by the course of the case or operation. The pressure must be applied toward the lumbar spine.

### La Escuela Medico-Militar, Mexico

November, 1917, **1**, No. 6

81 Technic for Collecting and Forwarding Pathologic Products. E. Cervera.—p. 7. Continuation.
82 *Surgery for Wounds of the Abdomen. D. Moreno.—p. 9.
83 Plasmogenesis and Morphogenesis. J. Torres.—p. 11.
84 Histology of Cornu Ammonis. I. Ochoterena.—p. 15. Continuation.
85 Vaccine Therapy. Z. P. Castañeda.—p. 18. Conclusion.

82. **Abdominal Stab or Bullet Wounds.**—Moreno advises immediate operation if there is reason to suppose that the urinary apparatus has been injured at any point, as the absorption of extravasated urine leads inevitably to fatal uremia. If the wound is in the kidney, it may be sutured, but if in the ureter, the kidney had better be removed, he thinks, as any attempt to suture the ureter usually fails and places the patient in grave danger. If the wound is in the bladder he advises suprapubic incision and another incision in the perineum or vagina. The latter is merely for drainage; the wound in the bladder generally heals spontaneously. The uremia from injury of the urinary apparatus is more rapidly fatal than from infection, especially if the urine has infiltrated into the peritoneum. Under other conditions he advises to refrain from operating except when the projectile has grazed the abdominal wall and opened it like a cut. Otherwise he refrains from operating, trusting to nature to throw up a wall of adhesions around any matters that have escaped into the peritoneum in consequence of a stab or bullet wound. If a large artery has been opened, the patient will bleed to death whatever we can do, and if it is merely a small artery that is bleeding, we are liable to snuff out the weak flame of life by the anesthesia and the operative shock. He remarks that many cases of death that have been ascribed to the internal hemorrhage were in reality deaths from collapse from operative shock. If there is hernia of omentum, he advises to ligate the pedicle so that it may drop off later.

### Prensa Medica Argentina, Buenos Aires

Nov. 30, 1917, **4**, No. 18

86 *Toxin Extracted from Tubercle Bacilli. L. Sivori and F. Jauregui.—p. 235.
87 *Excessive Gastric Secretion and High Chlorid Content in the Blood. J. R. Goyena and A. J. Petit.—p. 235.
88 Cancerous Chyliform Polyserositis. M. R. Castex and N. Romano.—p. 242.

86. **Toxin Extracted from Tubercle Bacilli.**—Sivori and Jauregui report that their long research has resulted in the extraction from tubercle bacilli of a toxin which responds to all the tests for peptone. It kills guinea-pigs weighing 500 gm. in six days, in a subcutaneous dose of 0.5 c.c. If the animals are prepared with small doses, commencing with 0.1 c.c. to a total of 1 c.c. in fifteen days, they stand subcutaneous injection of the otherwise fatal dose of 0.5 c.c. without showing any disturbance. The serum of rabbits prepared in this way confers immunity also on other rabbits. Unprepared rabbits die in two hours after injection of 2 c.c.; with a dose of 5 c.c. rabbits die in one hour, and with 10 c.c. death is practically instantaneous. They think that this peptone toxin from tubercle bacilli promises to be useful in serotherapy as its extreme toxicity and the immunity it confers fulfil the desiderata better than anything else known to date. No details are given as to the technic for extracting this "new peptona toxin," as they call it.

87. **Hyperpepsia and Hyperchloridemia.**—Goyena and Petit confirm that the sodium chlorid content of the blood almost parallels the proportion of chlorin in the gastric juice, so that when there is retention of sodium chlorid from impermeability of the kidneys, the stomach will usually show hyperchlorhydria. The accumulation of sodium chlorid on account of the inability of the kidneys to eliminate it properly may lead to excessive secretion of gastric juice. In these conditions the hyperpepsia may be the first appreciable sign of insufficiency on the part of the kidneys. Castaigne found hyperpepsia in 45 per cent. of 300 cases of chronic nephritis. The range was from 80 per cent. in the cases of incipient kidney disease to only 4 per cent. in the advanced cases. The hyperpepsia in these cases may be regarded as an eliminating hyperchlorhydria. Hence in cases of excessive gastric secretion, incipient kidney disease should be suspected. They test the kidney functioning first by putting the patient on a strict salt-poor diet for ten days, measuring daily the sodium chlorid eliminated in the urine, and then again after a test dose of 10 gm. of salt. Daily weighings and record of the arterial pressure complete the data for the diagnosis. They give the minute details of three cases all confirming that dis-

turbances from hyperchlorhydria may be traced to incipient kidney disease, and that restriction to a salt-poor diet may not only restore the kidneys to a normal plane of functioning but also banish the symptoms from excessive secretion of gastric juice.

### Siglo Medico, Madrid

Dec. 8, 1917, **64**, No. 3339
89 *Unilateral Paralysis Agitans. C. Juarros.—p. 926.
90 *Pathogenesis of Gastric Pain. S. de Santa Maria.—p. 931.
Dec. 15, 1917, **64**, No. 3340
91 The Teaching of Biologic Chemistry in Spain. J. R. Carracido.—p. 950.
Dec. 22, 1917, **64**, No. 3341
92 Relations between Chronic Arthritis and Arteriosclerosis. G. Hurtado.—p. 962.
93 Morphology of Trachoma Bodies. F. Mas y Magro.—p. 964.
94 *Dementia Praecox. G. R. Lafora.—p. 966. Commenced in No. 3339, p. 928.

89. **Unilateral Paralysis Agitans.**—The facts that the tremor is limited exactly to one side and that there is no sensation of heat or perspiration on that side seem to confirm the assumption that paralysis agitans has its origin in some cerebral lesion. The tremor seems to be a manifestation of abnormally exaggerated muscle tonus. The inhibition represented by a voluntary movement explains the arrest of the tremor during the volitional movement. The reflexes are normal in the case described.

90. **Analysis of Pain in the Stomach.**—In De Santa Maria's experience, the overwhelming majority of persons who complain of pain in the stomach present indications of constitutional asthenia with vagotony. The vagus stimulates the motor and secreting functions of the stomach. In persons with vagotony we can expect to find hyperchlorhydria, hypertonicity or hyperperistalsis in the stomach. One of his patients now under treatment has violent painful contractures of the stomach and a typical hunger pain sensation. In short, he affirms that the determining cause of the pain is the motor excitability of the stomach, regardless of whether gastric secretion is exaggerated or depressed. Another cause for pains is in the disturbance of the law of contrary innervation, to which Meltzer recently called attention. With normal conditions in the digestive tract, when there is a wave of contraction, the segment just below relaxes; this is the mechanism by which the food is passed along through the alimentary canal. When this synchronism of opposite actions is upset, from any reason, the segment below the wave of contraction fails to relax, and may itself contract, this contrary innervation thus setting up antiphysiologic action. It is liable to be particularly violent in the stomach, as the prepyloric region is innervated by the vagus, and its spasmodic contraction subsides under atropin. The pylorus itself, however, is innervated by the sympathetic. Any upset in the physiologic concerted action of these two segments inevitably entails pain. Treatment should aim to attenuate the motor functioning in some cases of gastric pains; in others to neutralize the excessive secretion, with measures to soothe the overexcitable vagus system.

94. **Organic Basis of Dementia Praecox.**—Lafora presents testimony to sustain the assumption that dementia praecox results primarily from perverted functioning of the sexual glands. Their products do not get properly acted on by the protective ferments formed in the blood, and they consequently circulate as toxins, damaging the brain cortex and probably also the vegetative nervous system. This toxic injury might readily explain the mental and physical symptoms of dementia praecox. The remissions sometimes observed are like the recovery from drunkenness, and seem to indicate that the toxic action has been temporarily suspended or neutralized. Dementia praecox is hereditary in the mendelian sense, as a recessive. The inferiority inherited may be of the same gland or of different glands.

### Gann, Tokyo

December, 1917, **11**, No. 4
95 *Effect of Scarlet Red on Mice. M. Takeuchi.—p. 47.
96 *Microscopic Findings in Nephromas. J. Watanabe.—p. 48.
97 *Pigment Cells in Pia Mater. S. Katsunuma.—p. 54.
98 *Cancer of the Esophagus. K. Yamagiwa.—p. 57.

95. **Proliferation of Tissues in Mice under Injection of Scarlet Red.**—German summaries are given of the Japanese articles in this journal which is devoted to cancer research. Takeuchi reports that repeated injection of mice with scarlet red in oil, injected into the region of the lacteal glands induced in them decided proliferation so that many of the passages became obstructed. The proliferating, glandular cells gradually became atrophied unless the injections were long continued. In this case the lacteal glands became finally entirely transformed into connective tissue with occasional patches of cartilage cells. This response to the scarlet red was more pronounced in the male mice, probably because the lacteal glands were less differentiated. In three there was an actual cystadenoma aspect and in one there was an infiltrative growth of the gland cells. This suggested the possibility that atypical malignant growths might be induced in this way. Repeated injections at brief intervals are more effectual than with longer intervals. The article is illustrated.

96. **Embryonal Nephroma.**—Watanabe reports that comparison of the microscopic findings in three cases of kidney tumors and in kidneys from human embryoes showed that the structure seemed to be identical in all. Hence he insists that these tumors should be called embryonal nephromas. The article is illustrated.

97. **Melanosarcoma of the Pia Mater.**—Katsunuma reports a case of primary melanosarcoma in the cerebellopontine angle with extensive metastases in a boy of 5. Also a case of melanosis of the pia mater in a woman of 26. In twenty-one Japanese fetuses he found pigment cells in the pia mater as early as the fourth month.

98. **Cancer of the Esophagus and Alcohol.**—Yamagiwa has secured the data in respect to cancer of the esophagus in Japan and tabulates them. Of the 311 cases, 93.28 per cent. were in men; 12.19 per cent. were in persons under 46, including two women and one man under 30. In 1.6 per cent. the patients were over 70, and 7.39 per cent. between 66 and 70. There was a history of the daily use of alcohol, up to 727 or 909 c.c. of Japanese rice wine, in 27.8 per cent.; moderate consumption of alcohol in 12.4 per cent., a small consumption in 6.1 per cent. There was thus a history of consumption of alcohol in 83.9 per cent., while only 16.1 per cent. were known to have not used alcohol. These data were collected from ten different Japanese clinicians and surgeons at the request of Fibiger of Copenhagen.

### Russkiy Vrach, Petrograd

Sept. 23 to Oct. 21, 1917, **16**, No. 38-42
99 The Life Work of Prof. V. A. Levasheff, 1864-1916. S. Vladislavleff.—p. 513; Y. L. Okunevsky.—p. 513; M. D. Ilin.—p. 518.
100 *Serodiagnostic Test of Flour. N. N. Kostyamin.—p. 518.
101 Isolation of Cholera and Typhoid Germs. S. I. Zlatogoroff.—p. 522.
102 The First Russian Red Cross Disinfection Train. S. V. Posadsky.—p. 524.
103 The Coefficient of the Permeability for Air of Textiles in Clothing. K. V. K. Korbutt.—p. 529.
104 Town Planning from Standpoint of Hygiene. V. P. Kashkadamoff.—p. 530.
105 *Public Kitchens. D. P. Nikolsky.—p. 532.
106 *The Death Rate in Russia. V. I. Binshtok.—p. 536.
107 Tests for Disinfectants. E. V. R. Speranskaya.—p. 537.
108 Comparative Tests of Formaldehyd Sterilization. K. N. Shapsheff.—p. 540; V. I. Kostyamin.—p. 542.

100. **Serologic Test of Flour.**—Kostyamin obtained a prepared serum from rabbits by injecting them with different flours. He used a solution in six parts saline, filtering it through extra hard Schleicher and Berkefeld filters. The first injection was 15 c.c.; the second 20 and the third 30 c.c., all at five day intervals. The animals lost nearly 100 gm. in weight but their blood serum then contained precipitins for the flour used, and it was thus possible to detect admixture of rye, barley and oatmeal with wheat flour. The most instructive reactions were obtained when the titer of the serum was 1 : 300 or 1 : 500. As small admixtures as from 3 to 5 per cent. can be thus detected when the serum is left in contact with the flour for thirty minutes. The serum seems

to keep well in fused glass tubes at 4 or 6 degrees C. Flour from peas, beans and rice is also used at times to adulterate wheat flour, but he did not include them in his research.

105. **Public Dining Rooms.**—Nikolsky urges that the municipal authorities and charitable organizations should combine to organize public dining rooms where the poor and the middle classes could get nourishing food at or near cost. He says that the restrictions in food brought by the war in all the belligerent countries are growing more and more oppressive, and the local authorities will have to take some steps in the matter. He cites figures from Moscow to the effect that from 1898 to 1902, there were 17 pounds of meat, beef, mutton or pork, consumed to 9 pounds of potatoes; in 1908 to 1912 the figures were, respectively, 15 to 8. In 1916, only 8 pounds of meat were consumed to 31 pounds of potatoes. He outlines plans for cooperation of all town and rural authorities with charitable, mutual aid, sickness insurance and other associations to organize public dining rooms in central locations in markets or stores, and in factory and mill districts. The medical societies can cooperate by working out a standard dietary and suggesting menus from the articles of food available at the time. In conclusion he reiterates the importance of teaching the public to purchase and cook food more advantageusly.

106. **The Death Rate in Russia.**—Binshtok states that while the mortality in children is exceptionally high in Russia, it is exceptionally low for the aged. The death rate among women is higher than in other countries, in comparison to the death rate in men. The mortality in Russia has declined in the last twenty-five years. The general coefficient from 1869 to 1873 was 37.8; from 1909 to 1915 it was 28.4, but the death rate among infants has not shown as much of a decline as the death rate in general. The deaths from acute infectious diseases in 1891-1895 totaled 403,777 while in the five years ending with 1914 the figure was 284,997. During the same periods, there were 72,703 and 29,063 deaths from smallpox and 112,955 and 60,249 deaths from typhoid. The number of medical health officers in thirty-four of the rural districts was 530 in 1870, but by 1900 there were 2,010 and in 1912, 2,970. Binshtok remarks parenthetically that the proportion of new recruits unable to read or write was, in 1874, 79 per cent.; in 1912, 33 per cent.

### Norsk Magazin for Lægevidenskaben, Christiania

January, 1918, **79**, No. 1

109 *Color Perception. (Om farvesans.) B. Malling.—p. **1**.
110 *Pregnancy Albumosuria. A. Tanberg.—p. 41.
111 *The Growth of Schoolchildren. K. Z. Henriksen.—p. **52**.
112 *Prostatectomy. O. Borchgrevink.—p. 61.

109. **Vision for Colors.**—Malling reports detailed study of color perception in twenty-five supposedly normal persons in his environment. The number found with defective color perception was surprisingly large, and the anomalies were of various kinds ranging from slightly abnormal perception to total lack of perception—color blindness. He proceeds to discuss in particular the variations in the perception of the same color by different individuals, the intensity of the perception as contrasted with other parts of the spectrum, and the neutral spot and the shortening of the spectrum. In some cases part of the color had dropped out of view although what was left was seen in its true tint. This is a comparatively common defect, he found. He emphasizes that the limits between color perception defects that should debar from certain occupations and those that do not so debar are not decisively drawn as yet. Even if some test should yet be found applicable to all cases, it would still be a question whether signals by colors had not better be abandoned, as being far from dependable.

110. **Albumosuria during Pregnancy.**—Tanberg says he has encountered albumosuria in five pregnant women. It always disappeared a few days after delivery and did not seem to have any pathologic or prognostic import.

111. **Growth of Schoolchildren.**—Henriksen gives the averages of 1,333 schoolchildren measured in the Horten schools (Norway).

112. **Prostatectomy.**—Borchgrevink had 7 deaths in 16 cases of perineal prostatectomy and he then abandoned this route, as the drain tube is so liable to fall out or get plugged with clots. Neither of these mishaps is likely with the suprapubic technic, which he has applied in 84 cases without serious mishaps of any kind. In 24 other cases there was cancer or other condition forbidding prostatectomy, and he merely made a suprapubic opening into the bladder; in 30 other cases of enlarged prostate, treatment was restricted to catheterization. The proportion of cancer cases in the total group was 9.6 per cent. The mortality in 82 noncancerous cases was 6.1 per cent., and 86 per cent. can be regarded as entirely cured. The sexual functions were not modified by the operation in 35 and in 5 they were improved. In 10 they had been lost before the operation was attempted. On the whole he is convinced that suprapubic prostatectomy is surprisingly harmless when infectious processes in the urinary passages and renal insufficiency are given proper treatment and conquered before the operation is attempted with due heeding of contraindications, operating under local anesthesia, and guarding the patient past the critical points afterward.

The danger from the operation is far less serious than from the Damocles sword over the head of every "prostatiker." Bronchitis was a frequent complication, a recurring of the bronchitis to which the men had long been subject. It proved serious in only 3 cases. Pulmonary embolism was the cause of death in 2 cases. Epididymitis developed in 15 out of 67 cases; in the other 36 vasectomy was done systematically to ward it off. When the drain is removed and the urine is voided by the natural route, sudden high fever warns that the outflow of urine is more or less obstructed and that the drain must be replaced or a retention catheter introduced. The patient's life hangs by a thread if this stasis fever is misinterpreted. It was pronounced in 7 of his cases and mild in a number of others. Epididymitis four months or two years after the operation occurred in 3 cases, and 3 had hernia develop at the site of the incision. Three others had to have calculi removed from the bladder two or three years after the prostatectomy; one required a second operation for this purpose nine months later. Stenosis of the urethra or in the bed of the prostate developed in 4 cases; in 2 this impeded slightly the introduction of the catheter into the bladder, but one of these men has been entirely well during the five years since; another still has a little residual urine and cystitis. In two cases the cicatrix from the incision plugged the opening into the urethra, and part had to be excised. Persisting hiccup was observed in 3 cases. Tardy cystitis developed in 3 but yielded promptly to silver nitrate treatment in 2. The third patient required sectio alta anew, and six weeks' drainage of the bladder before the patient regarded himself as cured. One with a tuberculous process in the kidney kept his cystitis for the two years he lived, as also another who had not been given radical treatment.

In weighing the contraindications, he specifies particularly the triad, polyuria, low specific gravity and low urea content of the urine. None of his patients with a specific gravity of over 1.010 developed uremia, while of the 23 with a specific gravity of 1.010 or below, 14 developed uremia, 11 of them dying. A satisfactory urea content, even with low specific gravity, is a favorable sign. The preliminary and preparatory drainage should never be omitted unless exceptionally for young men in good condition with only a small amount of residual urine, normal specific gravity and urea content, and no infection in the urinary passages. In the after-treatment, provision for copious intake of fluids must be ensured and free outlet provided. He does not let the men get up early, not until the reaction to the operation is past and the drainage permits. Otherwise the temperature runs up. He also strives to keep the men in the hospital as long as possible to watch for complications. Total retention—even occurring once and transiently—and paradoxic ischiuria both call for prostatectomy, he affirms, without delay. Too often the spastic contraction of the bladder is mistaken for an abdominal tumor and precious time is wasted while the deadliest complication, renal insufficiency, is making rapid strides.

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# OBSERVATIONS ON MEDICAL CONDITIONS IN ROUMANIA

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Members of the American Red Cross Commission to Roumania

Roumania entered the war, Aug. 27, 1916, and rapidly drove her main forces through the Carpathians into Transylvania, meeting at first but little resistance. A part of her troops were occupied in guarding the Danube against the Bulgarians, it being understood that the Dobrudja would be defended by others. This not being done, the Roumanians crossed the Danube to threaten the Bulgarians. They were obliged to retreat, and also the western forces were driven back to the Carpathians. Here they held for some time, but the German forces brought up against them were far too large and they were forced back to the plains of Wallachia. With this began the exodus. Bucharest was bombarded extensively by aeroplanes, and many left the city some weeks before it finally fell, November 23; but the main flight did not begin until the Germans had approached close to the city. The court was transferred to Jassy, which became, therefore, the particular goal of the refugees.

It is estimated that from half a million to a million people fled from Wallachia into Moldavia ahead of the army, which resisted as best it could, and finally held its ground with Russian help along the Sereth line, which nearly corresponds with the original line between Moldavia and Wallachia.

The situation in December, 1916, was, then, as follows: In Moldavia, a territory not much larger than the state of Massachusetts, were gathered much of its normal population of 2,800,000 and from half a million to a million refugees from Wallachia, nearly half a million Roumanian soldiers, and approximately a million Russians. All this added population came in with little or no supplies of food or clothing, and under the mental collapse that results from overwhelming defeat, loss of home and property, and the depression of flight and privation. The transportation was so inadequate that a large part of the refugees came on foot, many walking for twenty or thirty days. The soldiers were in bad condition from fighting a retreat the whole length of Wallachia, with a demoralized commissary and a country raided of food by the refugees ahead of them. Moldavia was so far from the original firing line that extensive hospital provisions had not been made, and hence those that existed were quickly overwhelmed by the influx of wounded and sick soldiers brought back from the retreating front. Every school and suitable large building was converted into a hospital, but there was lacking the necessary equipment for these improvised hospitals. Beds were sometimes found or made, but more often sacks of straw or loose straw had to suffice. Above all, lack of blankets was serious, for winter was already on and no adequate provision for fuel had been or could be made — such transport as there was had more pressing uses than fuel cartage. And with this almost doubled population the food supply began to become serious, for even when there was an excess of food in some places its transfer to the cities was almost impossible. Moldavia was always the less rich part of Roumania, its mountainous northern part, its too dry summers, and its large swampy districts causing it to compare unfavorably with the wonderful richness of Wallachia, although on the whole Moldavia is a good farming and grazing country. But there were far from adequate supplies for this overwhelming influx of soldiers and civilians.

The transportation breakdown was of threefold origin: Railroads were but little developed in this part of the country. Highways were abundant and often excellent, but the automobiles had largely been lost in the retreat, and nearly all the oil supply of the country was in the captured territory. The chief means of transport was normally by oxen and horses. The former had been in large part taken by the army and lost, and an enormous number, estimated at 3,000,000, had been sold to Russia and Germany, especially the latter, at fancy war prices before Roumania entered the war. The horses had mostly been requisitioned and many of them lost. As to manufactories, for all practical purposes there were none whatever in Moldavia, and so nothing could be made to fill even the most pressing needs. So here this horde of exhausted, demoralized, underclothed, underfed people, crowded into a country unprepared in every way to rise to the situation.

With the hosts in flight came not only famine, but also disease. At first there were only the ordinary diseases, with a high incidence of pneumonia from exposure, and a high mortality among those with chronic diseases, including especially pellagra, of which there were estimated to be from 60,000 to 80,000 cases before the war. Famine and privation wiped out these weaklings with great rapidity.

The first epidemic disease to appear was cholera. This came out in scattered foci in Dobrudja during the retreat, and was rapidly spread through the country. The Roumanians had had some experience with this disease, for during the Bulgarian campaign in 1913 there had been a sharp epidemic in the army, about 6,000 cases appearing in four months, when it stopped quickly under vaccination. Hence they were in a way prepared, and in spite of the extreme disorganization they soon instituted general vaccination and in a short time the cholera was under control. Professor Cantacuzene had brought his laboratory to Jassy and prepared the vaccine here. (In passing, it should be remarked that everywhere in Roumania we have been impressed by the greatness of the asset constituted by a high grade bacteriologist with a large number of well trained students and assistants. Here and there we found a man trained by Cantacuzene, and always he represented a place where better work was being done, and where invaluable services were being rendered to improve the public health.)

Fig. 1.—The American Red Cross Mission to Roumania, with officials of the Japanese Red Cross before the Red Cross headquarters, in Tokio. Americans on front row, from left to right are: Major Francis W. Peabody, Boston; Major R. G. Perkins, Cleveland; Major H. Gideon Wells, Chicago; Major Bernard Flexner, Chicago; Lieut.-Col. Henry W. Anderson (Chairman), Richmond, Va.; Major Arthur Glasgow, Richmond, Va.; Miss Florence Patterson (head of nursing unit), Burlington, Wis.; Major Robert Bryan, Richmond, Va.; Major W. D. Kirkpatrick (head of medical unit), Bellingham, Wash.

The testimony as to the complete prophylactic efficiency of anticholera vaccination is unanimous. Among the infected the mortality was about 25 per cent., which was aided by the extremely unfavorable conditions, especially the cold, for we heard of cholera patients with frozen feet. The army medical men seem to feel that treatment was not of much effect in cholera, even including saline infusion. Alkali therapy, as recommended by Sellards, was not tried. Since the close of the epidemic no more cholera has been seen, and Dr. Mironescu of Bucharest, now in Roman, had for several months been examining soldiers without finding a single cholera carrier.

## TYPHUS EPIDEMIC

But as the cholera died out, and the growing cold and famine of the winter added to the misery of the people, a new and more deadly foe appeared. In January appeared cases of a febrile disease, not corresponding to diseases familiar to the Roumanian physicians, and which was variously diagnosed as grip, typhoid, malaria and recurrent fever. Only a few suspected typhus, and as one man puts it: "We tried to convince ourselves that it was merely grip." Typhus is not an endemic disease in Roumania, and most of the physicians there had never seen a case. A few cases had been imported from time to time from Serbia and Bulgaria, and it is probable that there have always been occasional cases in the Carpathians. Just where the disease arose in the recent epidemic is disputed; but apparently the first recognized cases were in Dobrudja and in the vicinity of Focsani. But with the shifting and crowding of refugees and soldiers, the spread of the disease was so rapid that its origin was untraced and unimportant. Together with the typhus, and in fact, slightly preceding it, came another louse-borne disease, recurrent fever, which attacked equally great numbers and caused more than half as great a mortality. The first considerable numbers of recurrent fever cases were diagnosed in January, although it is now believed that among these, and indeed among all the cases listed as recurrent, were many typhus cases, for in most places laboratory diagnosis, by the simple procedure of finding the spirillum in the blood, was not possible. Typhus was not recognized in considerable numbers until February, and reached epidemic proportions only in March, rising to a maximum in May, while recurrent fever was at its maximum in April.

And now arose a situation that can only be compared to the descriptions in Defoe's "Journal of the Plague Year." The stricken population fled hither and thither to escape infection, or to find food, warmth and shelter, and so they spread the disease until it is probable that nearly a million were infected

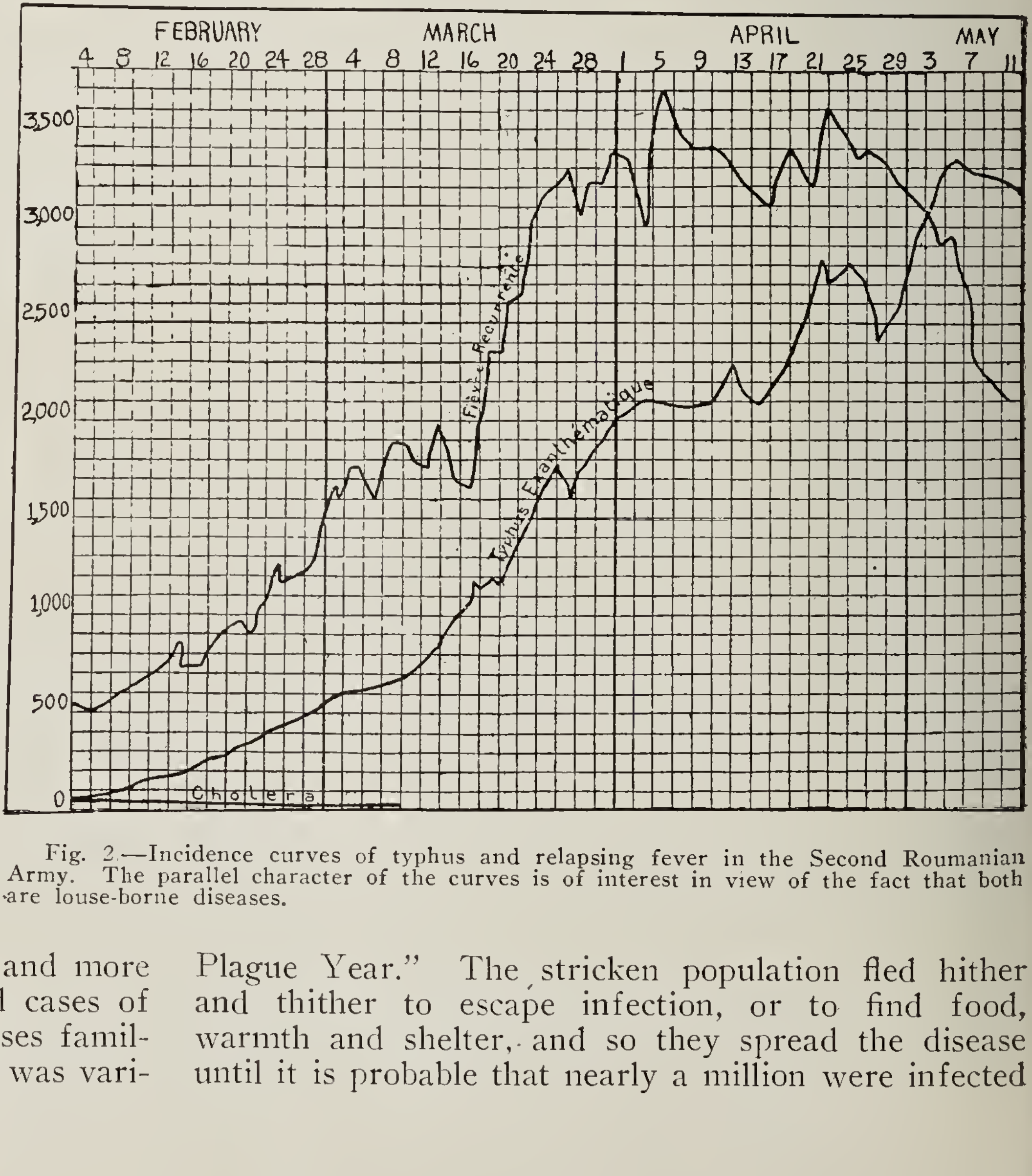

Fig. 2.—Incidence curves of typhus and relapsing fever in the Second Roumanian Army. The parallel character of the curves is of interest in view of the fact that both are louse-borne diseases.

in a population, including the armies, of something less than 5,000,000. Stories are told of horrors piled on horrors — of trains stagnating on congested tracks, while in box cars the people were packed so closely together that those who died could not fall and were removed only when at last the cars were emptied; of morning searches of the railroad stations and freight yards for the bodies of persons who had crept into corners and expired; of daily sights of people dying on the streets of Jassy, some from disease and some merely from starvation and exposure. Every hospital and improvised barrack was swarming with typhus cases, and as at first the rush of trouble was too great to permit of prophylaxis, infection spread throughout the buildings, taking not only wounded soldiers, but also doctors, nurses, orderlies and all divisions of the hospital personnel. In all places the same story of horrors is told. In all, the shortage of beds was so great that usually two beds were placed together to hold three patients across them, while often two more patients were laid on the floor underneath. So shorthanded were the hospitals that sometimes it was hardly possible to do more than to pick out the dead to find place for those who were still living. It is said that in the little city of Jassy as many as 500 died in a day. General Antoniu thus describes the condition in one lazaretto at this period:

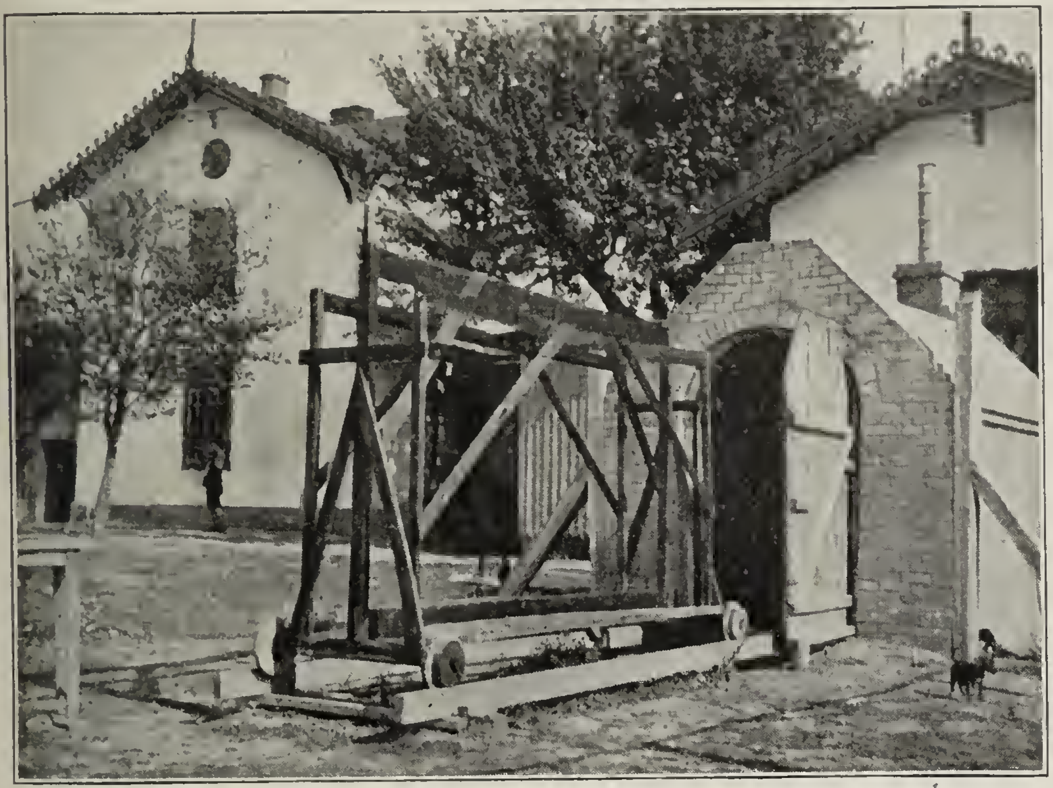

Fig. 3.—Serb type of disinsector, as employed at the hospital of Dr. Manilescu at Strunga.

> It was not a hospital but a morgue, where the sick perished pell-mell in their fecal matter, lying on the ground, or at best on a bundle of straw. One saw side by side cases of scarlatina and the first cases of typhus. It was really an aspect which recalled Dante's Inferno, and one certainly might have written above the door the famous phrase "Lasciate voi ch'entrate ogni speranza." The only latrine, which served both cholera patients and the others, as well as the hospital personnel, was surrounded by a zone of fecal matter five yards wide.

Fortunately, not all places were so badly cared for as this one, but at the best the situation was desperate. The typhus was on and inside the hospitals before one knew it, and had infected the wards before deparasitization could be introduced efficiently. Hence the morbidity among the physicians was high, and, as always is the case, the overworked physicians always furnish a higher mortality figure than their patients; here 40 per cent. of the infected physicians died, 200 out of an entire medical force of about 1,200, while the general mortality figure was only about 20 per cent. How many nurses and other hospital workers died we could not learn; but there were many, and we heard of no shirking of the horrible tasks and dangers of the pest-ridden hospitals. Even the queen insisted on her visits to the hospitals, and still allowed her adoring but infectious subjects to kiss the royal hand.

From the start the fight against the epidemic was hampered by lack not only of trained workers, but of materials, often of the simplest sorts. To check typhus the only material needs are baths, petroleum, hair cutters, fire and clean clothes; but even such simple requirements could not always be met. In one place no petroleum or other insecticide could be obtained; in another, wood was lacking for fires with which to deparasitize the clothes, and in some practically everything was lacking. Of course these conditions were soon remedied in the hospitals, but it took longer in the barracks and especially in the villages. The practice of the peasants of huddling close together in winter for warmth was exaggerated by the scarcity of food, fuel and warm clothes, and so the spread of infected lice increased. Especially disastrous were the first barracks erected for the retreating army. To gain warmth they dug into the ground with only the roof above the soil, and the men slept on a layer of straw covering the floor, lying close together for warmth. In these places infected lice had an uninterrupted march from one end of the place to the other, and the men came down by scores. And so in the course of a month the disease had spread throughout the country, adding a supreme misery to already unbearable conditions.

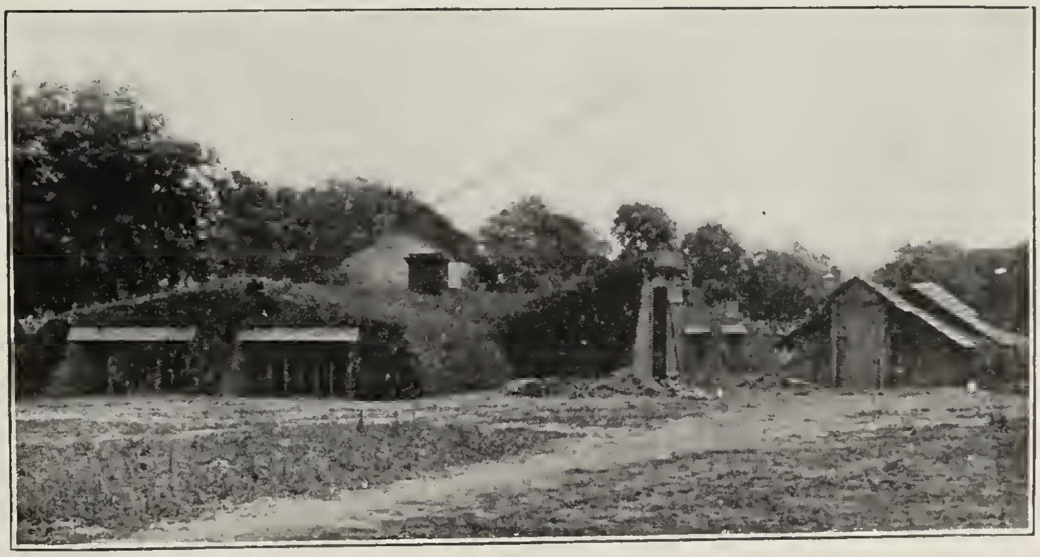

Fig. 4.—Russian type of disinsector on left, communicating with underground baths, at Adjud.

It would seem that, in spite of the unfavorable conditions of nourishment and care, the epidemic was not of extreme virulence, for the mortality is estimated at only from 16 to 20 per cent. It is generally accepted, however, that the disease was of a predominatingly nervous type, and even now one sees many striking types of late nervous manifestations in typhus convalescents. Many of the reports of these cases have been collected and studied in his hospital for nervous diseases at Jassy, by Dr. Devaux of Paris. From the start the nervous system seemed generally to be most severely affected; the spinal fluid showed a high pressure and considerable leukocytosis, at first small lymphocytes and some polymorphonuclears, later predominatingly large mononuclears, and this polycytosis often continued for several months, at least in cases showing nervous lesions. At necropsy a gelatinous edema of the meninges is the most characteristic finding. Many of the deaths seem to be the result of bulbar paralysis. Even the cases of cardiac collapse seem to depend on involvement of the cardiac nervous mechanism, for the myocardial degenerations commonly described in typhus are not exhibited in these cases. Dr. Dimitri Jonescu states that the classical picture of suprarenal insufficiency, with a very low blood pressure, is often seen. Pneumonia was a common fatal complication. The number of cases of severe nervous lesions that we saw in the hospitals six months after the epidemic gives striking evidence of the profound injury to the nervous system, both central and peripheral. There are cases of actual hemiplegia, with and without partial aphasia, severe psychoses, and especially many paralyses with atrophies of the shoulder girdle and upper limbs. Devaux says that there are probably 200 cases of atrophy of the forearm, usually resulting in a typical main en griffe.

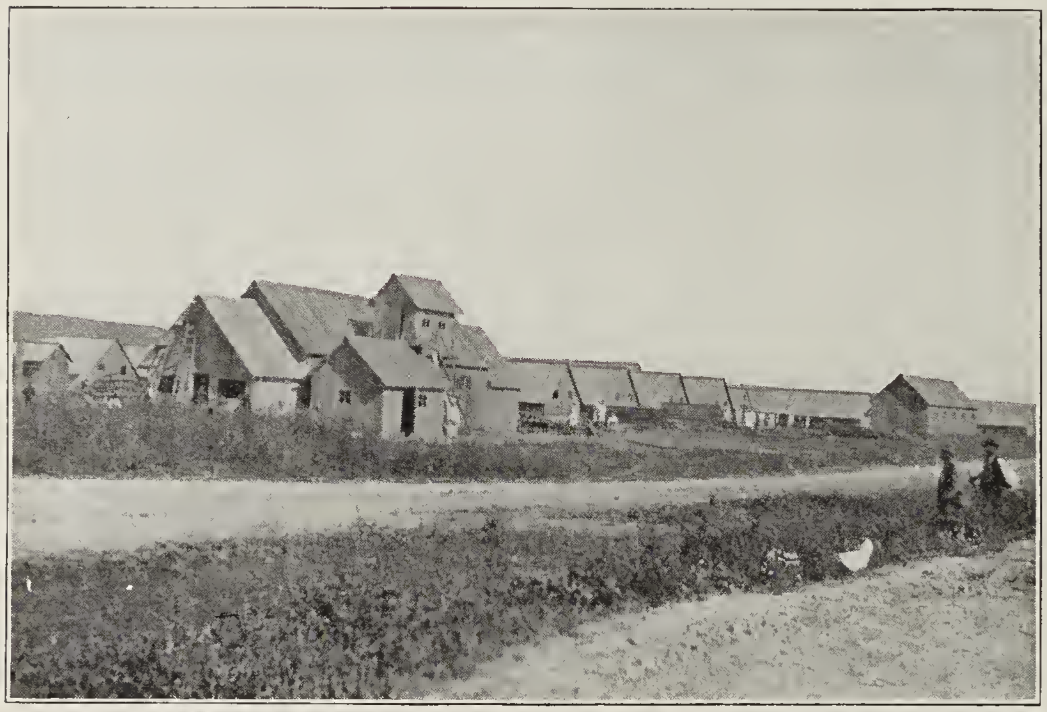

Fig. 5.—Typical barrack hospital, the chief type erected last summer. The walls are double, the space between being filled with earth for warmth in winter. The largest building in the foreground is the bath establishment.

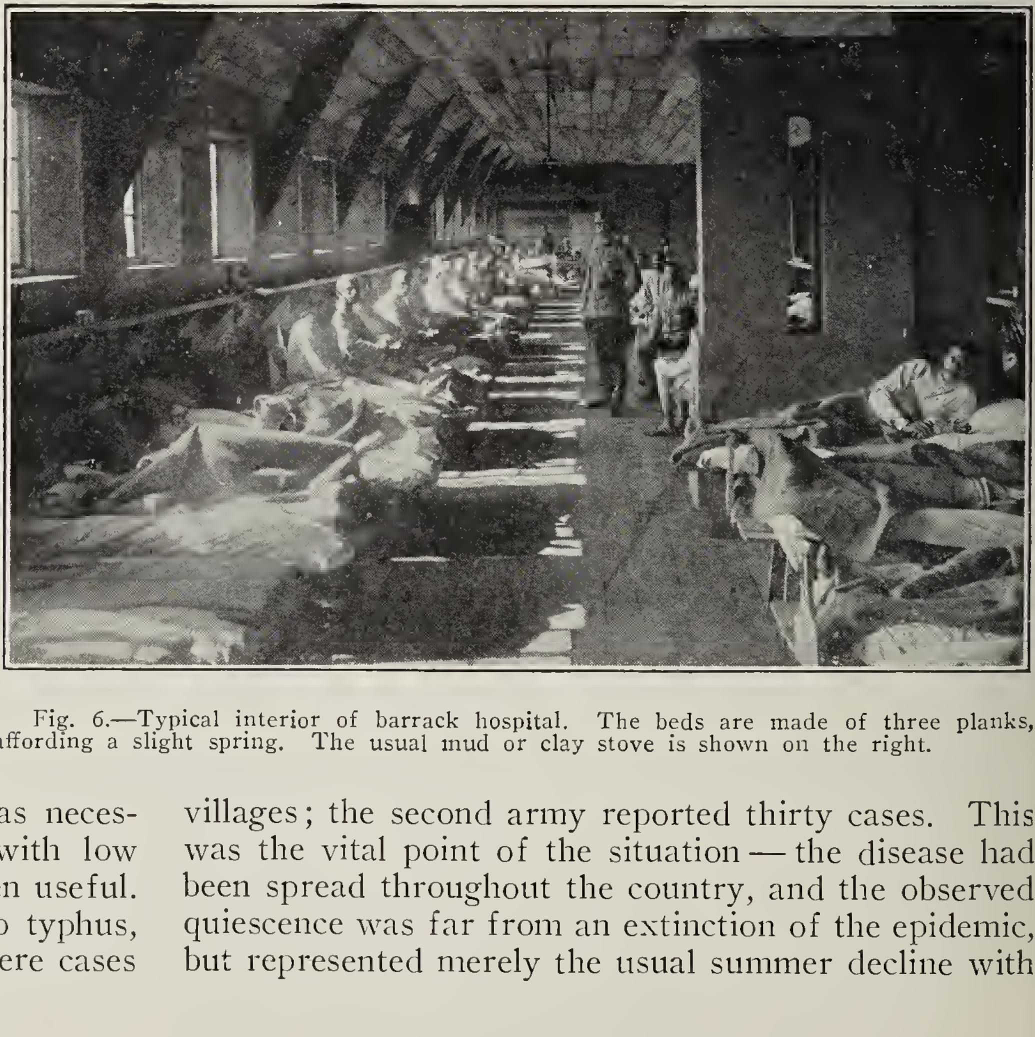

Fig. 6.—Typical interior of barrack hospital. The beds are made of three planks, affording a slight spring. The usual mud or clay stove is shown on the right.

Apparently nothing of great value was discovered in respect to treatment, which was necessarily symptomatic. In cases of collapse with low blood pressure, epinephrin is said to have been useful. Because of the immunity of convalescents to typhus, several attempts have been made to treat severe cases with the serum of convalescents; but the evidence for the value of this procedure is not convincing, although its logic entitles it to a thorough trial.

As to the early diagnosis of typhus, in addition to the usual symptoms of an acute febrile disease, the following points have been particularly noted by different observers: Often the tongue is covered with a bluish coating (like the porcelain tongue described in grip by Dr. Faisans). An important feature is the congestion of the face and redness of the conjunctivae. The symptoms may be brought out in the early stages by cupping: "On the colored ground where the cup has been applied, spots of bluish-violet coloration become apparent" (Antoniu). The eruption may also appear on the palate and fauces before it is visible on the skin. There is usually a considerable leukocytosis (from 20,000 to 30,000); and a distinct increase in mast cells, up to 1 per cent., is considered to be of diagnostic value (D. Jonescu). It is generally agreed that there is no regular relation between the severity of the eruption and the prognosis.

The crest of the typhus wave was reached in May and fell at the same rate at which it rose, so that in July there were still many cases. When we made our tour of the country in the last of September, the epidemic may be said to have disappeared, yet everywhere there were scattered cases to be seen. There was practically not a single hospital for contagious diseases that did not show one or more cases, and in some as many as ten or twelve were found. Even in Jassy there were said to be one or two cases, but we did not see them. In a few places we saw house epidemics — from two to four patients from one family. It was estimated that there were at this time about 200 cases in Roumania, nearly all in the small villages; the second army reported thirty cases. This was the vital point of the situation — the disease had been spread throughout the country, and the observed quiescence was far from an extinction of the epidemic, but represented merely the usual summer decline with the assumption of more hygienic outdoor life and the warm temperature that reduces the activity of the louse. Everywhere the disease was smoldering, waiting only for the resumption of winter conditions to break forth again. Beyond doubt there will be typhus again this winter — how much depends entirely on how effectively the disease can be restricted in each place in which it makes its appearance.

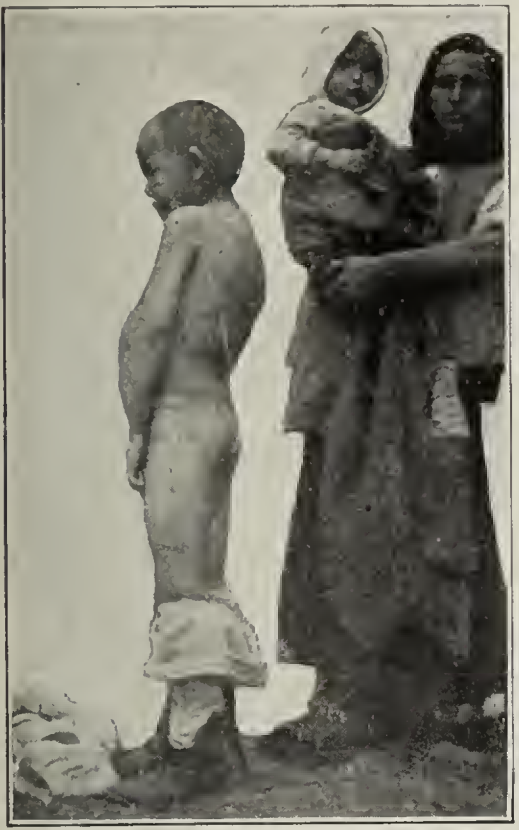
Fig. 7. — War dropsy; swollen feet and abdomen.

The peasants, who now almost exclusively harbor the disease, lived with few excepions in small cottages and closely crowded together, especially in the winter. In common with all ignorant people there is always a tendency to hide the sick in order that they may not be taken away from the family to the hospital. The peasants have been known to hide typhus patients in the heavy thatched roofs of the houses. These conditions require that frequent house-to-house visits be made by people familiar with the population, who know how many there should be in each house and hence can detect such evasions.

Before the war there was an organized medical supervision of the country, which was divided into numerous districts, each under a chief physician and the necessary staff of division doctors. At present there remain in the hands of the Roumanians but thirteen of these districts, and the war has so demoralized the medical organization that the normal conditions of health supervision are approximated only in spots. The heavy demand for physicians in the army, and the loss of at least 200 physicians from typhus, has drawn away from the civil service nearly all the better men, so that now there remain for the civil population only a few, and to a large extent these are but the survival of the unfittest. Fortunately, there are a few exceptions to indicate what invaluable service a few good physicians can render.

### RECURRENT FEVER

As mentioned before, an epidemic of recurrent fever accompanied the typhus, and was nearly as serious. Although a louse-borne disease, it presented some differences in epidemiology that are not readily explained. In the first place the recurrent epidemic preceded the typhus epidemic by about a month, both in its rise and in its fall. Also it affected the rural population relatively much more than the city population, although the vital statistics indicate that it was recorded earlier (November and December) in the cities. It seems to have spread less within the hospitals, especially among the physicians and attendants, than did the typhus. This epidemic of recurrent fever seems to have been unusually severe, with a mortality of about 10 per cent. For this high figure there are several reasons. In the first place, recurrent fever has a slow and protracted convalescence, as contrasted with the relatively rapid recovery from typhus. In a population devoid of proper food for invalids, insufficient clothing, and so little heat that it is reported that people froze to death in the hospitals, the successful convalescence from recurrent fever was difficult and often impossible. Physicians repeatedly told of losing many patients from cold and starvation, although the starvation was often from improper food rather than from an actual absence of any food whatever.

Many lives were lost because of the absence of adequate supplies of arsphenamin (salvarsan). It is agreed that arsphenamin is of great value in this spirochetal disease, and had it been possible to give every patient an adequate amount, the mortality would undoubtedly have been much reduced. But there was little on hand, and no more could be obtained. It is probable also that many of the cases recorded as recurrent were actually typhus with an irregular course, for under the existing conditions adequate laboratory diagnosis was difficult or impossible, although ordinarily the spirillum is readily detected in the patient's blood. The deaths were usually the result of complications, chief of which were the cachexia of cold and hunger, pneumonia and dysentery. Severe mouth infections were common, leading in some instances to massive necrosis of the inferior maxilla. Suppurative parotitis and otitis media occurred frequently. These complications probably depend on inadequate care of the patient's mouth, understandable under the prevailing conditions. As might be expected of so protracted a disease, tuberculosis has recently been appearing among those who recovered from recurrent fever last spring. For some reason this takes particularly the form of tuberculous pleurisy.

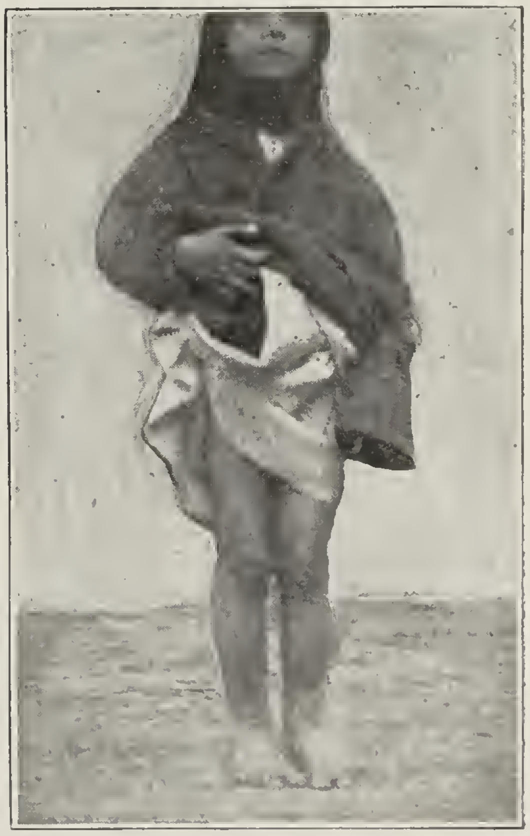
Fig. 8.—War dropsy; swollen feet.

### EXTERMINATION OF VERMIN

Since Nicolle, Ricketts and others demonstrated the louse transmission of typhus, the war has given many opportunities to demonstrate conclusively that this disease can be absolutely controlled by exterminating the lice. In Roumania, physicians repeatedly recounted the fact that as soon as they had deparasitized (or, as the French say, disinsected) the patients in the hospital, and also all entering patients, the spread of the disease within the hospital was entirely checked. In some hospitals in which the organization and facilities were adequate to meet the situation at the start, they got through without a single instance of crossed infection in the hospital or infection of a single member of the staff. Now in some well organized hospitals the typhus cases are not quarantined at all; for, in the absence of lice, typhus is not a contagious disease.

At the time of our visit to Roumania, every hospital was equipped to disinsect the patients, many of them admirably; and with very few exceptions all hospitals under Roumanian or French control were doing their work well. Because of superior organization, the army hospitals are especially well prepared, and it is reasonably certain that there will be no considerable number of typhus cases in the active army. Even far to the front, bathing equipment has been installed, often admirable. A sick or wounded soldier inevitably passes through a series of hospitals or triages, each of which looks after his disinsection. Hence, even the men at the front are not often infested with vermin, and they will surely be cleaned up in the passage back to the base hospital. Soldiers too severely wounded for thorough disinsection are cleaned as well as possible, and tagged as not being safe, so that they may be properly isolated and cared for subsequently. The routine plan of disinsection is usually as follows: At the first triage or hospital sufficiently removed from the front, the patient is stripped in an anteroom of the bath, his hair cut short, and the entire body anointed with petrol or some other parasiticide, after which a hot shower or tub bath is given. He is then given a clean hospital garment, or, if he is to travel farther, he is kept in a warm room until his clothes can be disinsected and returned to him. This disinsection of clothes is accomplished by heat, and the types of oven used are fundamentally three. One is practically a steam autoclave, which is efficient but generally of rather limited capacity, and usually it takes some time to get up the pressure. Many of these autoclaves are also seriously defective in that the clothes enter and are removed at the same end, which makes possible infection from parasites left outside the oven. Furthermore, the apparatus is expensive, complicated, and usually must be imported. More practical under existing conditions are the dry heat disinsectors of the Serb or Russian types. The former is usually built above ground, of brick or concrete, with a double wall that permits of an air space in which the heated air circulates. The clothes are hung on a rack mounted or hung on wheels so that it can be pushed into the oven and pushed out again, preferably with exit and entrance doors at opposite ends. These ovens are effective and practical, but are not altogether simple of construction. More readily built, and apparently becoming more popular, are the disinsectors of the Russian type. These are merely underground houses, with dirt and sod covering, in which the clothes are hung on racks and the chamber heated by hot air carried through in sheet iron pipes. These can be built by the peasants with almost no material, and have been found satisfactory. In some instances the heat escaping from the disinsector is used to warm the adjacent bath house.

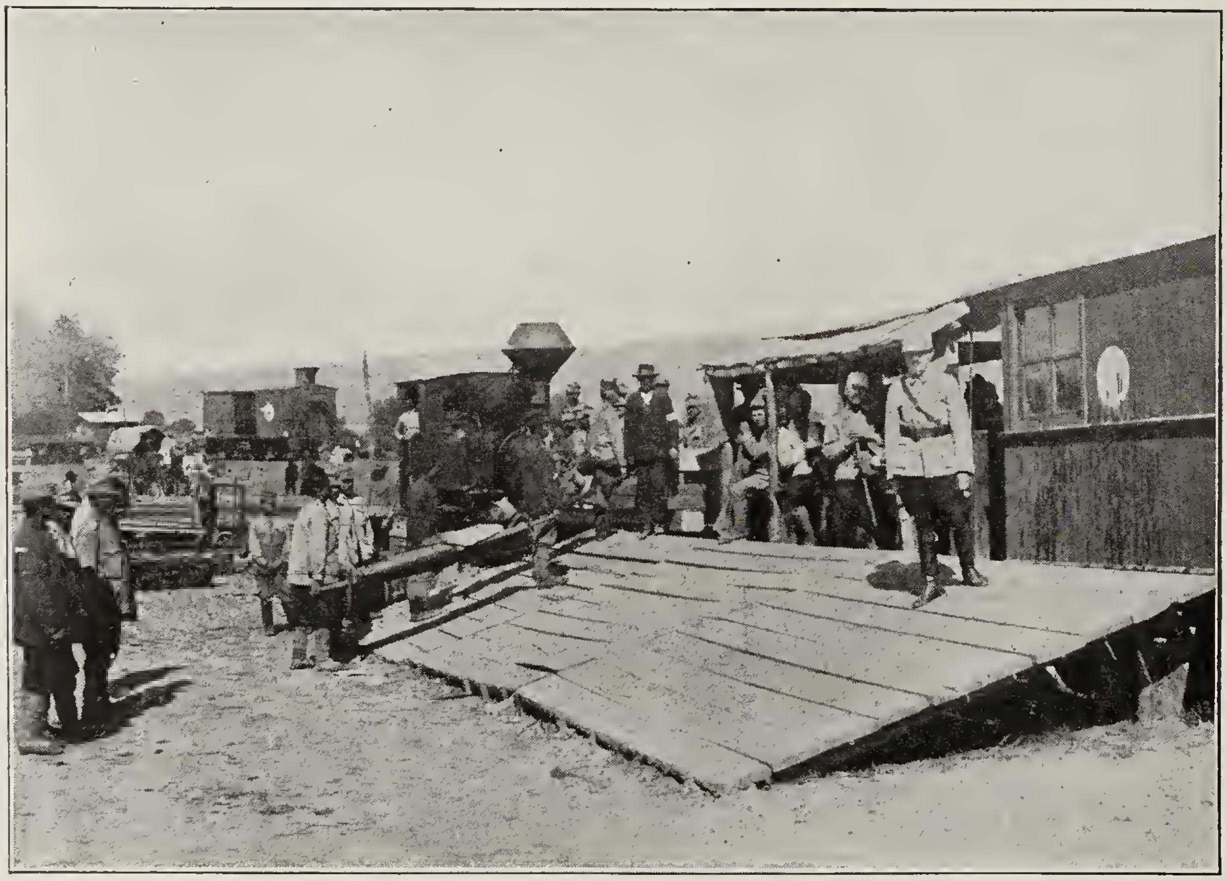
Fig. 9.—Hospital train on narrow gage road near the front.

An important factor in the success of these procedures lies in the fact that the Roumanian peasant has no inherent objection to cleanliness, nor does he consider lice either necessary or desirable accompaniments of physical well-being, as some other nationalities are reported to maintain. Furthermore, the discipline of the Roumanian army is as nearly perfect as could be wished, and the Roumanian soldier is a willing, patient, friendly worker, who is remarkably skilful in working with wood and plaster, building barracks, hospitals, baths, disinsectors, furniture, etc., all with few materials and great success. Hence the situation as regards epidemics in the army is excellent; and as there is little active fighting in the winter, when the epidemics threaten, there will probably be entirely adequate hospital facilities for the army, with probably much space available for the civil population. Many new barrack hospitals have been erected with double wooden walls, between which a thick layer of dirt is placed to insure warmth. Every large schoolbuilding, and many villas, warehouses, etc., having been converted into hospitals, this part of the situation is well provided for. The danger, so far as the army is concerned, is in the reserves quartered in the villages where they will be exposed to the infections arising in the civil population. And it is in just this zone, where the soldiers, refugees and evacuated families are added to the native population, that the overcrowding and underfeeding are worst.

### OTHER INFECTIOUS DISEASES

Of the other infectious diseases, the most important is typhoid. During the past summer this was quite extensive everywhere in the country, arising in isolated foci rather than in distinct epidemics. This suggests that the infection came from carriers rather than from infected large water supplies, and it is highly probable that flies play an important part in the distribution. The country is infested with a plague of flies that is bad beyond description. The natives say that this is a new condition resulting from the disorganization of war. Horses and oxen are quartered everywhere, and there is no transport for removal of garbage and filth. Toilet facilities are commonly most primitive or nonexistent, and the peasants do not seem to be concerned about the flies anyway. In some of the hospitals we found conditions as to flies as bad as it is possible to imagine—typhoid and dysentery patients lying with their heads and faces, their food, their bedclothes, and often their excreta, swarming with flies. As much milk and cheese are eaten by the peasants, this source of infection is probably important. Presumably the conditions would be much worse but for the extensive prophylactic vaccination that has been practiced. Here, as elsewhere, the value of this procedure has been repeatedly and abundantly demonstrated. An especially striking case is furnished by the present high incidence of typhoid among the Roumanian officers; for example, in one hospital there were 156 cases of typhoid, of which 100 were in officers and but fifty-six in private soldiers. The reason for this lies in the fact that for soldiers vaccination was compulsory, but optional for the officers, and many of the latter refused it because of the temporary discomfort. The civil population has been vaccinated as much as possible, and recently in Jassy this was stimulated by issuing sugar cards only to persons who had typhoid vaccination certificates. It seems that in many instances vaccination does not protect for more than six months, numerous cases appearing after that time. In the vaccinated, typhoid has been mild and of brief course.

The water supply of the larger Moldavian towns is excellent. The supplies of Galatz, by sedimentation and filtration of the muddy Danube water, of Piatra Neamt, by ozonization of a fine mountain water, and of Jassy, by underground collection of mountain water filtered through natural gravel beds, might each be used as models of city water supplies of different types. Their existence is evidence that there is at least some public health policy in Roumania.

We found a moderate amount of bacillary dysentery, but not enough to constitute a serious condition. In some places we were told that the infections were of the Shiga, in others of the Flexner type. There is no amebic dysentery.

During the past summer there has been a widespread epidemic of a mild form of icterus, it being estimated that there have been two or three hundred thousand cases. It involves all strata of society, in all parts of the country, and hence dietary factors can be excluded, although at first the use of black bread was suspected of being the cause. When four members of the royal family, all living in different places, came down with the disease, the black bread and starvation theories were given up. The disease begins with a febrile attack, often quite sharp and suggesting typhoid. After a few days the fever falls and the icterus appears, wherewith the subjective symptoms, of which prostration is often severe, improve. The patient is then usually able to be about after a few days, despite an icterus that is often quite marked and usually persists for two or three weeks, during which time the patient is somewhat apathetic, dull and depressed, as in the usual catarrhal jaundice. Undoubtedly this is a specific infectious disease; but several competent bacteriologists have sought for the etiologic factor in vain. The disease suggests often a mild typhoid or paratyphoid, and in a few cases paratyphoid bacilli have been cultivated from the blood and spleen. But as this has been obtained exceptionally, and as typhoid and paratyphoid infections may result in icterus, it is possible that these cases were not of the prevailing type of icterus, but merely cases

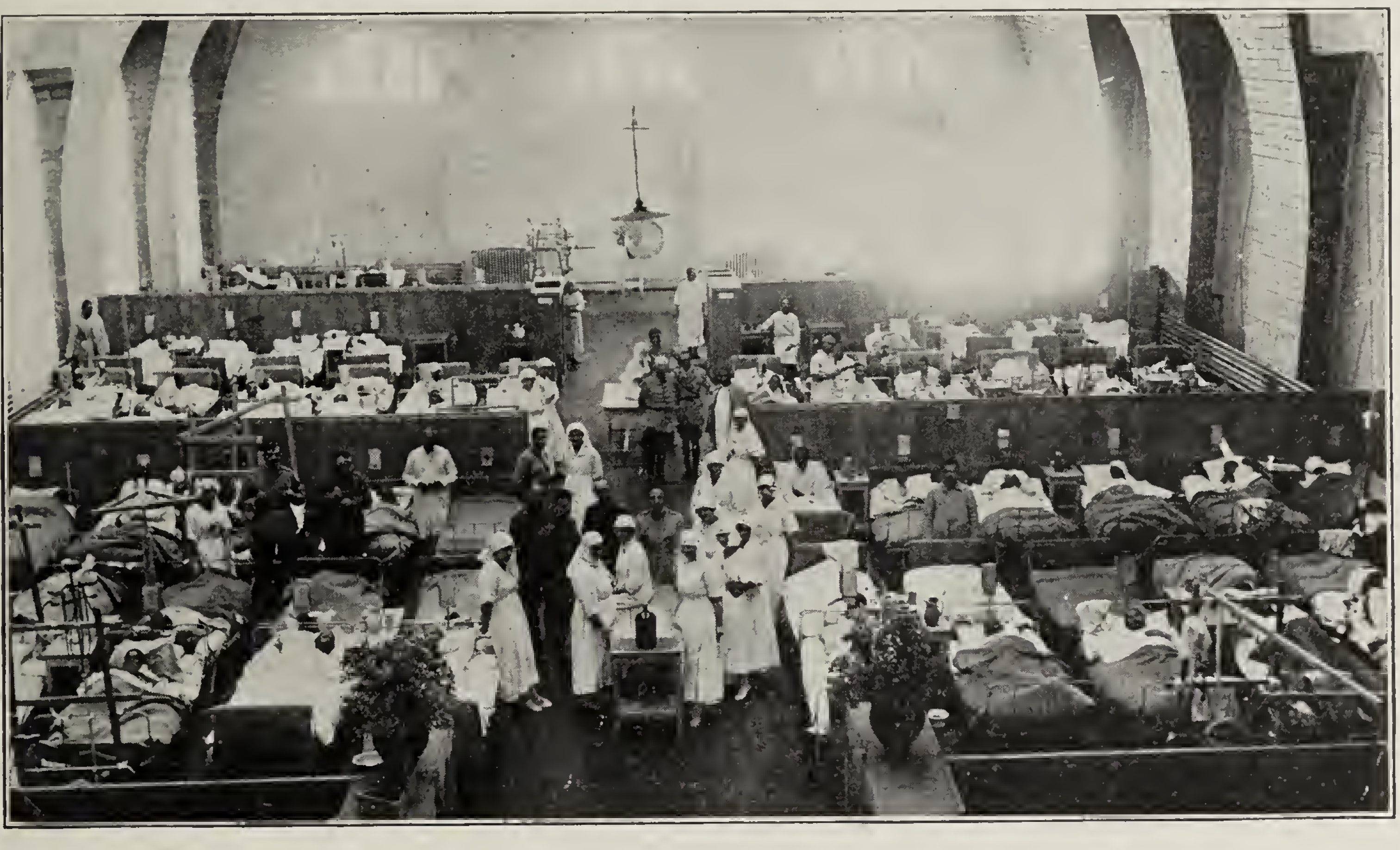

Fig. 10—Interior of hospital in private indoor tennis court at Ghidijeni. The Princess Marie, of Roumania, is standing at the right of the table.

of paratyphoid with jaundice. The disease has of itself no mortality; a few icteric patients have died of other diseases or complications. It has nothing except the icterus in common with the Weil's disease type of icterus in which spirochetes are found. No spirochetes have been found in Roumanian cases, and apparently the severe form of icterus hemorrhagica does not occur here often if at all.

Two infectious diseases common in other parts of the world have spared Roumania — epidemic meningitis and poliomyelitis. Both have been rare during the war. It is even said that scarlatina, which is reputed to be exceptionally severe in this country in normal times, has been less severe than usual; but we could secure no accurate information on this. There are occasional and increasingly frequent cases of smallpox, which hitherto was an almost unknown disease; but the population seems to be generally well vaccinated.

Malaria has always been prevalent, but not of a malignant type. It does not seem to have been augmented during the war.

DEFICIENCY DISEASES

One of the most serious conditions is presented by the deficiency diseases. Pellagra, as stated before, has always been common, presenting the usual identity of distribution with a preponderatingly maize diet. Here no one questions the etiologic relation of maize and pellagra, the only question being whether or not disease or deterioration of the maize is responsible. Apparently, the Roumanian peasant eats maize only in two forms — to a slight extent as parched corn, but chiefly as mamaliga, which is nothing but a rather solid corn meal mush, made of too coarsely ground meal, often ground at home in a small wooden crushing machine and then with mortar and pestle. Usually this serves as the basis of nourishment, the chief accompaniment under normal conditions being a white cheese, made usually of sheep's milk, and of good flavor. Another favorite dish is a sour vegetable soup made with a stock prepared by fermenting bran (usually wheat, but sometimes rye or maize), which has a pleasant sour taste. Even in peace times the peasant eats little meat, but each family ordinarily has numerous chickens, ducks and geese, and a sow with her family, from which they get a small amount of meat and some fat, although most of these food supplies are sold. Smoked fish also are much used as a source of protein and fat, and beans are eaten extensively. It is said that the peasants who get such a mixed diet as is indicated above do not develop pellagra, and this disease rarely if ever arises in city dwellers, with whom mamaliga is not a chief article of diet. But, according to the prevalent belief, when the diet becomes for some time largely restricted to mamaliga with few accessories, pellagra appears. It is generally stated that the disease is now exceptionally prevalent, and assuming an unusually acute form. Most noteworthy is its frequent appearance in young children — we saw groups of war orphans in which the majority exhibited pellagra, and this is distinctly a new development. Also we observed much more pellagra among the refugees and evacuated population than among the people living in their own homes, which again testifies to its relation to food deficiency. The mortality among the pellagrins is very high, for they have little resistance to either infection or exposure.

Fig. 11.—Typical Red Cross hospital near the front.

Not only is the nourishment of the Roumanian now deficient in quantity, but, especially among the peasants, it is greatly deficient in variety and quality. A person may have enough corn to supply the theoretical number of calories, or to satisfy the more acute pangs of hunger; but evidently human beings cannot live long with corn as the sole, or even as the chief article of diet — as MacCollum showed was true even for cattle. And it is to be remarked especially that under the existing conditions as to milling and cooking, a very large proportion of the maize that is eaten is not utilized, as demonstrated by the enormous, bovine-like evacuations, containing large fragments of corn grains, found everywhere in the frontier districts. Evidently the passage of these undigested masses plays havoc with the intestinal mucosa, leading to dysenteries of chronic and exhausting character.

Along with the acute pellagra there was beginning to appear in September, and apparently now for the first time, a severe form of edema. This resembles clinically an acute nephritis; but the urine is free from albumin. Usually the edema is preceded by an attack of diarrhea, at first with ten or twelve movements a day, then half as many, and continuing from one to three weeks before the edema develops. This involves the face and hands, but is more marked in the lower extremities. It is observed exclusively among those suffering severe privations, especially among the refugees and the evacuated, and among the same class of people that fall victims of pellagra. Presumably it is the same condition that the Germans have described under the suggestive name of *Kriegsoedem*. Being a deficiency disease, a relation to the hydropic form of beriberi is suggested and is probable; but we could secure no evidence of the occurrence of neuritis. We were told that about 50 per cent. of these patients recover on a proper diet, but they are extremely susceptible to all infections and die if exposed only a little to cold. When the edema appears in a pellagrin, death ensues quickly.

Scurvy has not been so serious as it is said to be in the Russian army. Possibly this is because the Roumanian peasant has usually secured a fair amount of fresh vegetables in his diet under even the worst conditions. Numerous physicians, however, have reported that scurvy seems to be increasing, and this disease is now feared because much of the normal supply of peas, beans and fresh vegetables, while still green, have been used by the Russian armies as fodder for their horses, and hence a deficiency in these foods is anticipated.

These deficiency diseases were even in September and October playing havoc among the refugees and the evacuated population. In the villages and camps where they were crowded, as many as twenty in a room, we found many of them dying solely because of the insufficiency of proper food. The sights we saw in some of these places were tragic beyond belief—women and children swollen with famine dropsy, ulcerating with acute pellagra, emaciated to skeletons with dysentery. One dreads to contemplate what the conditions will be when cold weather comes, for reports in November and December indicated that they were growing progressively worse.

### OTHER SPECIAL DISEASES

Other special diseases do not seem to be of great importance. Tetanus is rare, probably because the soil is not heavily manured and antitoxin is generally given prophylactically. Gas gangrene is also uncommon. Trench foot occurs, but less often than on the western front.

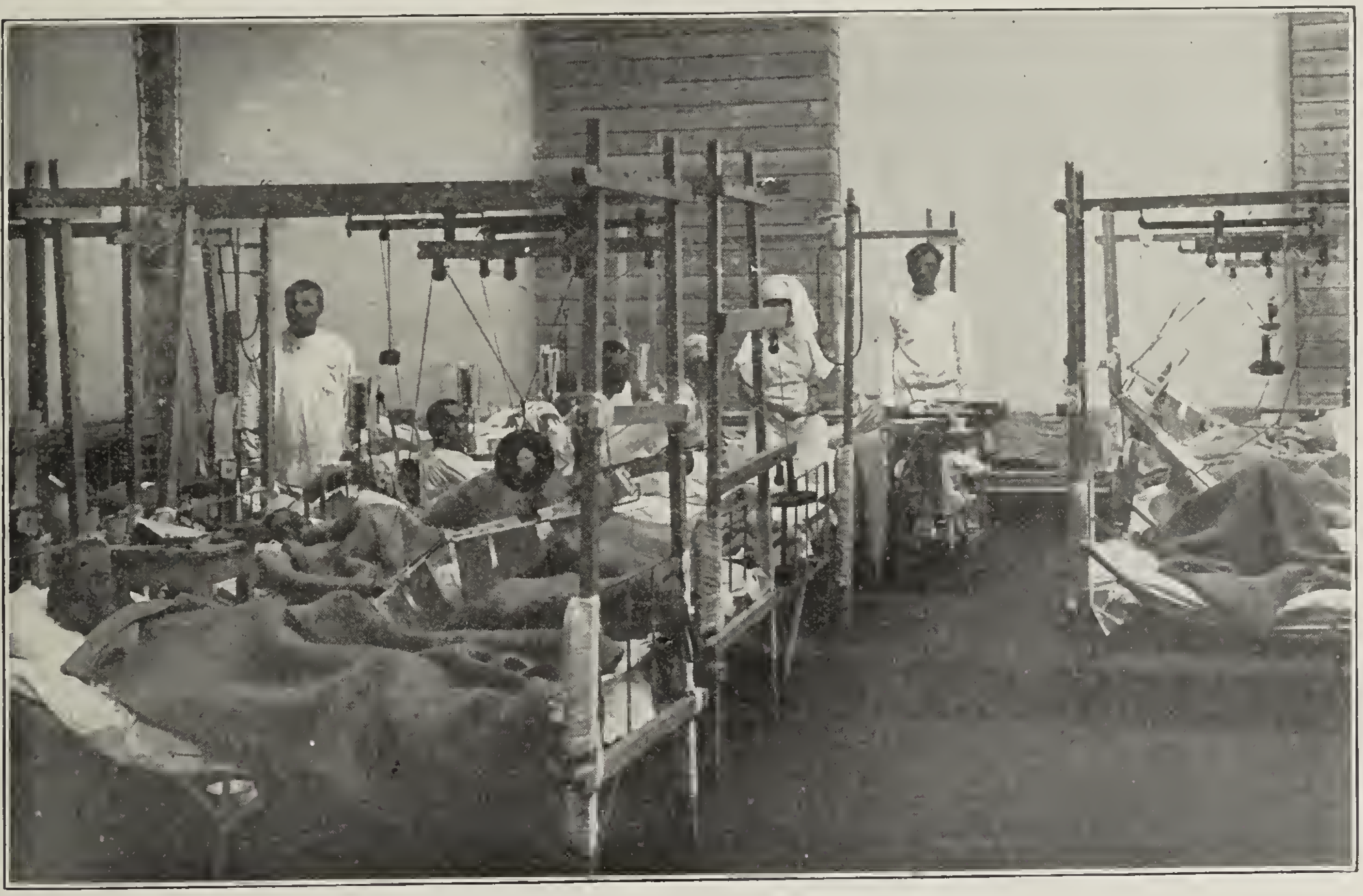

Fig. 12.—Fracture ward in hospital at Ghidijeni.

Tuberculosis seems not to have been a particularly serious plague in Roumania before the war, despite the habits of anaerobic existence often practiced by the peasants. There has never been a systematic campaign against tuberculosis; but just before the war a beginning was being made in the establishment of a dispensary system, and two or three sanatoriums. There seems to have been an increase observed since the beginning of the war, although part of this may be ascribable to more general physical examination of soldiers and recruits. Tuberculous pleuritis and adenitis are especially frequent, and closed forms of tuberculosis predominate, which supports the theory that the Roumanian has a good resistance to tuberculosis. As mentioned before, it seems to occur particularly often in those who have had recurrent fever.

From the foregoing summary it can be seen that the two greatest dangers for Roumania, from the medical standpoint, are typhus and the deficiency diseases, especially the former. The Roumanians are entirely familiar with the situation and know how to cope with it. All they need is a little material help in the form of supplies, and some supplemental medical reinforcements. A nation which can arise from a crushed condition such as existed last December, fight through two such plagues as cholera and typhus, bear the burden of a vast, inert, hungry foreign army, and with the aid of a thousand stimulating and inspiring Frenchmen reestablish itself so that seven months later it can hold off the concentrated attacks of Mackensen's army and pile up from 60,000 to 80,000 German casualties is entitled to all respect and to every possible help. As a matter of fact, all that Roumania asks is to be given sufficient aid to keep the breath of life in her people — this done, they can be counted on to withstand the enemy and to develop themselves steadily in strength and efficiency. Their heroic reorganization and resistance despite apparently insurmountable difficulties constitutes one of the most splendid episodes of the war. They are certainly worth keeping alive; but the vital statistics show that this is at present far from being done, for the death rate averages fully five or six times the birth rate in the towns that we investigated.

### RECOMMENDATIONS

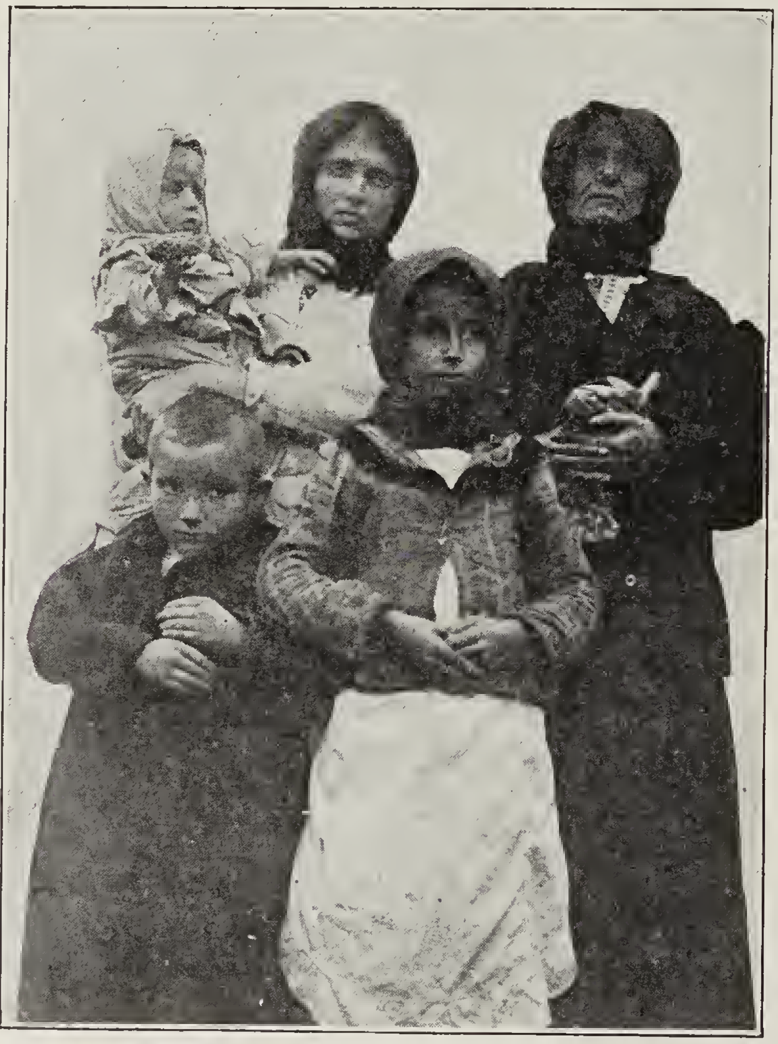

Fig. 13.—Group of refugees. Grandmother and two grandchildren with pellagra. Infant eating parched yellow corn from the cob.

To meet these problems, we therefore recommended that: A sufficient number — about 100 — thoroughly competent Roumanian physicians should be detached from the military service and detailed for the reorganization of the civil sanitary service and its proper maintenance until the end of the war. These physicians should be selected by the civil sanitary service from men known by them to be competent for this special work. A suitable personnel of sanitary orderlies should also be detailed from the army to act under these physicians, and should be selected with great care from persons having had experience in this line.

All military hospitals, wherever situated, should be thrown open to civilians for the care of typhus-infected persons or suspects. The military disinsectors, baths and bath trains should be available for the civil authorities to the end that they may be worked on full time and may supply the needs of villages accessible to the railroads and near the hospitals. The disinsectors and baths of the civil sanitary service already in existence should be more fully used, and the incomplete ones finished as soon as may be. Automobile transportation to carry the peasants from the villages to the trains and to other places where disinsection is practiced should be supplied in adequate amount and with suitable personnel. A chief of disinsection should be appointed with authority over all the means available for combating typhus, with such transportation facilities that he can supervise and control the entire work.

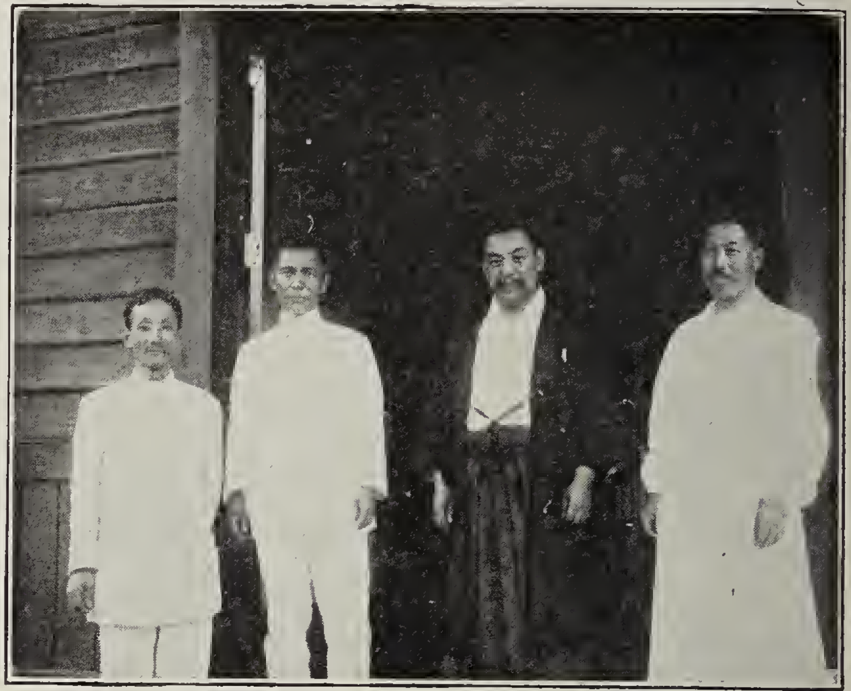

Fig. 14.—Members of the staff of Professor Kitasato's laboratory in Tokio. Reading from left to right: Professors Miyajima, Hata, Kitashima and Shiga.

Certain of these orders were already nominally working, but practically in only one or two small areas; finally new orders were issued, and Major Bordea, formerly chief hospital inspector in the civil sanitary service, was appointed in charge of the work. At the military hospitals and barracks the disinsectors and baths were put at his service, together with twenty-eight bath trains, formerly used only by the military.

It had been thought necessary to ask for the appointment of a number of American surgeons to replace the men released from the front; but in the absence of offensives and in the uncertainty of conditions, especially in regard to the Russian troops, this became inadvisable, as there were actually enough Roumanian surgeons to care for the work without interfering with the efficiency at the front. It was further planned to avail ourselves of a group of motor ambulances detached to our service from the Siberian Corps of the Russian Red Cross; but the cessation of hostilities freed sufficient ambulances and trucks so that the work could be carried on with the material available. Captain Bakeman, who had been with the American state department at Moscow, and who, both through his training and as a sanitary engineer and his experience in the Serbian retreat, was eminently suited to this work, was appointed to carry on the work in association with Major Bordea at the departure of Major Perkins.

Provided, on the one hand, there is no serious offensive on the part of the enemy requiring the withdrawal of the surgeons released to care for the wounded, and on the other hand, that it is not necessary for the civil population to evacuate the country, the physicians, the means of disinsection and the transportation facilities at present available are such that the epidemic of typhus during this winter, while it cannot be entirely avoided, should be of a very moderate degree.

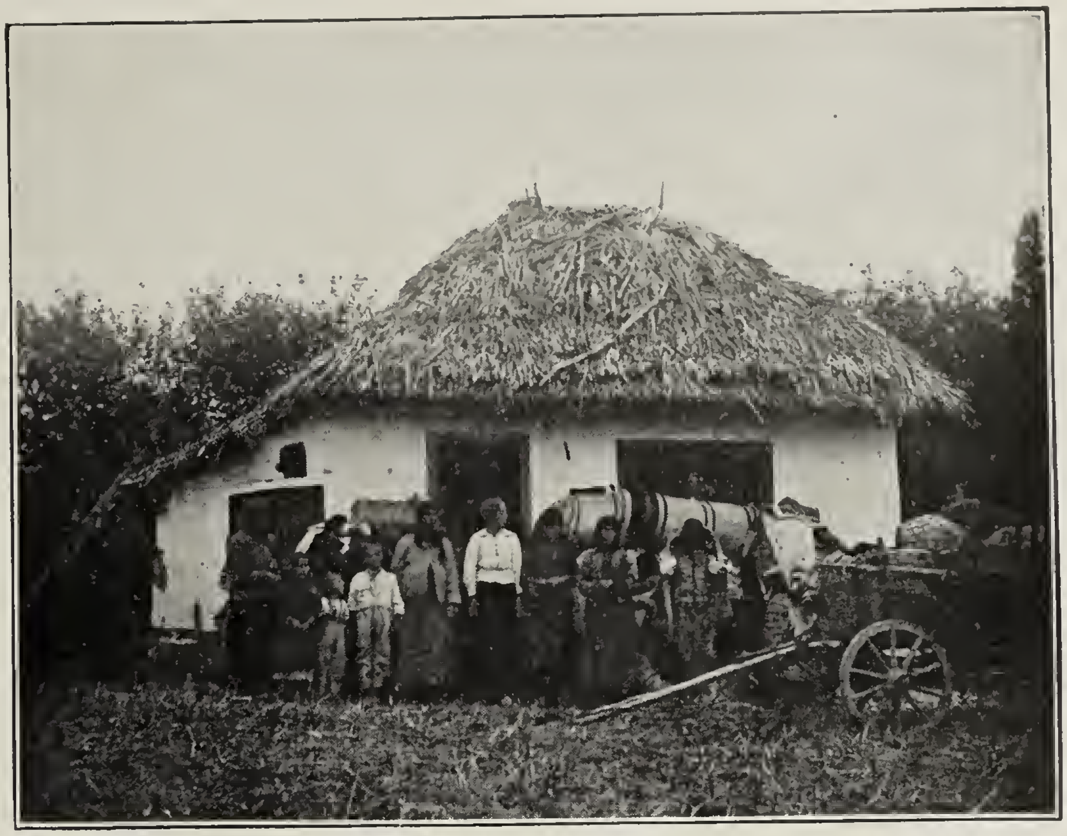

Fig. 16.—Typical peasant's cottage and refugees.

As the conditions of famine and lack of clothing were such as to make the resistance against disease, especially against typhus, very low, plans were also made to establish distribution of food, both in connection with the disinsection in the villages and as a separate function in the districts near the front. Transportation conditions in Russia and the impossibility of obtaining material in the United States made this very difficult; but about 3,500,000 salt fish were obtained from Archangel, and a number of carloads of cornmeal, sunflower oil and other supplies were acquired in Odessa, Moscow and elsewhere. At the time of the departure of Major Perkins, distribution of the material, together with clothing, acquired partly through the offices of the American Red Cross Commission to Russia and partly through the activities of our own staff, had been begun; but at the very best it would affect only a small proportion of the people. It was hoped, however, that it might be possible to purchase and bring in more supplies through the same agencies used to get the first lots.

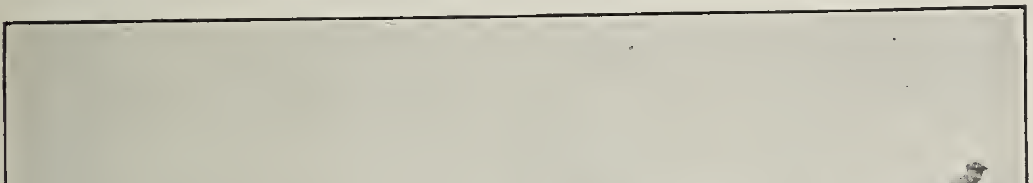

Fig. 15.—Private car of Red Cross Mission, swarming with Russian soldiers on roof and steps. All trains in Russia were thus overloaded, and generally packed inside to standing room limit.

## SUMMARY

The conditions in Roumania, as noted by us, showed a terrific lack of suitable food and clothing, and a rather widespread distribution of typhus cases throughout Moldavia, merely waiting the development of winter conditions to start up a new epidemic. To meet these conditions we attempted to unify the three existing medical services of the country to meet the typhus menace, and succeeded in having placed in control a single one of their own men, who could carry on the work with the advice and cooperation of the American mission but not under its orders. We also endeavored to procure enough food and clothing to popularize the enforced disinsection to some degree by small gifts to the disinsected, and to take the edge off of the famine in the worse districts. In the second week in December the work had been begun and, if not interfered with, should have the result of keeping the epidemic moderate and of saving many from death by famine, provided the interval before the country is once more accessible is not too long delayed.

The hospital at Roman under the charge of Kirkpatrick, in addition to its efficient surgical and medical work, in which it had established a model for all Roumania, offered every assistance to the plans against typhus, acting as one of the centers of distribution and of education.

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**Comparison of Draft Rejections.**—The statement sometimes made that the average of health of the young men of the country is lower than it was at the time of the Civil War, as shown by the percentage of rejections in the recent selective conscription, has been disproved by the showing of Provost-Marshal-General Crowder in his report to the Secretary of War. Of the 2,510,706 men examined in the first call of the present draft, 730,756 were rejected on physical grounds, which is 29.11 per cent. In the Civil War 31.69 per cent. of the men drafted were rejected. Commenting on this editorially, the *Ohio Public Health Journal* quotes General Crowder to the effect that in view of the advance in standards of medical diagnosis since the Civil War, the figures indicate a decided improvement in the physical condition of the young men of the nation.

# AQUEOUS SOLUTIONS OF POTASSIUM AND SODIUM IODIDS AS OPAQUE MEDIUMS IN ROENTGENOGRAPHY

## PRELIMINARY REPORT

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Emulsions of the insoluble salts of bismuth and barium have proved to be very satisfactory mediums for the roentgen examination of the gastro-intestinal tract. Emulsions, however, are not so satisfactory for similar examinations of the genito-urinary tract, in which it is essential to have a stable, homogeneous medium of as low a viscosity as possible. Nontoxicity and opacity to the roentgen ray are, of course, the prime essentials for such mediums. Nontoxic colloidal solutions of heavy metals, also even a few emulsions, such as that of silver iodid, have proved to be quite satisfactory. But on account of some of their physical properties, not to mention difficulty in their preparation, none of these mediums has proved to be ideal.

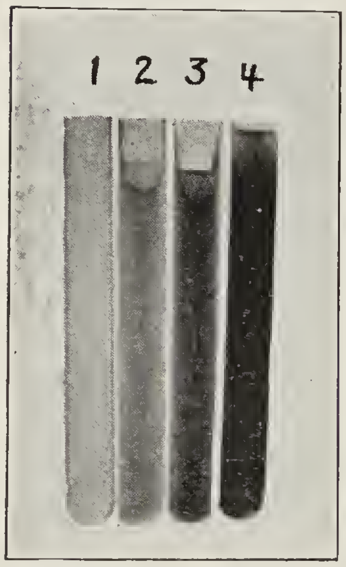

Fig. 1.—Roentgenogram of solutions of varying strengths. Dilution or strength: 1, water; 2, one-eighth; 3, one-quarter; 4, one-half. A 50 per cent. aqueous potassium iodid solution is called full strength.

In the spring of 1915, Burns published his first report of the use of thorium nitrate in pyelography. This solution has a number of advantages over the mediums in common use before. This solution can be prepared with very little difficulty, since it is necessary only to neutralize with sodium hydroxid the aqueous solution of thorium nitrate, in the presence of a sufficient amount of sodium citrate to prevent the precipitation of the thorium. Burns[1] later made an extensive report on the preparation and use of this solution, which has proved to be very satisfactory in pyelography. Salts of thorium, however, are often unobtainable at drug firms without a special order, and some care is necessary in making a satisfactory solution. A more common and inexpensive substance whose aqueous solution is neutral would be preferable.

A year ago, while I was considering systematically the common chemical substances that might be used for this work, soluble salts of bismuth, if suitable solutions could be made, and potassium or sodium iodid seemed most promising. Bismuth, being a heavy metal, was known to be opaque to the roentgen ray, and should be satisfactory if a neutral, nontoxic solution of one of its salts could be obtained. Potassium and sodium iodids seemed promising since they form a neutral solution in water, and theoretically any iodin-containing substance should be opaque to the roentgen ray, since iodin has a high atomic weight.

Stable and practically neutral solutions of bismuth can be made with some difficulty, it being necessary to have a high concentration of sodium citrate or of Rochelle salt present to prevent the precipitation of the bismuth. Even this does not prevent the precipitation in an absolutely neutral solution. It is necessary to keep the solution either slightly acid or alkaline in reaction. However, with such a solution, excellent pyelograms were obtained in the lower animals. But it would not be practicable to use such a solution in routine procedures, because of the difficulty in its preparation, but chiefly on account of the fact that the soluble solutions of bismuth made seemed to have a slightly irritative action. While this was being more thoroughly investigated, I was called in active service in the Navy, and the problem was dropped.

Recently, however, it has become possible, with the assistance of Dr. Charles C. Grandy, to investigate the properties of aqueous solutions of potassium and sodium iodids.

A 50 per cent. solution of potassium iodid, made of potassium iodid, 50 gm., and distilled water, 50 c.c., was found to be almost completely opaque to the roentgen ray. The solution is perfectly clear and is strongly saline in taste but not irritating to the tongue. It has a low viscosity, can be readily sterilized by boiling, and is miscible with urine and blood without causing any precipitation or coagulation. The opacity of more dilute solutions was tested. For convenience, a 50 per cent. solution is called "full strength;" one volume of this diluted with one volume of water is "half strength." It is important to note that this "half strength" solution contains more than 25 per cent., by weight, of potassium iodid, owing to the high specific gravity of the 50 per cent. solution used in the dilution. A "half strength" solution casts a very dense shadow, and that of the "quarter strength" is well defined. Figure 1 is self explanatory. It was also found that similar solutions of sodium iodid were just as satisfactory.

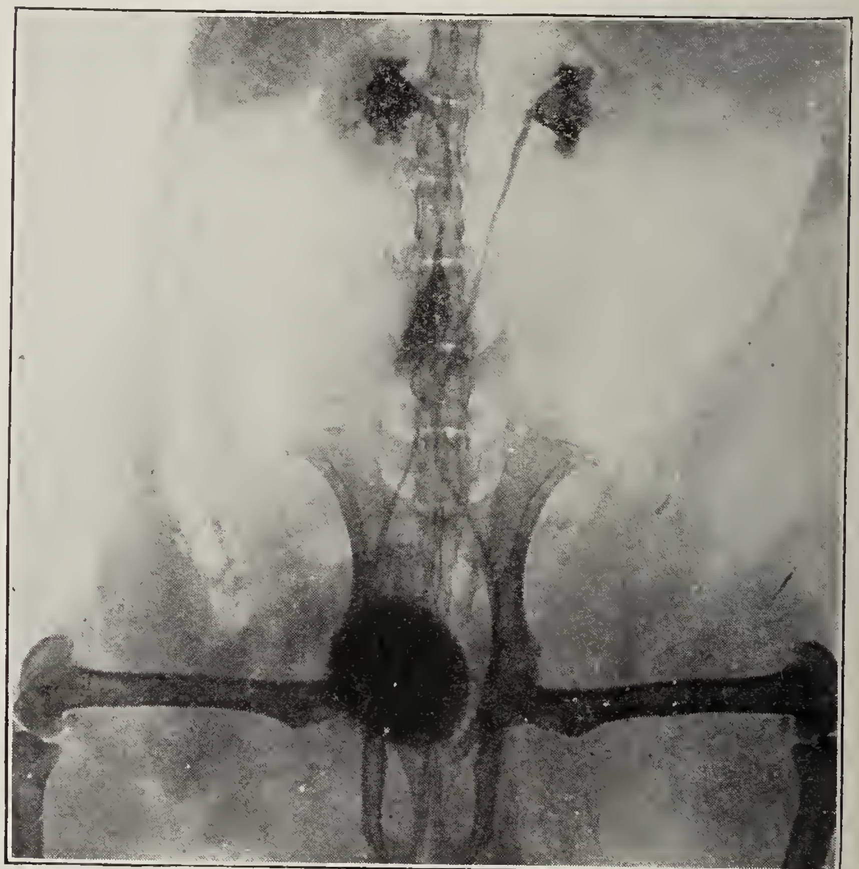

Fig. 2.—Guinea-pig urinary tract filled with a 50 per cent. potassium iodid solution. There is some extravasation at the point of injection. The injection was made under some pressure, a procedure that should never be employed in the human subject.

The important question as to the possibility of these solutions causing toxic effects or local irritation is being thoroughly investigated. Though from the nature of these substances no such effects are anticipated, it cannot be stated now that they are entirely innocuous. We may say, however, that we have used solutions of high concentration in the kidney pelvis of lower animals, and have used a 15 per cent. solution in the human bladder, and no undesirable effects of any nature have been encountered. Excellent roentgenograms were obtained in all instances.

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[1] Burns, J. E.: Thorium: A New Agent for Pyelography, Bull. Johns Hopkins Hosp., 1916, **27**, 157.

From theoretical grounds, the only undesirable feature of these solutions is their high osmotic pressure. An ideal solution should be practically isotonic with urine. But hypertonicity is not always a serious objection. The thorium solutions used, for example, are strongly hypertonic. Since the opacity of elements to the roentgen ray seems to be a function of their atomic weights, it is evident that the iodid of a heavy metal would be much more opaque than that of potassium or sodium. Such solutions of the same opacity as that of the corresponding alkali iodids would have a much lower osmotic pressure. However, the heavy metal salts tried were found to have seriously objectionable properties, such as being insoluble or forming precipitates when mixed with urine or possessing irritating or toxic properties. It is worthy of note that the opacity of the silver iodid preparations that have been commonly used is probably due to the iodin rather than to the silver content.

Theoretically, a suitable solution of some substance like iodoform would make an excellent medium for pyelography. This substance would be very opaque in dilute solutions because of the presence of three atoms of iodin in each molecule. Emulsions of iodoform have proved to be satisfactory as far as opacity is concerned.

Within as short a time as possible, Dr. Charles C. Grandy, roentgenologist at the Lutheran Hospital, Fort Wayne, and I will make a more extensive report of the clinical use of aqueous solutions of potassium and sodium iodids in roentgenography.

### SUMMARY

1. A 50 per cent. solution of potassium or sodium iodid of the depth ordinarily used in roentgenographic work is almost completely opaque to the roentgen ray. If such a solution is for convenience called "full strength," the half and quarter strengths cast very definite shadows.

2. These solutions are made with little trouble or expense. They are stable, saline to the taste, but not irritating except on areas freshly denuded of epithelium. They are miscible with urine and blood without causing precipitation or coagulation. The simple aqueous solution is neutral in reaction and is easily sterilized by boiling.

3. Good roentgenograms of the human bladder filled with a 15 per cent. potassium idodid solution, and of chronic sinuses filled with a 50 per cent. solution, have been made. No bad effects have been noted. A 25 to 30 per cent. solution should be sufficient for good pyelograms. Caution, however, should be observed in the use of these solutions in human subjects until further study of their effects has been made.

Owing to the uncertainty of military service, it was thought best in order to establish priority to publish now this preliminary though incomplete report.

# SACRAL TABES WITH THE CLINICAL PICTURE OF A LESION OF THE CONUS MEDULLARIS

## REPORT OF CASE

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AND
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In tabes dorsalis, the pathologic changes are usually confined to the posterior roots of the dorsolumbar region. Such a localization of the morbid process very well explains the classical signs and symptoms of this disease, as loss of knee jerks, shooting pains, and disorders of sensibility in the lower limbs. Yet there are cases of tabes in which the lesion principally affects the cervical, the lumbar or the sacral regions, and it was customary with the older authors to classify various forms of tabes according to its localization. Thus they differentiated cervical, dorsal, lumbar and sacral tabes. As a rule, however, such a classification does not always hold good, as the symptomatology of tabes is mostly due to scattered or, as Redlich[1] pointed out, to segment-like lesions of the cerebrospinal system, as evidenced, for instance, by the simultaneous occurrence, in the majority of tabes cases, of lost tendon reflexes, Argyll Robertson pupil, cerebral nerve involvement, anesthesia of the chest, etc. Therefore, Leyden insisted that a classification of tabes, based on the seat of the pathologic process, is not justified. True as Leyden's assertion may be, cases are occasionally encountered in which the clinical picture is so unusual that a localization of the disease process should be specified. Here belong cases of so-called sacral tabes in which the lesion is principally confined to the sacral roots. In the case reported, the exclusive involvement of the latter produced a classical picture of a lesion of the conus medullaris, that is, of that portion of the spinal cord which comprises the lower three sacral segments.

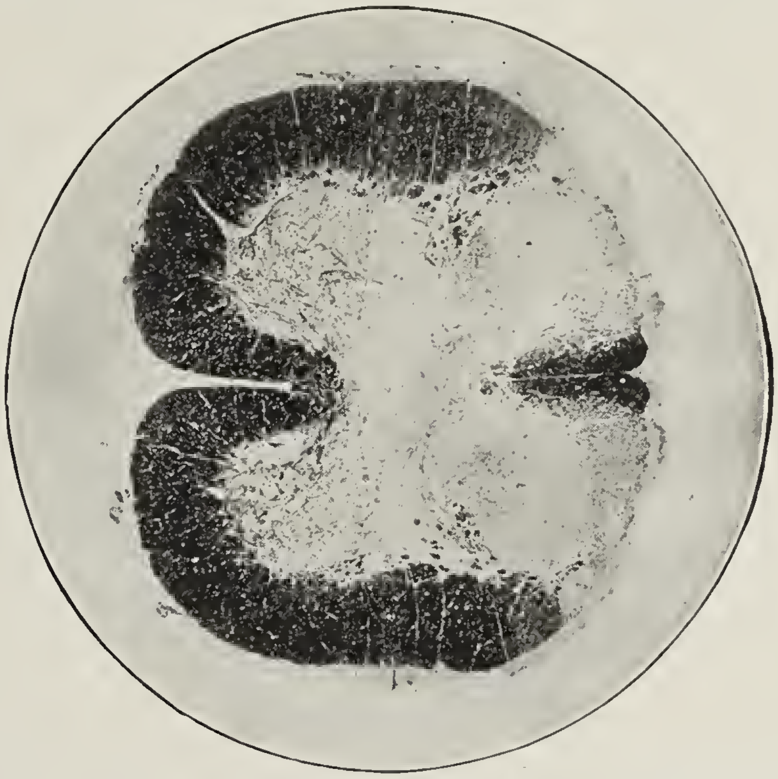

Fig. 1.—Fourth sacral segment in a case of sacral tabes. The posterior columns show on each side of the septum a triangular bundle of normal fibers (median triangle or dorsomedial sacral bundle).

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[1] Redlich, Emil: Die hinteren Wurzeln des Rückenmarks und die pathologische Anatomie der Tabes Dorsalis, Jahrb. f. Psychiat. u. Neurol., 1891, **11**.

## REPORT OF CASE

*History.*—A white man, aged 42, a laborer, entered Cook County Hospital, Oct. 8, 1917, in the surgical service of Dr. Daniel Eisendrath, complaining of incontinence of urine and feces, and ulcers of the feet and buttocks. About six and one-half years previously he had been seized with sudden pain around the body at the level of the hips, and general numbness from the navel down to the ends of both lower limbs. At the same time he lost control of the bladder and the rectum, and the feet became swollen and painful. A month afterward, ulcers appeared on the heels and buttocks. About a year before the patient entered the hospital, a fresh ulcer developed on the sole of the left foot, near the heel. The ulcers did not cause any pain, but did not yield to treatment, and were progressively getting larger, though the patient was able to walk up to the time of his entrance to the hospital. In addition to the incontinence and ulcer formations, the patient suffered from a phimosis of six years' duration. Any other diseases except a sore on the penis about seven years before, were denied.

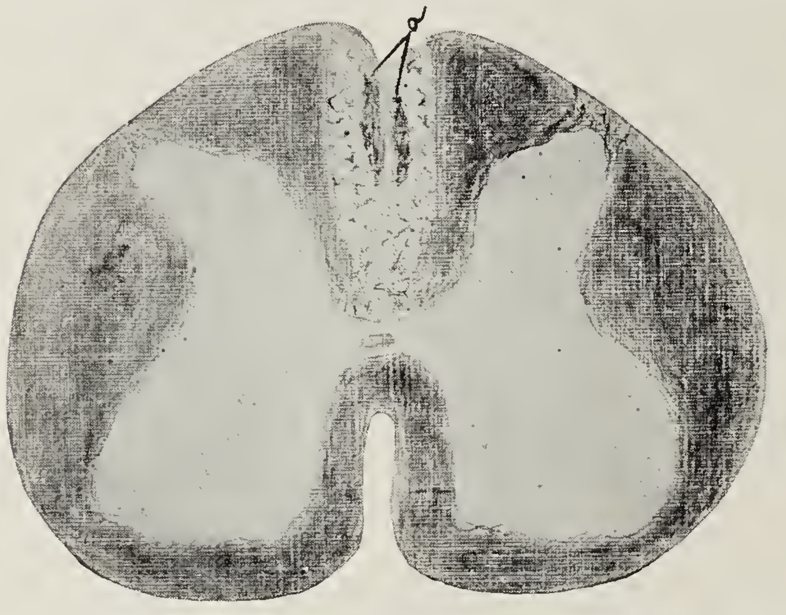

Fig. 2.—Third lumbar segment in a case of sacral tabes. The light area of the posterior columns contains two bundles of normal fibers (*a*, the oval field of Flechsig).

*Examination.*—The patient was very poorly nourished and anemic. The mentality, speech, gait, cranial nerves, heart, lungs, and the muscular and bony systems showed no abnormalities, aside from slight atrophy of the left leg. On the sole of the left foot, near the heel, was a large sinus discharging foul-smelling pus. About 2 inches from the anus, on each side, were two large ulcers, the size of a silver dollar, with indurated edges, also discharging pus. On the posterior surface of the right thigh there were two large scars with irregular outlines (gummas?), and the penis appeared red and swollen, and showed an adhesive, indurated phimosis. The left foot was cold, cyanotic and edematous. Active and passive movements and the muscle power in the upper and lower extremities were good; the pupillary, skin and tendon reflexes, except the Achilles tendon on both sides, were present, and the sensibility was normal all over the body exclusive of a saddle-like area that involved the perineum, anus, superior and inferior gluteal regions, scrotum, penis, and the posterior-inner surface of both thighs (about 5 inches), which regions showed a total anesthesia. The blood and spinal fluid both gave a negative Wassermann reaction, but other serologic findings have not been recorded. According to the hospital records, the patient had been an inmate of the institution four years previously with practically the same findings as recorded. They also revealed that the troubles started without any apparent cause—there was no history of trauma, syphilis, alcoholism, or of any other illness. During the patient's stay in the hospital, marked symptoms of pyelonephritis developed to which he succumbed, November 5, about four weeks after admittance.

*Necropsy.*—We thus had before us a patient that for six and one-half years had been continuously suffering from rectal, bladder and various trophic disorders. During these six and one-half years the symptoms were practically in a stationary state, and, coupled with the saddle-like anesthesia, indicated a lesion of the conus medullaris. In view of the history of a sore on the penis, and of the presence of suspicious scars on the thighs, we thought that the conus lesion was of syphilitic origin, probably in the nature of a syphilitic myelitis. The postmortem examination revealed, among other findings, a nodular syphilitic sclerosis and a slight saccular dilatation of the root of the aorta, a chronic hypertrophic cystitis, an acute suppurative ureteropyelonephritis, and macroscopically a perfectly normal spinal cord. There were no signs of myelitis of any kind, hemorrhages, meningeal involvement, or tumor. The sole striking feature was an unusual smallness of the spinal cord; but its configuration and the relation between the white and gray matter were normal. The removed portions of the spinal cord (the lumbosacral and dorsal regions) were serially studied with various stains, as the Weigert-Pal (for myelin fibers), Alzheimer-Mann method (for glia changes), Bielschowsky (for the axons) and Nissl modifications (for ganglion and possible infiltration cell changes). The study of the spinal cord with all these staining methods revealed a typical tabes solely confined to the sacral region. Only the sacral portion, especially the last three sacral segments of the spinal cord, showed the presence of so-called local tabetic degeneration signs in the form of a degeneration of the entrance zone, of Lissauer's zone, of the collateral fibers, etc., while in the lumbar and dorsal regions there was a secondary degeneration of the middle portion of the posterior column (Goll's column). The posterior columns in the sacral region, as seen on the photomicrograph (Fig. 1), show this middle portion to be intact. It has the shape of a triangle stretching from the posterior periphery of the spinal cord down to the posterior commissure and is described under various names, but commonly known as a "median triangle" or "dorsomedial sacral bundle." The rest of the posterior columns appear pale and degenerated, being the place occupied by the degenerated intraspinal fibers of the posterior sacral roots, very few of which are left undamaged. In the lumbar portion, beginning with the fifth, upward to about the second, the degenerated area of the posterior columns showed two small bundles somewhat oval in shape, occupying the place along the posterior septum and known as the oval field of Flechsig (Fig. 2). In the upper lumbar and lower dorsal region (Fig. 3), these fibers were pushed to the periphery, and in the lower middle dorsal region they totally disappeared.

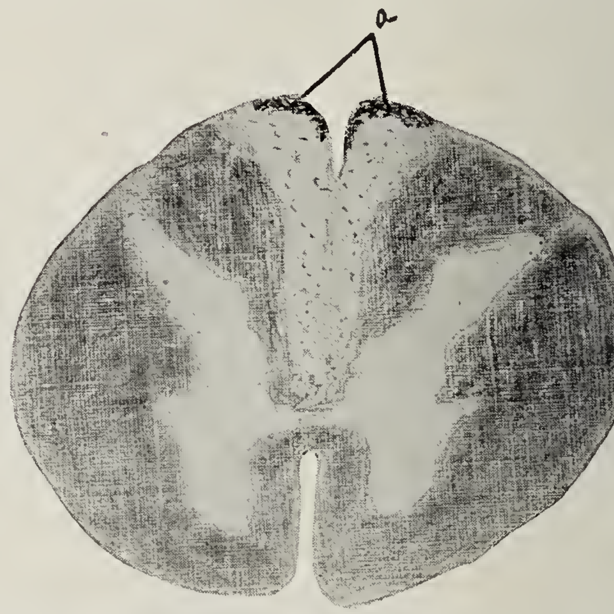

Fig. 3.—Twelfth dorsal segment: degeneration of Goll's column (light, bottle shaped area), with undamaged fibers occupying the periphery (*a*). In the lumbar region they occupy the center of Goll's column, and are known as the oval field of Flechsig.

## COMMENT

As this is not the place for anatomic discussions, we shall refrain from further descriptions of the pathologic findings, which are clear enough from the appended illustrations. We wish only to point out that the nature of the median triangle of the sacral region and of the oval field of the lumbar have been repeatedly discussed in the neurologic literature, and the conclusion generally arrived at is that they have nothing to do with the fibers of the sacral roots, as suggested by some, but that they contain descending branches of posterior root fibers from above, that is, from the lumbar, dorsal and, as Marburg[2] thinks, even from the cervical region. According to some observers (Gombault and Philippe,[3] Pineles,[4] Bickeles,[5] Obersteiner,[6] and others), they also contain endogenous fibers, that is, fibers arising from the gray matter of the spinal cord.

Thus cases of sacral tabes have an enormous scientific and practical value. Their scientific value lies in the fact that they afford unusual opportunities for studying the probable course of the sacral root fibers within the spinal cord, the nature of some ascending and descending fasciculi etc., a matter of great interest, but which cannot be discussed in this paper. The practical value is due to the fact that some cases of so-called conus lesion may be nothing but tabes. So far our case is the only one on record that strongly suggests such a possibility. The very few cases of sacral tabes, reported up to the present time (Gombault and Philippe,[3] Pineles,[4] Schaffer,[7] Achard and Levi,[8] Leopold[9]), differed from ours by the presence of some classical signs of tabes (Argyll Robertson pupil, loss of knee jerks, etc.) which, as we pointed out, were totally absent in our patient. The trophic disorders on the buttocks and heels we ascribed to the involvement of the conus, but they were the result of tabes, that is, a posterior root lesion. The presence of the knee jerk was due to the intactness of the lumbar portion of the spinal cord, which is the seat of that reflex. In short, the clinical picture as represented by our patient, which was that of a pure conus lesion, could very well be explained by the tabes which he actually had been suffering from for seven years or more. Hence it follows that in some cases of conus lesion when the usual etiologic factors, such as traumas of the vertebral column, hemorrhages of the spinal cord, meningomyelitis, tumors, etc., can be excluded, tabes should be borne in mind as the possible actual disease.

31 North State Street.

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[2] Marburg, Otto: Die Absteigenden Hinterstrangsbahnen, Jahrb. f. Psychiat. u. Neurol., **22**, 243.

[3] Gombault, A., and Philippe: Contribution a' l'étude des lésions systematisées dans les cordons blancs de la moelle épinière, Arch. gén. de méd. expér. et d'anat. pathol., 1894, **6**, 365.

[4] Pineles: Die Veränderungen im Sacral und Lendenmarke bei Tabes Dorsalis, nebst Bemerkungen über das dorso-mediale Sacralbündel, Obersteiner's Arb, 1896, **4**, 341.

[5] Bickeles, G.: Zum Ursprung des dorso-medialen Sacralfeldes, Neurol. Centralbl., 1901, p. 531.

[6] Obersteiner, H.: Anleitung beim Studium des Baues der nervösen Centralorgane, Wien, 1901.

[7] Schaffer, Karl: Ueber Faserverlauf einzelner Lumbal- und Sacralwurzeln im Hinterstrang, Monatschr. f. Psychiat. u. Neurol., 1899, **5**, 220, 95.

[8] Achard and Levi: Conservation des réflexes patellaires dans le tabes dorsalis, Nouv. Iconog. de la Salpêtrière, 1898, p. 83, Obs. VII.

[9] Leopold, S.: Sacral Tabes: A Case with Necropsy, Jour. Nerv. and Ment. Dis., April, 1909.

# THE DIAGNOSIS OF STONES IN THE BILE DUCTS BY MEANS OF THE WAX TIP

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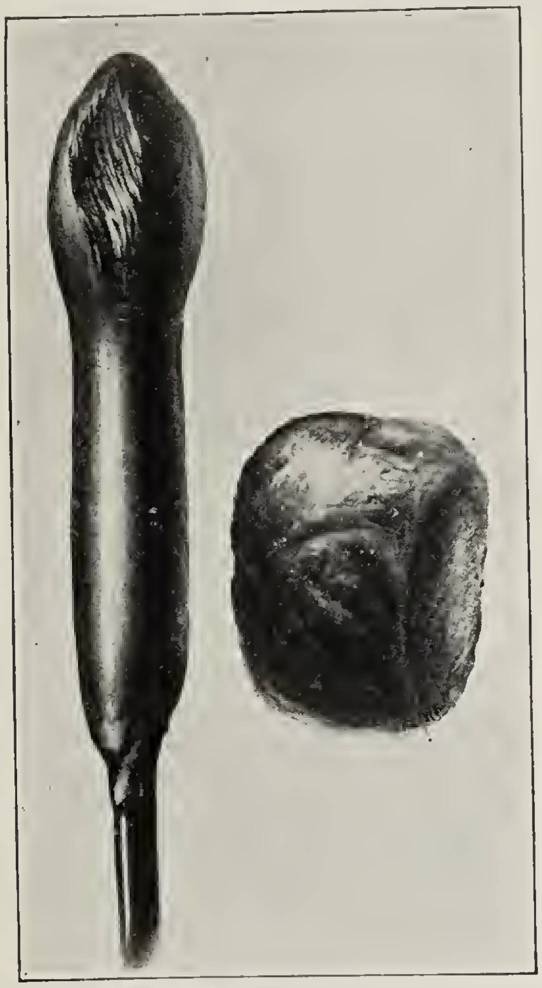
After I had seen an ensacculated obstructing stone of the common duct at necropsy, which had been overlooked in several operations for the relief of severe biliary obstruction, an aid to the diagnosis of bile duct stones occurred to me. This method is the use of the wax-tipped filiform bougie in the bile ducts and is new in this application, though heretofore it has been used in the diagnosis of ureteral stones. In consequence of an impression or scratch mark being made on the soft wax impregnated on the end of a flexible bougie or probe, the presence of a stone and its location in the bile duct may be positively diagnosed.



The tip of a waxed bougie gouged by a stone in the common duct, and the gallstone that caused the scratch marks.

The wax tip was first used in the diagnosis of ureteral stones through a speculum in the female bladder.[1] Since the passing of the tip through the modern cystoscopes exposed the wax to scratches, it was temporarily discarded. Harris[2] states later that it is not improbable that ureteral exploration with the bulbous wax tip is more reliable than roentgenography. He developed a technic by means of which he avoided passing the tip through the instrument, by inserting the wax tip first into the bladder, threading the cystoscope over the filiform bougie, and, after testing the ureter, by withdrawing the instrument, previous to removing the wax tip. In the diagnosis of bile duct stones, it is comparatively simple to overcome this difficulty of contact of the tip with instruments.

Moynihan[3] says that stones in the hepatic duct are liable to be overlooked and that, as a rule, the lower in the duct a calculus is found, the smaller it is. If the common duct is dilated, he advises opening it and inserting a finger in search of stones. In order to prevent the frequent overlooking of stones, writers[4] have emphasized recently the opening of the common duct in many other conditions, as well as in dilatation. However, after internal search of the duct with finger tip and probe, stones are occasionally overlooked.[5] In the case I have mentioned, the common duct had been opened, and the ducts explored two or three times for the cause and location of the obstruction, but the stone that finally caused death was not found.

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[1] Kelly, H. A.: Diagnosis of Renal Calculus in Women, Med. News, 1895, **67**, 593.

[2] Harris, B.: The Diagnosis of Ureteral Calculus by Means of the Wax-Tipped Whalebone Filiform Bougie Used with the Nitze Cystoscope, Surg., Gynec. and Obst., 1912, **15**, 727.

[3] Moynihan, B. G. A.: Gallstones and their Surgical Treatment, Ed. 2, Philadelphia, W. B. Saunders Company, 1905.

[4] Kehr, H.: Wann soll man nach einer Ektomie bei negative Palpationsbefund von Steinen im choledochus diesen Gang incidiren und drainiren und wann nicht? Arch. f. klin. Chir., 1912, **97**, 301. Eisendrath, D. M.: Overlooked Common Duct Stones, THE JOURNAL A. M. A., March 31, 1917, p. 968; The Silent Common Duct Stone, Med. and Surg., 1917, **1**, 507; Recurrence after Operations on the Biliary Passages, THE JOURNAL A. M. A., Nov. 24, 1917, p. 1752.

[5] Gerster, A. G.: Unsuccessful Surgery in Disorders of the Gall-Ducts Together with a Consideration of Naunyn's Cholangiolitis, Surg., Gynec. and Obst., 1912, **15**, 572.

The value of the wax tip for diagnosis of stones in such cases and in all cases of bile duct stones is due to the simplicity of preparation, to the short space of time required for its use, and to the fact that a scratch is the best possible evidence of the presence of a stone.

### TECHNIC

After sterilization, from one-half to one part of olive oil is added to one part of dental wax. The end of a No. 3 or larger whalebone filiform bougie or metal probe is dipped into the liquid. On removal of the instrument, the drop clinging to the end will harden quickly; but if it is not of the desired size and contour, the procedure is repeated. Before exploring the ducts, one should examine the tip under a lens to be sure its surface is unscratched. After the tip has been passed through the common duct and the ampulla of Vater, it is removed, dipped in cold water, dried and examined under a lens. The same tip, if its surface smoothness is unchanged, may then be passed up into the hepatic duct and the branches to the right and left lobes of the liver. This duct and its branches, however, should first be explored with a scoop of proper size in order to remove any loose stones, which might otherwise be pushed farther into the lumen.

If at any time while passing the tip, one should observe a decided jump, the chances of obtaining a definite scratch, in the case of a partially ensacculated stone, would be increased by drawing the tip back and forth several times. It is possible to localize the stone more exactly by waxing the filiform bougie in rings at intervals from the tip, or, as Sampson suggests for ureteral stones, by coating the entire catheter with wax.[6] A metal probe may be used in a similar manner for further evidence as to the presence or location of a stone, or patency of the duct, and as an aid to external palpation; for when the wax-tipped metal probe is used, not only may the impression of the stone be left, but if it is passed in sharp contact, the wax may be pressed aside and the hard body felt against the metal. With the metal probe also, the wax may be put on in rings, leaving the tip free for palpating the stone.

122 South Michigan Avenue.

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[6] Kelly and Burnham: Diseases of the Kidneys, Ureters and Bladder, New York, D. Appleton & Co., 1914, **1**, 270, **2**, 126.

**Medical Aims.**—The highest aim of scientific medicine today is the eradication of preventable disease, and in the solution of this problem all men who have the interest of the human race at heart can and do write, regardless of medical schools or creeds.—Dr. George M. Kober.

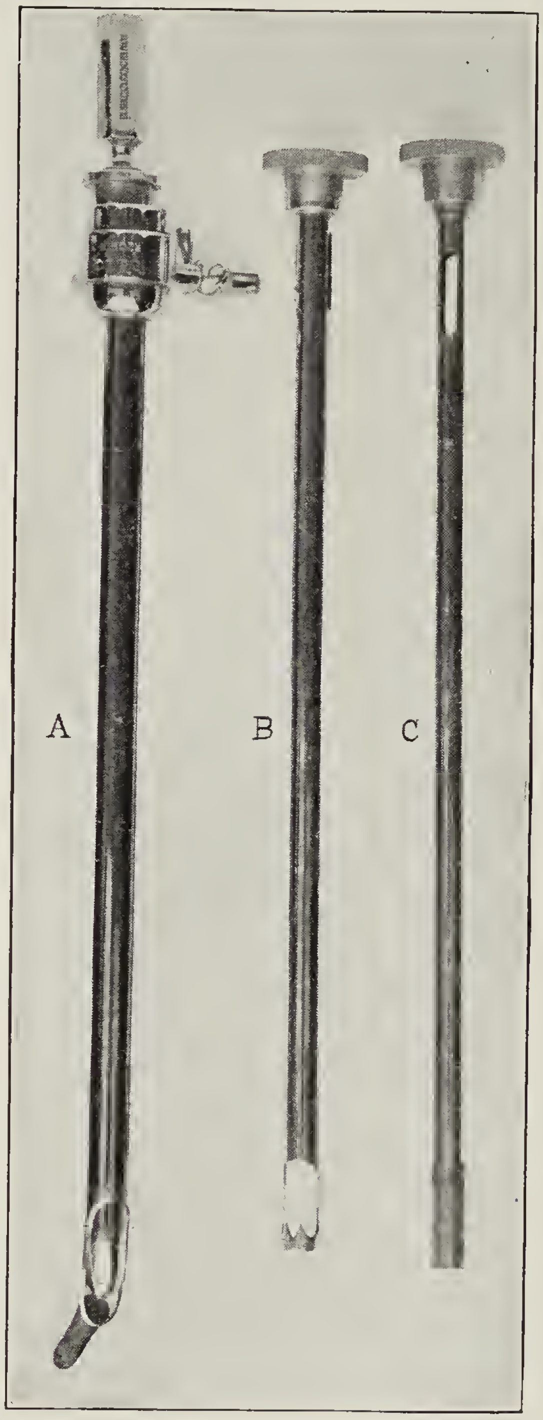
# MEDIAN BAR EXCISOR [*]

## W. F. BRAASCH, M.D.

ROCHESTER, MINN.

It is generally recognized that urinary obstruction at the vesical orifice may be caused by various conditions other than prostatic hypertrophy. Such conditions may be divided into three groups, namely, contracture of the bladder neck, glandular and inflammatory tissue formation, and congenital obstructions.

Methods have been devised for removing the obstruction caused by contraction at the vesical orifice, such as the Chetwood and modified Bottini operations, and the Goldschmit technic. However, no method short of resection had been definitely suggested for the removal of obstructing glandular and inflammatory tissue until that described by Young in 1912. He demonstrated that such obstructions could be removed by endoscopic methods under local anesthesia, and without incapacitating the patient for more than a few days. The instrument he used was called a median bar excisor, and while the instrument was indeed a very serviceable one, the operator was handicapped by the fact that it did not permit of accurate inspection of the field of operation. As a result the instrumentation could not be accomplished under the guidance of the eye.



Median bar excisor.

It is a well known fact that it is impossible to obtain a satisfactory view of the prostatic urethra without the distention of the urethra, which may be accomplished by either air or water. Air dilation has proved unsatisfactory, so that water is the preferred medium. The median bar excisor I have been using for several years permits of clear inspection of the prostatic urethra with water distention. The instrument consists of three separate sheaths of decreasing caliber which are so arranged that the smaller sheath fits into the next larger. The outside sheath (*A*) is practically a urethroscope. The light is situated at the distal end in the beak, and it has an irrigating cock near the proximal end. The window is of plain glass without magnification and fits all three sheaths. The observer looks through the tube filled with water, after the principle employed in my irrigating cystoscope.[1] After the obstructing tissue is brought into view, the second sheath (*B*) is introduced. This has a collar at its distal end which is armed with two irregular teeth by means of which the tissue is held in place. The latter procedure is also under the guidance of direct vision. Then the inner or knife sheath (*C*) is introduced and the tissue cut while still in view. The blood from the wound is usually washed from the field by the rapidly entering irrigating fluid.

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[*] From the Mayo Clinic.

[1] Braasch, W. F.: A Neglected Principle in Cystoscopy, Am. Jour. Urol., 1912, **8**, 115-119.

The advantages of this instrument are obvious. Without a visualized field, unless the operator is very expert, it is evident that the base of the bladder instead of the median bar might easily be cut.

The use of the median bar excisor should be limited to a small proportion of patients with urinary obstruction. The punch operation should be confined to cases in which the superficial median tissues obstruct the vesical orifice, and to occasional cases of involvement of the bilateral lobes in which enucleation is otherwise inadvisable.

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# PARTIALLY AUTOLYZED PNEUMOCOCCI IN THE TREATMENT OF LOBAR PNEUMONIA

## RESULTS IN TWO HUNDRED CASES *

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The curative power of antipneumococcus serum in lobar pneumonia due to Type I pneumococcus appears to be established.[1] According to Cole,[2] of every 100 patients with lobar pneumonia admitted to hospitals, the infection in about thirty-five cases is due to Type I pneumococcus, ten dying if untreated. The remaining sixty-five cases are due to the other types of pneumococci, and in these, twenty deaths occur. Hence, about two thirds of the cases of lobar pneumonia, and two thirds of the deaths from the disease, are due to pneumococci, for which there is at present no specific serum treatment.

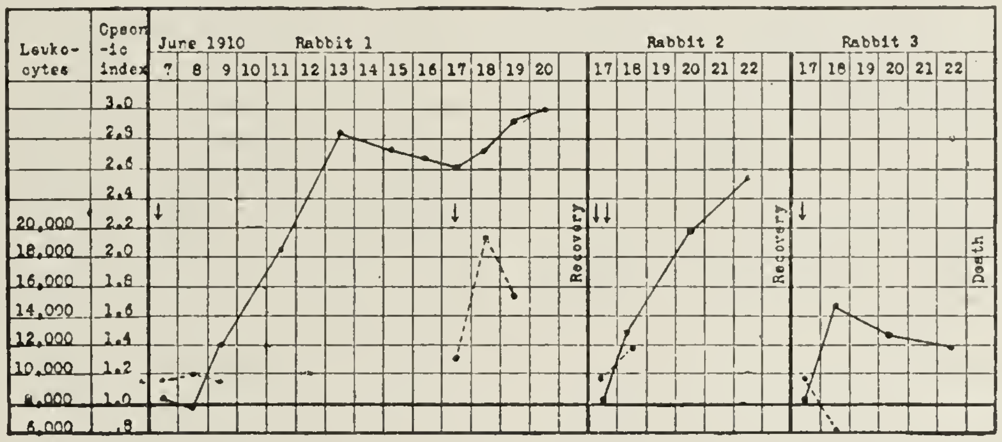

Chart 1.—Immunizing power of autolyzed pneumococci against pneumococcus infection in rabbits: continuous line, opsonic index for pneumococci; dotted line, leukocytes; arrows, time of injections.

It has been established that heat-killed virulent pneumococci stimulate the formation of antibodies[3] and tend to protect animals against pneumococcus infections. Active immunization with heat-killed pneumococci[3] and various derivatives of pneumococcus cultures[4] have been used in small series of cases of lobar pneumonia, in some instances with seeming benefit.

There are numerous physicians with a keen perception of lobar pneumonia who feel that active immunization with pneumococcus vaccine, when the vaccine is given early in large doses, is of benefit. The disadvantage of heat-killed pneumococci in which the toxic material has not been removed is considered to be due to the primary negative phase which follows their injection. In connection with studies on the mechanism of pneumococcus infections and the nature of the toxic substance obtainable from pneumococci, attempts were made to separate, in part, the toxic from the antigenic fractions. It was found that the protective power against pneumococcus infections was greater with partially autolyzed pneumococci from which a large part of the toxic substance had disappeared than with heat-killed pneumococci.[5]

On the basis of these experiments, a method of active immunization with partially autolyzed pneumococci was developed, and its apparent value in the treatment of lobar pneumonia has been emphasized from time to time.[6] The mortality rate in 146 cases treated by Hektoen and myself in the Cook County Hospital, Chicago, during three consecutive winters, was 23 per cent., while in untreated alternate control cases it was 38 per cent. This was accomplished notwithstanding the fact that the average time of the first injection was four and one-half days after onset, and that the cases treated were of the most unfavorable type, a majority of the patients being addicted to the excessive use of alcohol. During 1914 and 1915, this pneumococcus antigen was sent on the request of physicians in different parts of the country, and reports of cases were rendered.

The stimulus for reporting our results at the present time is the prevalence of pneumonia among the troops in the concentration camps. I wish also to record a few of the experiments which led to the use of this antigen and to describe the method of its preparation and administration as now practiced.

### EXPERIMENTS ON THE IMMUNIZING POWER OF VARIOUS AUTOLYZED FRACTIONS OF PNEUMOCOCCI

In Chart 1 are shown the opsonic and leukocyte curves and the protective action of autolyzed pneumococci against pneumococcus infection in rabbits.

Rabbit 1 was injected subcutaneously with 3 billion autolyzed pneumococci, and ten days later with a culture of a moderately virulent pneumococcus. Rabbit 2 was injected simultaneously with the same sized dose of autolyzed pneumococci and culture, and Rabbit 3 was injected with the culture only. Autolysis had

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* From the Mayo Foundation.

[1] Cole, R. I.: Report of Studies Concerning Acute Lobar Pneumonia, The Journal A. M. A., Aug. 18, 1917, pp. 505-510.

[2] Cole, R. I.: Specific Treatment of Acute Lobar Pneumonia, Pennsylvania Med. Jour., 1917, **20**, 345-351.

[3] Wolf, H. E.: Observations on Opsonic Index and the Antipneumococcal Power of the Blood in Pneumonia, Jour. Infect. Dis., 1906, **3**, 731-741.

[4] Hirschfelder, J. O.: The Production of Active and Passive Immunity to the Pneumococcus with a Soluble Vaccine, The Journal A. M. A., Oct. 12, 1912, pp. 1373-1374.

[5] Rosenow, E. C.: On the Mechanism of Intoxication in Pneumococcus Anaphylaxis and in Pneumococcus Infections, Tr. XV, Internat. Cong. Hyg. and Demog., 1912, **2**, 338-341; On the Nature of the Toxic Substance from Pneumococci, Jour. Infect. Dis., 1912, **11**, 235-242; Further Studies of the Toxic Substances Obtainable from Pneumococci, Jour. Infect. Dis., 1912, **11**, 94-108. In connection with elective localization studies it has been the rule to inject intravenously a number of animals with increasing doses of streptococcus cultures. The animals receiving the smaller dose, contrary to expectations, frequently died earlier than those injected with a dose two to three times as large. On studying this point more closely it was found to occur chiefly when freshly isolated strains were grown in glucose broth and when many of the organisms were dead, partially autolyzed, and had become gram-negative. In other words, dead, partially autolyzed bacteria injected simultaneously with living cultures called forth reactions which tended to protect against infection.

[6] Rosenow, E. C.: The Autolysis of Pneumococci and the Effect of the Injection of Autolyzed Pneumococci, The Journal A. M. A., June 11, 1910, p. 1943.

been continued for ninety-six hours, and the clear extract had lost most of its toxic properties. Rabbits 1 and 2 recovered coincident with a high opsonic index for pneumococci and a sustained leukocyte curve. Rabbit 3 died coincident with first a slight rise in opsonin, and then a drop in opsonins and leukocytes. The results obtained simulated what occurs in nonfatal and fatal cases of lobar pneumonia.[3] By properly balancing the dose of antigen and the living culture, similar results were obtained in a series of experiments on rabbits and guinea-pigs. It was found that if the dose of antigen was too large or autolysis was not carried far enough, death might occur earlier in the animals receiving antigen and culture than in those injected with the culture only. Protection was afforded in some instances even after intraperitoneal injection of the cultures.

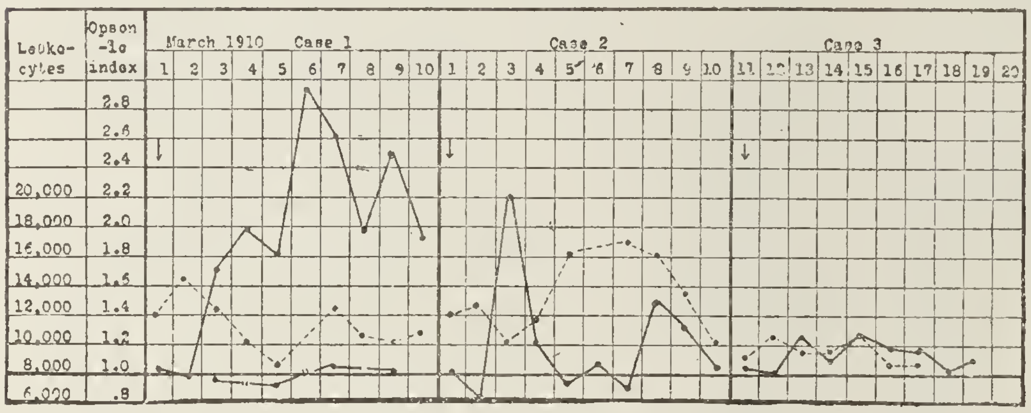


Chart 2.—Opsonic and leukocyte curves in three persons injected subcutaneously with various autolyzed fractions of pneumococci: continuous line, opsonic index for pneumococci; broken line, opsonic index for streptococci; dotted line, leukocytes; arrows, time of injections.

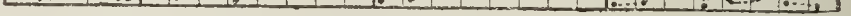
Patient 1 (Chart 2) was injected with 5 billion partially autolyzed pneumococci, Patient 2 was injected with the corresponding clear extract, and Patient 3 with the extract after it had been treated with leukocytes. In the first case there were early rise in and a sustained opsonic index for pneumococci, no change in the opsonic index for hemolytic streptococci, little change in the number of leukocytes, no fever, and only slight local reaction. In the second case there were primary drop and then a transient rise in opsonic index for pneumococci, a slight increase in the number of leukocytes, a rise in temperature, and a moderate local reaction. In the third case there were no changes in opsonic index, leukocyte count or temperature, and no local reaction.

From these and other similar experiments it was concluded that partially autolyzed pneumococci had greater and more sustained antigenic powers than the more toxic extract, and that leukocytes had the power to destroy completely the antigenic power of the extract. The experiments on animals showed that the doses of antigen and culture needed to be balanced quite accurately in order to protect against the infection.

In Chart 3 are given the opsonic index and temperature curves of three persons injected with, respectively, 20, 40 and 60 billion autolyzed pneumococci. According to this experiment, the first dose (20 billion) was regarded as the most favorable, and this was the dose used in the treatment of patients during the winter of 1911.

### METHOD OF PREPARATION AND ADMINISTRATION OF THE ANTIGEN

Injections of the extract of pneumococci when highly toxic are followed by marked local reaction, leukocytosis, some fever and a primary diminution in opsonins followed by a rise.[7] After autolysis has been carried to the point at which most of the toxicity of the extract has disappeared, the local reaction is slight, and antibodies increase more rapidly. The increase in antibodies following injection of the extract is not sustained or as marked as after injection of the partially autolyzed pneumococci (Chart 2). The injection of the former in a small series of cases of pneumonia proved harmless and, at times, beneficial.[8] Hence, both extract and autolyzed pneumococci are now used.



The antigen is prepared by growing virulent strains of pneumococci of the different types in tall columns of glucose broth for from eighteen to twenty-four hours, centrifugalizing, and suspending the sediment in salt solution, so that 1 c.c. contains the growth from approximately 15 c.c. of the culture, that is, about 15 billion pneumococci per cubic centimeter. The suspension of the sediment of the different strains is mixed and then placed in bottles so that the column of liquid is approximately 12 cm. tall. To this a layer 0.5 cm. of ether is added. The bottles are stoppered with sterile corks secured in place by strips of adhesive plaster, thoroughly shaken, and placed at 37 C. The suspension is thoroughly shaken at least twice a day as autolysis proceeds. Immediately after the addition of the ether and daily thereafter, a small quantity of the suspension is removed and the ether displaced by passing a current of air through the mixture. Films are stained by the Gram method, cultures are made. and intravenous injections are given to guinea-pigs. Autolysis is carried to the point at which approximately 95 per cent. of the organisms have become gram negative and to the point at which 5 c.c. of the suspension produce few or no symptoms in guinea-pigs weighing from 250 to 300 gm. If all the strains are highly virulent, the toxicity of the suspensions usually disappears in from three to five days. When this point has been reached the autolysis is interrupted, the ether removed, and 0.25 per cent. cresol or phenol (carbolic acid) added. The antigen is then stored in the ice-chest. It is not used in the treatment of pneumonia until the guinea-pigs injected with the nontoxic suspension have remained well and the cultures sterile for at least ten days. The dose for adults of this antigen should be 1 c.c., for children, from 0.25 c.c. upward, depending on the age, daily until the temperature becomes normal and remains so for one or two days, or until it is apparent that it has no effect.

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[7] Rosenow, E. C., and Hektoen, L.: Treatment of Pneumonia with Partially Autolyzed Pneumococci, The Journal A. M. A., Dec. 13, 1913, pp. 2203-2204.

[8] Rosenow, S. C., and Falls, F. H.: Treatment of Lobar Pneumonia with Autolyzed Extracts of Pneumococci, The Journal A. M. A., Dec. 23, 1916, pp. 1929-1930.

### THE TREATMENT

The antigen used in the treatment of the 200 cases under consideration consisted of a suspension of approximately 20 billion partially autolyzed pneumococci per cubic centimeter of physiologic sodium chlorid solution. The dose for adults was 1 c.c. daily until the temperature became normal. In children the dose ranged from 0.25 c.c. upward, depending on the age.

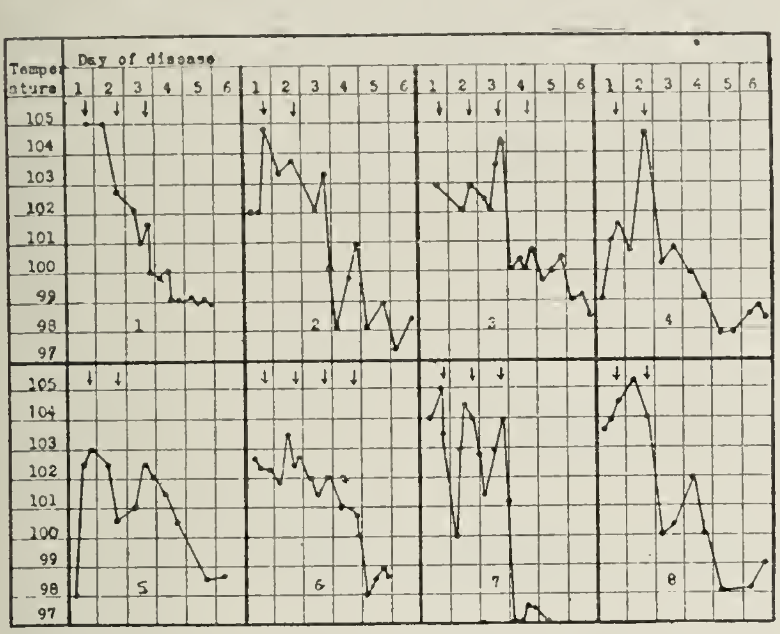

Chart 4.—Temperature curves in eight cases when injections of antigen were begun on the first day of the disease.

The diagnosis was made from the clinical history, character of sputum, physical findings, leukocyte count, etc. Cultures from the sputum were made in many instances, and in a number the type of pneumococcus was determined.

TABLE 1.—RESULTS OF THE TREATMENT OF LOBAR PNEUMONIA WITH PARTIALLY AUTOLYZED PNEUMOCOCCI

| Time of First Injection | Number of Cases | Apparent Effect of Antigen | | | Average Age of Patient |
|---|---|---|---|---|---|
| | | Strikingly Good | Good | Indifferent | |
| 1 In patients who recovered: | | | | | |
| First day | 23 | 18 | 3 | 2 | 32 |
| Second day | 66 | 25 | 34 | 7 | 31 |
| Third day or later | 83 | 16 | 28 | 39 | 28 |
| Not recorded | 14 | 4 | 8 | 2 | 41 |
| Total | 186 | 63 | 73 | 50 | 33 |
| 2. In patients who died: | | | | | |
| Second day | 3 | 1 | 1 | 1 | 58 |
| Third day or later | 11 | 0 | 0 | 11 | 44 |
| Total | 14 | 1 | 1 | 12 | 51 |

In Table 1 are given the results in the 186 patients that recovered, and the 14 that died. The results in the 23 patients that received the first injection of antigen on the day of onset were strikingly good in 18, good in 3, and indifferent in 2. The results in the 66 patients receiving the first injection on the second day of onset were strikingly good in 25, good in 34, and indifferent in 7. The results in the 83 patients receiving the first injection on the third day of onset or later were strikingly good in 16, good in 28, and indifferent in 39. The results in the 14 patients in which cases the exact time of the first injection was not recorded were strikingly good in 4, good in 8 and indifferent in 2. Thus in the 186 cases, irrespective of the time of injection, the apparent results were strikingly good in 63, good in 73, and indifferent in 50. Of the 3 fatal cases in which the patients received the first injection on the second day, the apparent results were strikingly good in 1, good in 1, and indifferent in 1, while in the 11 patients who died and who received the first injection on the third day or later, the apparent results were indifferent in all.

The average mortality rate in the 95 patients receiving the injection within forty-eight hours after the onset was 3 per cent., while in the 105 receiving the first injection on the third day or later after the onset, it was 11 per cent. The total average mortality rate in all cases treated was 7 per cent.

One fatal case showed hemolytic streptococci in the blood and pleural exudate. One was proved to be due to *Bacillus mucosus* and one to *Pneumococcus mucosus.*

This apparently greater benefit following early injection is not due to difference in age, for the average age of the patients in the three groups is 32, 31 and 28 years, respectively. The average age of all the patients who recovered is 33 years, while of those who died, it is 51 years.

In Table 2 is given the time of crisis or lysis in 109 cases in which this could be determined. In the 24 cases in which the first injection was made on the day of onset the average duration of fever was three and one-half days, and in the 32 cases in which the first injection was given on the second day, the average duration of fever was five days. In the 53 cases in which the first injection was made on the third day or later the average duration of fever was seven days; the total average in the 109 cases was five and two-tenths days.

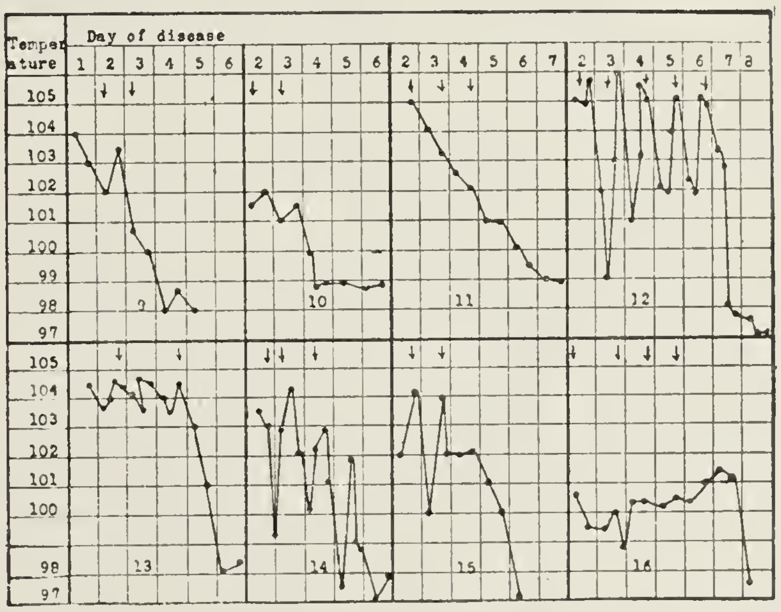

Chart 5.—Temperature curves in eight cases when injections of antigen were begun on the second day of the disease.

In Charts 4, 5 and 6 are shown representative temperature curves of twenty-two patients in whose cases the treatment was begun, respectively, on the first, second and third day or later, of the disease. The arrows indicate the time of injection of antigen. The age in these patients ranged from 4½ years to 58 years, the average age being 23 years. The distribution by lobes was the usual one. In Case 4 the entire left lung of the patient was consolidated. The need for giving the antigen early in the disease in order to obtain evident beneficial effects is well shown in these charts. In Case 16, in which little or no evident effect followed early injection, the patient was a bad alcoholic and had delirium tremens. In many of the patients the onset was violent and the toxemia great. The pulse and respiration rates showed a corresponding drop with the temperature, and hence the curves are omitted.

TABLE 2.—DURATION OF LOBAR PNEUMONIA IN PATIENTS TREATED WITH PARTIALLY AUTOLYZED PNEUMOCOCCI

| Time of First. Injection | Number of Cases | Day of Crisis | | | | | | | | Average Duration in Days |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 or Later | |
| First day........ | 24 | 5 | 9 | 4 | 5 | 1 | .... | .... | ...... | 3.5 |
| Second day...... | 32 | .... | 7 | 7 | 8 | 2 | 4 | 1 | 3 | 5 |
| Third day or later........... | 53 | .... | .... | 4 | 9 | 7 | 15 | 5 | 13 | 7 |
| Total........ | 109 | 5 | 16 | 15 | 22 | 10 | 19 | 6 | 16 | 5.2 |

In only a relatively few cases was there decided local reaction at the point of injection; in no instances was the injection followed by chill, and no harmful effects have been reported. In some instances there was a short temporary rise in the temperature, followed, especially in the early cases, by a marked drop within twelve hours (Case 9, Chart 5). In some instances, following early injection of antigen, the fall in temperature was abrupt (Cases 1, 2 and 7, Chart 4, and Cases 10, 13 and 15, Chart 5). In others it was more gradual (Cases 5, 6 and 8, Chart 4, and Cases 11, 12, 14 and 15, Chart 5). The drop in the temperature was often more marked following the second early injection after a twenty-four-hour interval than after the first injection (Case 4, Chart 4, and Case 9, Chart 5). When injections were given late (Chart 6) the effect was less noticeable, although in some instances the temperature began to decline soon after the injections were begun.

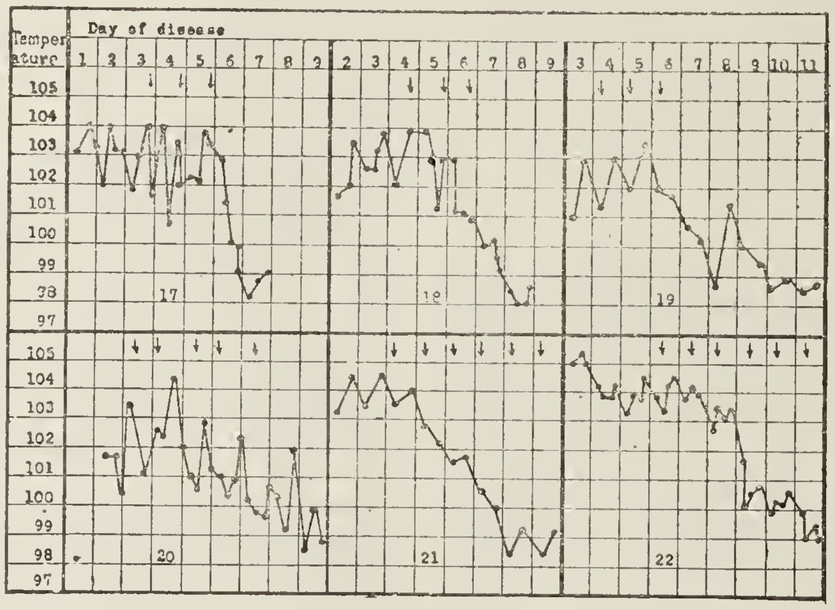

Chart 6.—Temperature curves in six cases when injections of antigen were begun on the third day of the disease or later.

The crisis following early injection of the antigen did not differ materially from that which occurs during the natural course of the disease. There was usually an accompanying perspiration, a drop in pulse and respiration rates and in the leukocyte count, and often a most striking disappearance of the toxemia. Resolution of the lung usually occurred quite promptly after the temperature became normal. Extension to another lobe occurred twice in cases in which the antigen was given within forty-eight hours of onset. Empyema developed in only four cases. In three cases of rapidly recurring pneumonia, early injections seemed to cut short the attack and, when injections were continued for a time, to prevent recurrence. Apparently good results followed its use in a number of postoperative pneumonias.

The occurrence of early crisis or lysis has been observed in pneumonias due to all of the types of pneumococci, and in at least two cases due to *Pneumococcus mucosus*.

The opinions of some fifty physicians who have cooperated with me are of interest. All but two who used the antigen early in the disease have noted apparently beneficial effects. Those who used the antigen late in the disease have noted little or no evident action. Those who have treated the largest number of cases with the antigen seem most convinced of its efficacy.[*] Dr. F. Arnold Clarkson of Toronto has treated thirteen cases, the patients ranging in age from 19 to 67 years, without a death during a period when the mortality rate in the remaining cases of pneumonia in the hospital was 50 per cent., and says: "Most of the patients said they felt better for some time after the injection. All recovered, although some of them were very severe on admission to the hospital."

Dr. Ola Putnam of Marcelline, Mo., has reported sixteen cases of pneumonia treated with the antigen, the patients ranging in age from 6 to 63 years, without a death. He says: "When the antigen was used in the first forty-eight hours, the effects were so marked that it does not seem possible to attribute them to coincidence." The results in his hands following the early injection of antigen were so similar to those I have observed for some years that I quote reports of two of his cases:

J. J. D., aged 39, farmer, weight 200 pounds, married; previous illness consisted of two attacks of renal colic, a few months apart, two years before present illness. Initial chill about 2 a. m., February 14. At 11 a. m., temperature was 103.6, pulse 130, respiration 36, some cyanosis and complaint of pain in left side near nipple. Was expectorating blood-stained sputum; crepitant râles plainly heard over lower lobe of left lung. One c.c. antigen was given hypodermically. The following day about noon temperature was 100, pulse 110, respiration 26, expectoration about the same in quantity and character. One c.c. of antigen was again given and patient had profuse sweat about 9 a. m. The temperature next morning was normal, pulse 76, respiration 24. There was no further rise of temperature, and recovery was uninterrupted.

The case of R. U., 42 years. One c.c. antigen was given three hours after the initial chill. His temperature was 102.4, pulse 108, respiration 34. There was pleurisy over the lower right lobe, where many crepitant râles could be heard. That night there was some sweating, and twenty-four hours after the first dose of antigen the temperature was normal.

Dr. F. W. Nickel, Eureka, Ill., treated nine cases, the patients ranging in age from 2 to 58 years. All but three received the first injection on the first day of the disease, with recovery in all. He says: "These cases in which antigen was used, compared to eleven cases in which it was not used, were milder, average temperature and pulse rate were lower, they were more comfortable, the duration was shorter, they took nourishment better, and in every way appeared to get along better than the patients treated without antigen during the same period of time—three months (January, February and March, 1914)."

Dr. J. P. McKelvey of Pittsburgh reports three cases, in all of which the antigen was administered late. He writes: "Our results in three cases were rather indifferent, as we were unable to note any definite effect on pulse, temperature, crisis or general state of the patient."

The exact mode of action of the antigen, whether due to nonspecific effects, to desensitization or to the mobilization of antibodies, has not been definitely determined. Considering the experimental and clinical evidence, however, the conclusion seems justified that this antigen, if given early, is followed in lobar pneumonia by the rapid appearance in the blood of demonstrable antibodies and seems to have a definite beneficial action on the disease. Its harmlessness is established. However, owing to the great variations in the course of the disease, depending, among other factors, on the virulence or type of the infecting pneumococcus, it is most difficult to draw conclusions as to the therapeutic value of any agent in pneumonia.

The results presented call for further study and trial. It is hoped that this will be carried out in military hospitals where opportunity to test its efficacy on a large scale under properly controlled conditions is at hand. The serum treatment for Type I infections should, of course, take precedence; but if this serum is not available, the antigen, since polyvalent, should be injected in all cases of pneumonia as soon as the diagnosis can be made. The determination of types of pneumococci, while important, should not prevent its early administration. A large quantity of antigen has been prepared, its effects on animals and on patients tested, and it will be sent on request to physicians in private practice or military hospitals who wish to study its action and who have not the facilities or the necessary time to prepare the antigen.

# THE CIVIL ADMINISTRATIVE CODE OF ILLINOIS, AND MEDICAL LICENSURE *

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Director, Illinois Department of Registration and Education
SPRINGFIELD, ILL.

About ten years ago, the attorney-general of Illinois, William H. Stead, who is now director of trade and commerce at Springfield, in a moment of discontent with existing conditions, gave utterance to an opinion that an effective government in the state could never be obtained until the overlappings of authority resulting from the distribution of the powers of administration among many boards and commissions were ended. This observation was, perhaps, the first definite expression which led to the adoption of what is now known as the civil administrative code.

It was not until the forty-eighth general assembly, however, that an efficiency and economy commission was appointed. It consisted of four senators and four representatives who were authorized to make an investigation of all departments of the state government, including all boards, bureaus and commissions which had been created by the general assembly, with a view of providing a more perfect system of accounting and of combining and centralizing duties. It was hoped that this study would lead to the rejection of much useless machinery and to reorganization of the state government, with a view to greater efficiency and economy in administration.

The committee was comprised of some of the ablest members of the two houses. After organizing and outlining its work, in August, 1913, the members of the committee employed as director Dr. John A. Fairlie of the political science department of the University of Illinois. Under his leadership, they took the advice of a large number of officials and citizens, after many hearings at which testimony was presented from almost every possible point of view. As a result of the committee's investigations, there was published a report of 1,050 pages which has been called one of the most remarkable documents in the history of state government in this country.

### ADOPTION OF THE CODE

It was in the year 1917 that the new plan took final shape. Although Governors Deneen and Dunne both referred to the proposition in their messages, it was not until the gubernatorial campaign of 1916 that it became a theme of general discussion throughout the commonwealth. In his inaugural address, Governor Lowden took a strong position in favor of the reform. Early in the year 1917, what is known as the civil administrative code was presented to the legislature and became law.

Its salient feature is the centralization of the several government agencies, with the exception of the civil service commission and certain temporary boards, into the nine departments of finance, agriculture, labor, mines and minerals, public works and buildings, public welfare, public health, trade and commerce, and of registration and education.

For each of these departments an executive officer, or director, is provided, with such subordinate officials as are deemed necessary, the number varying in the different departments.

### THE CODE ON TRIAL

Seven months of experience have apparently amply justified the hopes of those who had at heart the administrative reform. While, according to the long established custom of state governments, a new administration always has to meet deficiencies from a previous one and usually has the fate of being forced to raise a tax rate which was reduced by its predecessor for campaign purposes, the machinery of the code has worked far more smoothly than even its most sanguine supporters had hoped. Those associated in the administration confidently believe that, if given a chance for a fair trial, within a year the code will prove its value by substantial financial savings as well as by increased efficiency. The work of the department of finance particularly is expected to show gratifying results. The strictest scrutiny is being given by its officers to all outlays, and many kinds of waste heretofore ignored, are now being checked.

The centralization of government under the code is not complete because, outside its jurisdiction, there are certain so-called constitutional offices, such as those of the secretary of state, the auditor of public accounts, the state treasurer and the superintendent of public instruction. This condition must remain until, perhaps, as the outcome of a constitutional convention, their duties may be included in similar proper depart-

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* Read before the Annual Congress on Medical Education and Licensure, Chicago, Feb. 4, 1918.

ments. Happily there has been perfect harmony between the code officers and the constitutional ones, with the entire machinery at Springfield, to all appearances, working smoothly in the direction of notable administrative achievement.

### WORK OF THE DEPARTMENT

In the reorganization scheme, medical licensure, formerly a part of the duties of the state board of health, was placed in the department of registration and education. Just a word about this department may be of interest. While the double name seems to imply divided activity, a closer survey of the powers and duties of the department shows that the thought of education is a dominant one. The word "registration" relates to the administrative work associated with all those professions and trades of whose members the state requires a license. The department has jurisdiction over a dozen different lines of endeavor, including those of the architects, barbers, chiropodists, dentists, embalmers, horseshoers, midwives, nurses, pharmacists, physicians, plumbers, structural engineers and veterinarians. It has a staff of twenty-seven persons whose work is being so organized as to distribute responsibility most effectively and secure accuracy, promptness, and efficiency in control.

The oversight of this part of the activities of the department is placed in the hands of a superintendent of registration. He is charged with arranging for the necessary examinations as provided for in the statutes, with furnishing of adequate assistance to the examiners, with the notification of the successful candidates, with the keeping of the records and files of certification, and with the large amount of correspondence relating to licensure in the several lines. Inasmuch as all the laws which regulate licensure provide for the evaluation of credentials both of preliminary education and professional training, the division of registration is charged with the investigation of the qualifications of applicants for examination and so, naturally, with the establishment of standards and the task of approving both the schools themselves and their courses of instruction. If the authority of the laws should be invoked to its full degree, it would be seen that the department's power over schools of all kinds is very great.

### SUPERVISION OF EDUCATIONAL INSTITUTIONS

The word "education" in the department's title, therefore, does not imply an entire change of thought. It may, however, be taken to refer to certain types of higher education which are carried on under state auspices, and which are professional, investigational or scientific in their nature. The five normal schools which heretofore have been controlled by separate boards of trustees, are now placed under the jurisdiction of the department, having a single board with the director of registration and education as chairman. Grouped under the department also are the four scientific surveys, located at Urbana in connection with the state university, namely, the state geologic survey, the state water survey, the state natural history survey and the state entomologic survey. For the study of the needs of the four surveys and the development of their work, a special advisory board of scientists, called "the board of natural resources and conservation" and representing the different fields of research touched by the surveys, has been provided, the director of the department being its chairman. The department has jurisdiction also over the state museum, located at Springfield. For advice regarding the management of the museum, there is a board composed of specialists representing the five different lines of activity with which the museum concerns itself, namely, botany, ethnology, zoology, manufacture, and museum administration.

The members of these advisory boards were chosen with no consideration in mind whatever except to secure individuals of the highest character, entirely regardless of political affiliation, whose names would carry weight wherever mentioned. The board of natural resources and conservation, for example, is composed of Profs. Thomas C. Chamberlin and John M. Coulter of the University of Chicago, both men of national reputation in their respective fields of geology and botany; Profs. William Trelease and William A. Noyes of the University of Illinois, equally conspicuous in botany and chemistry respectively, and Mr. John W. Alvord of Chicago, an engineer of wide reputation. On the board of museum advisors are Edward W. Payne, one of the best known and most highly honored citizens of Springfield; Messrs. Owen and Millspaugh of the Field Columbian Museum; Prof. Henry B. Ward of the University of Illinois, and Mr. N. H. Carpenter of the Art Institute of Chicago. The normal school board, in like manner, is made up of selected men of exceptional fitness for their task. The department, in its administration, is greatly strengthened by its ability to command the assistance and advice of men of such preeminence. The magnitude of the educational work of the department, if expressed in terms of annual appropriations, is such as to make it fairly comparable with similar special departments in a great American university.

### SAFEGUARDS FOR MEDICAL LICENSURE

But too much time may have been given to this preliminary statement, as the special interest of physicians lies in the field of medicine and in an understanding of the relationship which the department bears to the machinery of medical licensure. As before indicated, the dominating idea of the civil administrative code is combination and coordination, with centralization of power under responsible individuals. If such a plan provided for a political organization and the choosing of officers purely for partisan reasons, with special fitness for a given task made entirely subsidiary, there might reasonably be fear for the results. There is ground for thinking, however, that the scope of the activities of each of the nine departments is such as to command the services of individuals of the highest type with earnest purpose in accomplishment.

As a sort of safeguard against personal inefficiency, arbitrariness or venality on the part of the executive head, the code provides that whenever the laws regulating a given profession or trade so require, the department shall be advised and aided by a committee composed of members of that profession or trade designated by the director from time to time. The advantage of the limitation of the words "from time to time" has already been shown by several cases in which trial revealed the fact that chosen individuals were not satisfactory. The objection made to the plan is that there may be lack of continuity in policy when there is uncertainty of tenure. This is obviated by the possibility of reappointment of those whose worth has been demonstrated. The danger in the personal appointment feature, of course, is the danger attending the entire code plan. An individual honored with appointment as director of a department either will or will not rise to his responsibilities. Still another safeguard declares that, in selecting the members of such committee, the head of the department shall give due consideration to the recommendations of members of the respective professions, trades and occupations and of the organizations therein. This committee has charge of the examinations for licensure and so guards the approach to the profession. In accordance with the code, the committee for medical practitioners is composed of five members. Exceptional care was taken in the selection of the initial committee under the new plan. The department officials cherished the idea of having a certain degree of continuity between the proceedings of the new department and those of the old state board of health. They wished to have the different points of view of medical organizations represented. Above all, they had an ambition to secure a group of men whose names would command respect and who in themselves would be an assurance to the friends of medicine that, under no circumstances, could there be retrogression under the changed conditions of the code. After a sifting of a large number of names presented for consideration, those chosen were Dr. John A. Robison of Chicago, former president of the Illinois State Board of Health; Dr. W. L. Noble of Chicago, former president of the Illinois State Medical Society; Dr. Leon C. Taylor of Springfield, for many years a member of the legislative committee of the Illinois State Medical Society; Dr. Carl E. Black of Jacksonville, all of whom represent the regular school, and Dr. G. M. Cushing of Chicago, the secretary of the Illinois Homeopathic Association, who represents homeopathy.

### DEPARTMENTAL POWERS UNDER MEDICAL PRACTICE ACT

There was an added degree of importance in the choice of the first committee because of the fact that a new medical practice act, marked by many advances, went into operation the same day the department began its work. The new practice act raises the minimum requirements of preliminary and professional instruction and empowers the department of registration and education to establish additional standards. It gives the department power to revoke licenses for any one of nine reasons. It practically bars from the state most of the limited medical practitioners and places notable restrictions on the others. It affords abundant opportunity for toning up the whole medical profession in Illinois, in case the department can have the support of the better element of citizenship for its aggressive acts. No stronger appeal could have been made to the ambition of any one than that which was made to the director of registration and education, July 1. Under the law, neither he, nor his assistant director, nor the superintendent of registration could be a member of any one of the professions or trades for which the state requires a license. They were obliged to approach the problems of administration under many limitations of ignorance. But this handicap was more than overcome by the earnestness of their purpose to carry out the spirit of the several laws so as to win the approbation of those particularly interested in them, and better yet, to find that self-approbation which, after all, is the supreme thing when sincerity rules the heart.

In 1910, a now famous survey of American medical schools began its description of conditions in Illinois with the sentence, "Illinois is the plague spot of medical education in the country." In the eight years which have elapsed since those words were written, astonishing changes have come, and it is the determination of the department of registration and education, so far as lies within its power, to go forward in the direction of greater improvements in the situation. I wish to present one or two observations and impressions regarding medical licensure which have come to me in these recent months of administration.

### DISTRUST IN THE MEDICAL PROFESSION

Approaching the subject of medical licensure, as I did from the standpoint of a layman, I found several things that made a marked impression on me. Of course I have been familiar, as every one has, with the jealousies which attach to the medical profession, suggested by the familiar proverb, "When doctors disagree, who shall decide?" I was hardly prepared, however, to find that this feeling of distrust and suspicion of one another was reflected in regulations covering licensure to practice medicine. While the laws and regulations relating to other professions seem to imply that an individual is innocent until he is proved guilty, that there are honorable men who may be trusted, and that there are honorable institutions whose diplomas are entitled to respect, in the case of the medical practice acts and the regulations of examining boards of medicine, the dominant note seems to be one of distrust, extending to medical schools, colleges, preparatory schools, and to every person who seeks to pursue the honorable profession of medicine.

The universities and colleges of the country, and other organizations which study schools and school standards, have learned to recognize certain institutions as worthy of trust. Why should not the medical profession also adopt this policy? Let us take the oldest collegiate institution in our country as an example. Harvard University has certain specific requirements for admission to its freshman class; it has certain specific credits which are required for graduation with the bachelor's degree, these being the completion of a definite number of courses with perhaps some regulations regarding required work. On the completion of the work thus demanded, the institution grants its diploma. In like manner, it has requirements for admission to its medical school and requirements for the conferring of the degree of medicine. Why may not the honor of Harvard University be recognized and its bachelor's degree and its doctor of medicine degree be accredited at once at their full value by a medical examining board or committee without any regulations demanding the production of original credentials of preparatory work, either preacademic or preprofessional?

### CLEARING AWAY SUSPICION

There is an organization known as the Association of American Universities. Admission to its membership is carefully guarded; but when that admission is once gained, each member of the association recognizes the credits of the other without question and without examination. There are other organizations of universities and colleges that have won the right of recognition because of the strictness of their conformity to regulations designed to elevate the tone of college life and the standards of collegiate instruction. Why should not medical examining bodies avail themselves of the thorough investigation which these organizations have made and accept for their own guidance the decisions of the latter as to what institutions are entitled to confidence, without any requirement of personal examination of any school?

There may be a reason why the profession of the physician is specially sacred—a reason which does not apply to the dentist, the pharmacist, or the member of any other trade or profession, and which demands a distrust of every human being lest, perchance, some one unworthy be granted a license to practice. In carrying on the work of the department of registration and education, I hope I may be able to follow the same methods of recognition of accepted standards to which I have become accustomed in a quarter of a century of university life, without giving rise to any suspicion that under my leadership the department is lowering standards in the slightest. At a recent conference attended by representatives of the five recognized medical schools of Illinois, the members of the examining committee for medicine and the officials of the department, it was the unanimous sentiment that, in connection with the formulation of new standards for approved schools, the atmosphere of suspicion so long persistent in Illinois should be cleared away. This conference, at which an entire working day was spent in harmonious effort to determine just and equitable rules for the regulation of medical schools and for the protection of Illinois medical licensure, was in itself evidence of the spirit which animates the department of registration and education.

### NEED OF ANNUAL LICENSE RENEWAL

Another observation I wish to make is one of surprise at finding no provision in the Illinois medical practice act for an annual renewal fee for medical licentiates. In other professions and occupations, a fee of this type is much approved. Once a year, at least, the registered pharmacist, the architect or the barber reports his whereabouts and pays his renewal fee. The physician receives his license and is turned loose. If he joins a local or regional or state medical society, his habitat and habits may be known. But if he becomes a quack or faker or a caterer to degenerates, no one follows him up, except as he is arrested by some defrauded patron or falls into the clutches of the law for abortion or for selling narcotics. An annual renewal fee would mean a closer supervision. It would afford opportunity for withholding a license, if charges of unworthiness were proved. Incidentally, although this is a minor consideration, the revenue thus obtained would enable the state to be more aggressive in its attitude toward those who persistently violate the law and continually disgrace the great profession of medicine. As I have watched the workings of the laws regulating other occupations and have noted the great advantages of the annual license renewal features, I have wondered much why the friends of medicine in Illinois did not long ago make this a feature of the medical practice acts.

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**Instinctive Reactions.**—Under normal environmental conditions instinctive reactions are quite sufficient and effective, but given an unusual demand for action under unusual stimuli, the individual fails to meet the situation and is more or less helpless. This is because intelligent action has to be substituted for instinctive reaction.—F. P. Norbury, *Institution Quarterly.*

## THE MILITARY, INDUSTRIAL AND PUBLIC HEALTH FEATURES OF NARCOTIC ADDICTION

CHARLES F. STOKES, A.M., M.D., D.Sc., LL.D.
NEW YORK

It behooves us at this time carefully to consider, from every angle, all possible sources of man-power in order that we may claim for service many who believe themselves incapacitated for work, and force to purposeful effort others, who have sought exemption by reason of acquired or assumed physical deficiencies.

Distributed over the country are hordes of drug users in the age of conscription who, if drafted, must either claim exemption by reason of addiction, or, if accepted, must later be discharged as undesirable, or unable to serve, unless steps are taken to conserve this loss.

In some sections of the country heroin claims 90 per cent. of the narcotic victims. Nearly all of these persons are in the period of adolescence. It is difficult to say just how many addicts there are in the United States. The number may be surmised, however, when we consider the figures of a federal official who recently reported at a public hearing in New York City that there are a million drug users in New York State alone.. At the other end of the line, we have the estimate of M. I. Wilbert of the United States Public Health Service that there were 175,000 addicts in the United States four or five years ago It is understood that the latter figures were based largely on estimates of the importation and sale of opium through trade channels, and that the appalling spread of heroin addiction and smuggling did not figure in the count.

We have made a careful study of this type of individual and find, for example, that the heroin users represent the norm for their respective grades in society: the percentage of feebleminded among them is around 6; few have been convicted of felonies; many have been arrested for minor offenses; after appropriate treatment nearly all have promptly regained their physical balance and later mental stability. It is known that drugs that depress function bring about no permanent structural tissue change demonstrable by laboratory methods. If this is true, then we have before us a monster group, a large proportion of which is capable of complete mental and physical rehabilitation, provided effective measures are employed. Within reach we have man-power of enormous proportions either for enlistment in the military forces or enrolment in the war industries. It would be illogical to look for 100 per cent. efficiency at the outset from individuals in this group, should they be enrolled in the military services or in the war industries, for addiction runs counter to close and continued application to any task and tends to rob the individual of the love of work for work's sake, and he is denied the joy of service for reasons that will be set forth presently. He is rarely an adept in the manual trades.

Let us see if we cannot come to a better understanding of the narcotic addict, and his attitude toward society, so that we may learn to know him as he is, and not as he is generally supposed to be. For purposes of study and intelligent application of remedial measures, we must recognize distinct types among addicts, such as the intemperate and impulsive adolescent heroin user, who is usually profoundly poisoned and at low nutritional ebb; the pipe smoker, calm and serene, showing little apparent nutritional change; the psychopath, who was a psychopath before he became an addict; the unfortunate accidental type, who has fallen into addiction through the pain of injury or disease, sometimes the physician's victim; the temperate and discreet morphinists, among whom we frequently see the pale, fat, flabby type, suggestive of athyroidism. In each case, temperament has a perceptible influence on the course of the addiction. In all cases, no matter what their origin, or what form of opium they may be using, we find among addicts certain features in common that to my mind explain society's attitude toward the addict, and the addict's behavior toward the community. Further, these characteristics have a direct bearing on military, industrial, economic, social, criminal and public health problems.

No matter whether or not the addiction is a crowd, or gang, contamination, at the beginning, as is commonly the case with pipe smokers and heroin users, sooner or later the condition develops individualistic features; the indulgence becomes secret and solitary, and what might well be called a "shut-in" personality impresses itself on the unfortunate's character. Each day there arises from within an imperative demand for the agent that will save him from discomfort and permit him to avoid the appearance of emotional stress; this he must secure at all hazards, clandestinely, of course, for the law says he must not have it. His day's work is constantly overshadowed by thoughts of the time for the administration of his drug. In this frame of mind the addict must lack, under most promising conditions, ability to think clearly and to give full attention to the problems from without. If he misses his usual medication, he develops abstinence symptoms which dominate his behavior until he gets relief. This familiar picture, if carefully studied, convinces one that the addict is quite unable to adjust himself to the demands and restrictions of military service, in which men must accept standardized equipment, housing, food and the like quite remote from the "facilities" on which the variant must depend in community life. Hence the necessity for the painstaking mental and physical examinations at recruiting stations.

Not only is the addict unable to measure up to the requirements of military service but he is usually unable to meet the full exactions of community life. He is often in conflict with law, is commonly a drag in the industrial world; yet he may accomplish a measure of security in fields in which emotional flights have a value. He rarely figures as a financial asset; he is often an economic burden and very commonly a public health menace.

If the foregoing is accepted, then it is plain that we have enormous values in man-power going to waste. Individuals in this unfortunate condition may desire to serve, but realize that they are unable properly to prepare themselves for service by their own efforts, and they have little or no knowledge of agencies to which they can apply for relief.

Here is a military problem, an industrial condition, and a public health menace worthy of immediate attention on the part of federal and state authorities. Unattached physicians could, in my opinion, render conspicuous patriotic service by entering this field, provided a plan for action is laid before them and they are qualified by training to grasp the technical features of effective measures.

What plan of organized effort will best meet this situation? In order to determine this it will be well to keep clearly before us some features of the pathology of addiction so that our methods shall not be haphazard, ineffective and incapable of a measure of uniformity. In the prolonged use of opium and its narcotic derivatives, it is generally conceded that we are dealing with chronic depression of nervous functions; and, further, this depression involves the ductless glands and other organs that have to do with metabolism. In consequence, there are often marked disturbances of nutrition, and possibly subsidiary intoxications. It has been shown that on sharp withdrawal of drugs that depress nervous functions, we bring about a back-sway, or counterfeit stimulation. In the sharp withdrawal of narcotics, we have ample evidence of intense crises in the vegetative nervous system, as shown by the hyperreactivity to emotional stimuli; at this time there is an inhibition to stimuli at psychic levels. In other words, the person in this condition is dominated by the horror-fear emotion, and he must and will get relief at any cost. The restrictions of law and the ideals of society find no response in this unfortunate. As the emotional and inhibitory features of the case subside, we find a mind keyed up in suggestibility which must be taken into account in every scheme of after-care, or what might better be called reeducation.

If we are able to avert this emotional outburst, we hasten convalescence, save the patient from much intense suffering, and make him amenable to reeducation in a military atmosphere in a shorter time. We shall always have to take into account nutritional damage in each case and effects of addiction on the nervous system other than those to which reference has already briefly been made.

While it has been amply demonstrated that addicts can be taken off their drug without much distress, and early convalescence thus initiated,[1] I shall make no further reference to methods of treatment in the hope that the problem may be approached on all sides without prejudice and with wholesome cooperation

No scheme of procedure can be satisfactorily carried out until we have federal control of the distribution of narcotics, hospital facilities for the care of women addicts, licensing of physicians qualified to treat addiction, supervision over sanatoriums, and above all the abolition of heroin. In some sections, as noted, heroin addiction is a curse.

In my opinion a comprehensive plan for dealing with this problem should include a collecting station in or near each great center where addicts might be referred by the draft boards, go voluntarily, or be sent by court procedure. Any large building with small spaces preferably in an enclosure would answer for this purpose. Here addicts could be taken off their drug, and after this has been accomplished they would be ready to be moved on to the reclamation colony for the necessary reeducational after-care. Abandoned military camps or existing rural colonies would serve admirably the purposes of the reclamation plants. At the colony, kindly yet forceful discipline should prevail, such as one finds in our military camps. At this point addicts could be classified and studied, and when ready for transfer would pass on to the zone of disposition, prepared for assignment, each case on its merits.

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[1] Surgeon-General's Report U. S. P. H. S., 1917.

Many might be enlisted for military service, more, no doubt, would be better fitted for industrial pursuits, while still others would be found unfitted for any war obligation. Some probably would require hospital treatment, or should be continued in addiction for humane reasons. Federal recruiting officers and existing industrial employment agencies would doubtless provide for the needs of the zone of disposition.

While I was in charge of New York City's colony for drug addicts and alcoholics, it was clearly demonstrated that drug addicts could be controlled by enlightened methods of discipline and administration, on an open farm without guards, and with the employment of few punitive measures. They took kindly to purposeful work when adequate recreational outlets were provided. Naturally those who had not been previously inured to arduous physical tasks could hardly be expected to do a man's share of heavy farm work at the outset; still, afterward many took up this means of gaining a livelihood and found employment on neighboring farms.

The longer they remained under these colony conditions, the closer they approached the normal in every way. I have had men with criminal records serving in my household, and have had no occasion to regret the experiment. The defections commonly charged to addicts in the majority of cases are largely due to the demands of the dominating impulsiveness of beginning or actual drug abstinence.

When these men were given employment away from former pals and old surroundings, they almost invariably did well. If, however, they returned to old associates, to their former domiciles and were confronted by sellers, or addicted women, they commonly relapsed. This was conspicuously the case with the adolescent heroinists. Stanley Hall and others have emphasized the fact that the attitude of the adolescent crowd sets at naught the restraining influences of religion, deterrent law, and home training. As heroin is the contaminating agent in the great majority of cases among adolescents, it should be abolished, particularly as this can be done without materially harming or discomforting the sick. Unless this is accomplished and our young addicts seek new fields of industry, we shall fail to break up this vicious circle; in fact, we shall find ourselves in the absurd endeavor of trying to "cure" adolescence. The necessity for the restrictive and legislative measures suggested above is evident.

It is time that an educational drive be inaugurated in which this problem may be stripped of mystery and sensationalism, and the facts of the situation laid bare. The addict should learn that he is chronically poisoned, and to this extent ill; he must get over the notion that there is any method of treatment that will return him to the normal with the same magic that his drug of addiction relieves his distress. It is this attitude that often defeats our efforts at treatment and leads to half hearted cooperation.

50 East Forty-Second Street.

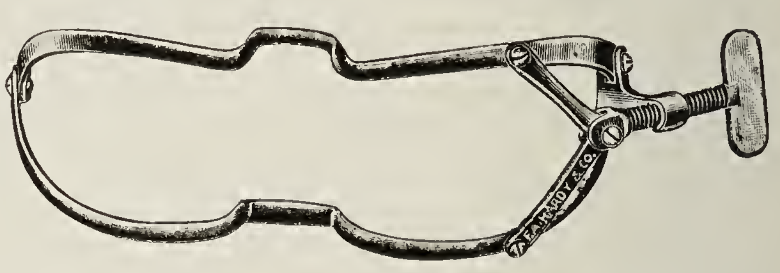
**Knowledge.**—Every mind was made for growth, for knowledge, and in its nature is sinned against, when it is doomed to ignorance.—Channing.

# Clinical Notes, Suggestions, and New Instruments

## A MOUTH GAG

Frank Allport, M.D., Chicago

With the exception of the device for opening the arms, this gag is the same as the Jennings mouth gag, except that it is perhaps a bit stronger. I have done away with the somewhat complicated machinery for opening and shutting the mouth gag, as devised by Jennings, and have employed a method similar to the one I suggested many years ago for my mastoid retractor. This will be seen in the accompanying illustration. The whole instrument is made strong in every way and, when placed between the teeth, will open the mouth by gradual force—in a way that cannot be accomplished by any of the other gags. The arms are opened by simply turning the screw head, and are shut in the same way. It is so simple as really to need no description, and I think that its simplicity and lack of complicated machinery will recommend it.



Mouth gag.

Considerable time can be saved by using this gag, because with others we have to wait until the patient is absolutely relaxed before beginning to remove the tonsils, whereas with this gag the force is so strong that a mouth can be opened before complete relaxation occurs. It is made in two sizes.

## USE OF GLYCERIN IN THE EXAMINATION OF FECES FOR TYPHOID BACILLI

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The use of 30 per cent. glycerin in physiologic sodium chlorid solution as a medium for feces for delayed examination has been recommended by Teague and Clurman.[1] For the past year the diagnostic laboratory of the Massachusetts State Department of Health has employed an outfit containing this solution for specimens sent through the mail. The assumption has been that better results are obtained by streaking fresh material, if it is possible to obtain it, at once, or after emulsifying it in broth, on Endo plates or some other selective medium after incubating the emulsion for an hour or two at 37 C.

We have found by experience, however, that specimens of feces sometimes fail to show typhoid bacilli if plated while fresh or after broth enrichment, but after from twelve to twenty-four hours in glycerin show typhoid bacilli in considerable numbers. A specimen from a typhoid carrier received recently gave negative results on plates made directly from specimens of feces and after incubation in broth, but showed many typhoid bacilli after incubation in 30 per cent. glycerin for eighteen hours. Plates made from the glycerin suspension showed very few colon bacilli as compared with those from the fresh material or a broth suspension. The advantage of the glycerin would appear to be its marked inhibitory action on *B. coli* and its apparently slight effect on *B. typhosus*.

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[1] Teague, Oscar; and Clurman, A. W.: Jour. Infect. Dis., 1916, **18**, 653.

## Military Medicine and Surgery

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# TRANSFUSION WITH TESTED BLOODS

## INCLUDING THE GROUPING OF ONE THOUSAND BLOODS AND A METHOD FOR USE AT ADVANCED HOSPITALS *

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In military hospitals the indications for direct transfusion of blood, namely, hemorrhage, shock and prolonged infection, arise with considerable frequency. I do not wish to enter into a controversy over the value of transfusion in these various conditions, but will point out the value of the laboratory as an aid to conducting the operation without accident. It is well known that the use of indiscriminately selected donors may nullify the value of transfusion, or even be disastrous to the recipient, and it seems to be the case that accidents of this sort are more frequent in the base hospitals than in those nearer the front. The reason for this difference is not altogether apparent, but the patients at the base have been wounded for a longer period and have been drained by infection to a greater degree than those nearer the front. The fundamentals of this problem must be the subject of further investigation. In this base hospital of about 1,200 beds, transfusion has been practiced forty times with properly tested bloods. In two instances, reactions were noted in the recipients, one being due to a confusion of names of donors, whereby the donor's corpuscles were agglutinated by the recipient's serum, the other being a case in which the recipient's cells were agglutinated by the donor's serum. In both cases the reaction appeared after the introduction of about 50 c.c. of the donor's blood, and the operation was immediately stopped. In neither case was the reaction fatal.

TABLE 1.—BLOOD GROUPS *

| Cells of Groups: | Serums of Groups 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1 | − | + | + | + |
| 2 | − | − | + | + |
| 3 | − | + | − | + |
| 4 | − | − | − | − |

* The plus sign indicates agglutination and hemolysis. It will be seen that this grouping of Lee is the opposite of that of Ottenberg and others.

### METHODS

Two methods of testing the blood have been used in this laboratory. The method of Kolmer as outlined in Webster's "Diagnostic Methods" was employed in fourteen cases. From a purely laboratory standpoint, this method was satisfactory and accurate, but was found to occupy a longer time for attaining results than the surgeons considered desirable. It cannot be completed in less than two and one-half hours, which means a great delay when the wounded and infected patient is suffering from a severe secondary hemorrhage. Hence the method of Lee[1] was welcomed and used with great success. This is based on the fact, long known, that the interaction of serum or plasma and red corpuscles places every individual in one of four groups, as in Table 1.

Any of the standard methods for demonstration of agglutination may be applied, but that recommended by Lee appears to be the simplest and quickest. For this test it is necessary to have the serums of individuals of Groups 2 and 3; a sufficient amount of these for establishing the method was kindly provided me by Major Lee. A platinum loopful of each of these serums is placed on a clean microscope slide, and to each is added either an equal amount of whole blood, or blood placed in 1 per cent. sodium citrate solution or in physiologic sodium chlorid solution. In reading the agglutination, care must be taken not to confuse rouleaux formation for agglutination. In this laboratory the routine of the test is carried out in the following manner:

From 0.5 to 1.0 c.c. of 0.85 per cent. sodium chlorid solution is placed in a small test tube, into which are dropped 2 drops of the blood to be tested. If a clot forms, a satisfactory emulsion of cells can be made by shaking the tube. A platinum loopful of each of the standard serums is placed on a clean slide, and into each drop a loopful of the blood emulsion is rubbed. The reading of the agglutination is made under the microscope (16. mm. objective) and is usually complete in from five to fifteen minutes. As will be seen from the table, if both drops show agglutination, the blood is in Group 1; if neither shows agglutination, it is in Group 4; and if one shows agglutination and the other not, the blood belongs to the group in which there is no agglutination. A somewhat smoother emulsion may be made by inverting the slide so as to convert the drops into hanging drops. The inverted slide can be placed on the microscope stage on another slide whose ends are built up with small pieces of fairly thick slide pasted on with balsam. We frequently use a Group 4 serum as a control. The reaction is so sharp that it is easily read; and if a microscope is not available, a lens of 10 diameters magnification will be quite ample in the hands of a trained worker; and the tests should be carried out by a properly trained man. Reports can usually be handed to the surgeon in fifteen minutes.

A large list of available donors may be grouped in this fashion, so that when a patient needs a transfusion, his blood may be quickly grouped, and a donor selected from the list posted either in the laboratory or the operating theater. Donors should be free from infectious disease, particularly syphilis.

It can readily be seen that if a donor is used in the same group as the recipient, the cells of neither will be agglutinated or hemolyzed. Lee maintains, however, that if the donor's serum, according to in vitro experiments, agglutinates the recipient's cells, such donor may be safely used because the donor's serum is thus diluted from five to twelve times, and in addition, the recipient's cells are "amply protected by his own serum," presumably because of the presence of some antiagglutinative substance. Conversely, if the donor's cells are agglutinated by the recipient's plasma, reactions appear which may be so severe as to be fatal, and at best such a transfusion would be of no value because the agglutinated cells are finally hemolyzed.

If these statements are true, Group 4 donors may be used for any transfusion, as their cells are not agglutinated by the serum of any group. In the same manner, Group 1 may receive blood from any donor, as the serum of Group 1 does not agglutinate any cells. While feeling sure that Group 4 may be used as the "universal donor" with almost complete safety,

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* Aided by a grant from the American Red Cross.

[1] Lee, R. I.: A Simple and Rapid Method for the Selection of Donors, Brit. Med. Jour., 1917, 2, 684.

I prefer to use donors in the same group as the recipient when possible, because of my observation of one unfavorable case in which a reaction appeared, the test having shown that the donor's serum agglutinated the recipient's cells as demonstrated by the method of Kolmer. It also appears to me that the protection of the recipient's cells from agglutination by the donor's plasma is probably the result of an antiagglutinative body rather than because of dilution, for it can be shown that serum retains its agglutinative properties when diluted as much as thirty-two times. Naturally such an antiagglutinative body would operate better against a diluted plasma than against an undiluted plasma. The problem is further complicated by the variable agglutinability of cells from different individuals. The patient worn down by infection may possibly be less resistant to such agglutinative serums than the freshly wounded man. If standard serums are not obtainable, Lee recommends the following method as the minimum procedure for testing.[2]

> A small amount of blood is collected from a patient (1 c.c. from the ear or finger is sufficient), and allowed to clot. The serum is then obtained. One drop of this serum is placed on a slide and mixed with a drop of a suspension of blood of the donor taken into 1.5 per cent. citrate solution. (A few drops of blood are taken into approximately ten times the amount of 1.5 citrate solution and shaken. It is very important that the blood be dropped directly into the citrate, and should not be partially coagulated.) The test will appear in a few moments, and is best examined under the microscope, where, in the event of a positive test, marked agglutination will be evident. The test will also be evident macroscopically. In the event of a negative test it is a wise precaution to raise the cover glass, and after making sure that the serum and cells are well mixed, to examine the preparation again. The only possible source of confusion is the appearance of rouleaux of the red corpuscles, indicating a too thick emulsion. If the test is negative, transfusion may be regarded as entirely safe.

### PERCENTAGE DISTRIBUTION OF GROUPS

The figures with which I am familiar are based on a relatively small number of observations. Statistics of this sort naturally increase in accuracy with the number of observations. As a large number of soldiers could be examined, the bloods of 1,000 individuals were subjected to examination with the results given in Table 2.

TABLE 2.—CLASSIFICATION OF BLOOD IN ONE THOUSAND CASES

| | Per Cent. |
|---|---|
| Group 1 | 3.1 |
| Group 2 | 42.4 |
| Group 3 | 8.3 |
| Group 4 | 46.2 |
| | 100.0 |

Granting that Group 4 is the universal donor, the chances of a member of any group having a suitable donor in case the blood is not tested are as indicated in Table 3.

TABLE 3.—CHANCES OF HAVING A SUITABLE DONOR

| | |
|---|---|
| Group 1 | 493 in 1,000 |
| Group 2 | 886 in 1,000 |
| Group 3 | 545 in 1,000 |
| Group 4 | 462 in 1,000 |

If the group percentage in each group is multiplied by the favorable chances of that group expressed as fractions of 1,000 and the results added, the total gives the chance of any individual having a successful transfusion, if the bloods are untested. This figure is 649 in 1,000. I am indebted to Lieut. W. B. Rogers of the Lakeside Unit for perusal of his notes on a series of transfusions with untested bloods at a casualty clearing station in order to determine how closely the theoretical figure 64.9 per cent. approximates the chance in actual practice. Ruling out thirteen cases, the notes of which are not complete owing to the rush of work, and ten cases which were hopeless at the start, there are thirty-six cases, of which ten showed reactions varying from a slight chill to severe rigor, or 73 per cent. without reaction of any kind.

### TESTING AT ADVANCED HOSPITALS

The first point behind the lines at which transfusion is practicable is at the casualty clearing stations, or evacuation hospitals. Frequently such a station may have no laboratory of its own, but may be served in conjunction with several others by a central laboratory. It is obviously impossible to test recipient's blood in need of immediate transfusion if the laboratory is several miles away. It is possible, however, to test prospective donors, send the results to the hospital, and use Group 4 as the universal donor. Delay in transportation of the blood to be tested is of little importance, and we have found that blood taken into salt solution and kept at room temperature will retain specific agglutinability for seventeen days, in spite of the appearances of distinct hemolysis in the tubes. If considered desirable, it would be possible to test donors at the central laboratory, and have recipients tested at the casualty clearing stations, thus preventing the use of only Group 4 donors.

For purposes of testing at the casualty clearing stations, it was at first thought that the stations could be provided with slides on which were dried drops of the necessary serum; but it was found that after drying for several days, the serum was not easily redissolved, and when redissolved, it had lost its agglutinating power. Supplying the stations with ampules of serum was not considered desirable because of the difficulty in keeping the serum free of infection. In order to overcome these difficulties, it was decided to provide the "resuscitation teams" with serum in tubes, drawn out of glass tubes, similar to those in which glycerinized vaccine virus is provided. If desired, the serum may be preserved with 0.5 per cent. phenol (carbolic acid), for we have determined that this does not alter the titer of the serum, and that it agglutinates powerfully for at least a month after being phenolated and remaining at room temperature. Accordingly, a team has been sent to a casualty clearing station with this equipment:

Six microscope slides.
Six tubes, 75 by 10 mm.
Fifty small tubes of Group 2 serum.
Fifty small tubes of Group 3 serum.
One copper wire loop (platinum and aluminum not being available at the moment).
One hand lens of 10 × magnification.

This can be packed in a tin such as carries 100 cigarets, and is thus easily transportable. The serum is blown from the tubes directly on the slide, and an equal amount of blood is suspended in physiologic sodium chlorid solution, rubbed in with the loop. The slide is inverted, stands at room temperature for ten minutes, and the result is read with the hand lens.

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[2] At the time of writing this paper I was not familiar with the method of Rous and Turner which is superior for places not equipped with the standard serums (Rous, P., and Turner, J. R.: A Rapid and Simple Method of Testing Donors for Transfusion, The Journal A. M. A., June 12, 1915, p. 1980).

The loop must be dried with a towel or blotter in going from one serum to the other, but does not necessarily need sterilization. As the serum is exhausted, a new stock can be forwarded; but because of the chance of deterioration when kept at room temperature, it is well not to send too great a stock.

This method has been found to be entirely satisfactory in the hands of Lieuts. B. F. Harrison and W. R. Barney; but any method for use at a casualty clearing station presupposes a firm conviction on the part of the operators that testing of the blood is of fundamental importance. It is highly desirable that the surgeon undertaking the procedure be familiar with general laboratory technic and that he has seen the test carried out by some experienced person.

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# THE BRITISH ZONE OF THE ADVANCE

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## GENERAL CONSIDERATIONS

It may be stated as a truism that any comparison between the French and English methods of treatment or evacuation of the wounded in their respective zones of advance is impossible, because of radical differences in the topography of the land and in the general conception of trench warfare.

The English have maintained a comparatively short front, difficult to hold and correspondingly more difficult to advance in. They have pinned their faith in density of front, with continuous activity along the entire front, alternating with intense attacks in selected sectors. The enemy, constantly and diligently harassed, retaliates in kind; the pressure is constantly maintained, night and day. This unending "strafing" has naturally multiplied the problems of evacuation, increased the distance between the front lines and the regimental aid posts, and lengthened the elapsed time between the reception of a wound and its thorough surgical treatment. The evacuation hospitals or casualty clearing stations (C. C. S.'s) are under more or less constant bombardment, either by large caliber naval guns or aeroplane guns (Archies); they have frequently had to be moved about from place to place, and it has been impossible to keep the wounded in the zone of the line of communications until their wounds are healed.

The inevitable result has been that the British base hospitals have had to perform a good percentage of primary operations and a still larger percentage of secondary or completing operations.

Primary closure of wounds, after thorough excision of all devitalized tissues, which is now almost an axiom in the French army, is still in the experimental stage with the British (January, 1918). This apparently radical difference in the zone of advance should not be laid at the door of conservatism; rather is it due to the time element, the extremely precarious position of the casualty clearing stations, and the consequent necessity of rapid evacuation of the wounded men to the base.

An advance research hospital has lately been established in one of the casualty clearing stations for the purpose of testing out the possibilities of primary or primosecondary closure of wounds. The results are very encouraging and will, no doubt, lead to a gradual adoption of the French method. Every effort is made to get the wounded to the casualty clearing stations while the wound infection is still localized; stretcher bearers and ambulance drivers are straining every effort toward expediting evacuations, working under surroundings of almost indescribable difficulties.

## TOPOGRAPHY OF THE LAND

The salient that I visited forms part of the plain of Flanders, the gentle slopes affording no protection from enemy visibility. The rainfall is always very heavy, and the constant presence of surface water makes trench digging impossible. The principal city is a mass of ruins, and the few scattered villages in the two sectors visited have entirely ceased to exist.

For miles in every direction, there is hardly a square yard that is not represented by a shell hole, full to the brim of muddy water. The mud, a mixture of clay and sand, is treacherous to the extreme; men have actually disappeared, as though swallowed up in quicksand. Roads are either under constant shell fire or have been entirely destroyed as one approaches the front lines. Consequently all movements of troops, as well as the evacuation of the wounded, take place along the "duck-board" paths laid on posts driven in the mud. Bodies of horses and men lie, unburied, in shell holes, polluting water and soil and filling the atmosphere with a stench that seems at times almost unbearable. Trenches being impossible to construct or maintain, on account of the mud and water, the men in the front lines are forced to crouch in shell holes from which the water is bailed or pumped out. The only relative protection against shell fragments is afforded by the "pill boxes" which the enemy had constructed when he held that part of the sector. These pill boxes are ferroconcrete mitrailleuse forts, approximately 20 feet square and 8 feet high in the interior chamber. The British use these for regimental aid posts or relay stations for stretcher bearers.

A duck-board path is usually 3 feet wide and from 1 to 3 feet above the mud and water. Attempts have been made to build them double or even triple width, in order to evacuate the wounded on two wheeled stretcher carts; but the experiment has, so far, not been very successful owing to greater exposure to shell fire. In order to avoid enfilading fire they are always built zigzag, direction being changed about every 20 yards. A special evacuation line, 4 miles long, was built; but, owing to the density of troop movements, this path has to be utilized by fighting units as well as by noncombatants, so that the congestion is often very great.

A few narrow gage railroads extend to within 2,000 yards of the front lines, but they are so frequently destroyed by shell fire that the Medical Corps has not seen fit to utilize them for purposes of front line evacuations.

From military, sanitary and surgical points of view, it is impossible to conceive of a more stupendous task than the one confronting our allies in this sector. It is unbelievable until one has actually visited it from front lines to zone of communications; it is equally impossible to describe its horrors after one has seen it. One cannot help feeling unbounded admiration for the bulldog tenacity, courage and spirit of self-sacrifice which alone have enabled the British army to "hang on" to this salient for almost four years and to advance their lines in the face of such gigantic topographic and climatic difficulties.

### THE REGIMENTAL AID POST

Situated about a thousand yards from the interconnected shell holes which form the front line, the regimental aid post occupied one of the pill boxes mentioned before. I am proud to be able to state that the first lieutenant, M. C., in this post was one of the many American medical officers in the temporary service of the British army. He had under his command a sergeant H. C., two orderlies and eight squads of stretcher bearers.

Owing to the meager dimensions of the shelter, which also had to house the entire personnel, no attempt could be made to treat any wounds surgically. Thomas splints, dressings and bandages were in stock, with sodium bicarbonate for "gassed" patients. No antitetanic serum was given them, but morphin could be administered in suitable cases. The aid station was essentially a protection against shell fragments and a point of departure for the stretcher bearers. The personnel slept in the most sheltered part of the pill box, and the cooking was done in a small lean-to added on to the side least exposed to shell fire. During a barrage fire that I witnessed, the rear of one of these kitchens was completely destroyed by a direct hit, while another shell fell immediately in front of the pill box entrance, fortunately without causing any casualties.

The chief antiseptic used was a 2 per cent. solution of picric acid, wet dressings being applied to all severe wounds. There was no dressing table, and no emergency operations such as tracheotomies or clamping of blood vessels could be performed. Tourniquets had to be used, but were released and readjusted at the aid station and relay posts, if written instructions to that effect were put on the diagnosis tag. Hot drinks were supplied to both wounded and combatants, and shock patients were heated by means of a Beatrice stove enclosed in a makeshift receptacle to which a piece of stove piping was soldered. An iron cradle is placed over the stretcher, blankets thrown over it and tucked around the patient, and the piping carries the hot air to the extemporized chamber, corresponding to the *cellule chauffante* of the French. The simplest hot air apparatus consisted of a Beatrice stove placed inside of a 4 gallon gasoline can with a hinge door on one side and the stove piping riveted or soldered on top. Experiments have proved that within from ten to fifteen minutes, 140 degrees of heat can be obtained. The same apparatus is also used for drying blankets, rubber boots, etc. Hot water bags are also used around severely wounded men during their evacuation, empty ones being brought back with the stretcher.

### RELAY POSTS

Approximately 1,000 yards apart, the relay posts constitute shelters for three or more squads of stretcher bearers in charge of a sergeant H. C., with reserve supplies of stretchers, blankets, hot-water bags and dressings. Two or more relay posts are maintained between the regimental aid station and the advanced dressing station 5,000 yards behind the front lines.

Water is brought up in 4 gallon gasoline cans from the nearest filtered and chlorinated water supply station. Hot food reaches the relay posts and front lines in gasoline cans placed in gunny sacks and surrounded by a 3 inch layer of hay. The food remains hot for six hours. When surrounded by a 1 inch layer of absorbent cotton, the food in the cans will retain its heat for ten hours.

### ADVANCED DRESSING STATION

Approximately 5,000 yards behind the firing line, the advanced dressing station represented a divisional field ambulance occupying a semipermanent post. The ruins of a château had been fairly adequately protected against shell fire by means of corrugated iron roofing and four layers of sand bags. A double sliding door gave good protection against gas attacks. Light was supplied by acetylene lamps and candles. A captain M. C. was in command and a sergeant H. C. and eight orderlies constituted the personnel. The dressing room, 8 by 12 by 22 feet, contained a dressing table, sterilizing outfit and an ample supply of ordinary surgical instruments, splints, dressings, etc., besides 600 blankets, 100 suits of pajamas and sixty hot-water bags. Emergency operations could be performed only during periods of relative calm. Antitetanic serum was occasionally given here, but not as a routine procedure. In gassed cases, whether caused by phosgen or combined chlorin and phosgen, the patients were treated by inhalations of steam with 1 ounce of tincture of benzoin compound to a pint of water. The slightly gassed patients walked around the improvised nozzle, taking turns at inhaling the steam. The severely gassed patients, "lying cases," had the same steam passed around from stretcher to stretcher.

From the advanced dressing station a narrow gage railway could bring the wounded to the corps main dressing station, if not subjected to barrage fire. Evacuation was by means of two specially fitted up trucks with a carrying capacity of sixteen stretcher and eight sitting patients. The trucks were drawn by a small gasoline engine, the round trip taking an hour. Motor ambulances, although subjected to shell fire, also reached the advanced dressing station, especially at night time.

Bomb proof shelters were in the course of construction, but the presence of surface water rendered the task an extremely difficult one. Shelters were as a rule built of corrugated iron sheeting covered over with three or four layers of sand bags. None were proof against a direct hit. Sleeping bunks for staff and personnel were invariably surrounded by a wall of sand bags 3 feet high, in order to obtain protection against shell fragments. In another sector of the same salient, a dugout 24 feet deep, 400 yards long, 6 feet wide and 7 feet high had been constructed. Water trickled down both entrance and exit stairways and from the ceiling and sides of the gallery, necessitating the constant use, night and day, of two hand pumps in order to prevent flooding. The stretcher bearers were obliged to live amid these insanitary surroundings, sleeping on water-soaked stretchers placed on the floor of the gallery. This experiment was not considered a success by the Medical Corps, but some shelter had to be provided for the men as there were no available pill boxes or ruins of houses to act as a nucleus of protection.

### COLLECTING POST FOR THE SLIGHTLY WOUNDED AND SICK

Situated 1,000 yards behind the advanced dressing station and approximately 6,000 yards behind the firing line, the collecting post for the slightly wounded and sick consisted of several corrugated iron huts reinforced by sand bags, in which the sick and slightly wounded could gather for evacuation by way of a narrow gage railway. Their wounds were rapidly cleansed, tincture of iodin or picric acid being the antiseptic used. The medical officer in charge divides the patients into those who will be well in a week and those who will require two weeks or a little longer, a certain elasticity being allowed in the latter cases. No diagnosis is made of the men reporting as sick; they are sent to the divisional rest station for observation. Twice daily, the narrow gage railway gathers the men in the collecting post and carries them to the divisional or corps resting stations. Should the railway become unavailable, the horse ambulances in reserve are utilized for this particular evacuation.

### CORPS MAIN DRESSING STATION

Eight thousand yards behind the firing lines, and occupying the spacious cellars of a public building, in the principal city of the salient, the corps main dressing station represented the first semipermanent field ambulance where emergency operations could be performed amid proper surroundings. The evacuation of wounded from two sectors converged at this point.

The cellar was bomb proof, well lighted by electricity and acetylene lamps, possessed space for fifty stretchers, and had a round dressing room large enough for six operating tables and necessary equipment. The wounded, arriving by motor ambulance from the advance dressing station, are examined in the motor itself by a surgeon; the severely wounded needing immediate operation, such as those having intra-abdominal, intrathoracic or intracranial wounds, are not removed from the ambulance but continue their journey directly to the casualty clearing station, thus shortening the interval by at least two hours. Those requiring emergency operations (hemorrhages, threatened edema of the glottis, etc.) are immediately carried down to the operating room and treated; shock patients, if they have not yet received treatment, or have relapsed, are also given a "hot air" course and 30 grains of sodium bicarbonate by mouth, together with hot drinks, highly sweetened, before continuing with their journey. Fractures are examined and splints readjusted if necessary. To recapitulate: The severely wounded remain in the motor ambulances and go directly to the casualty clearing station; all other patients are carried to the corps main dressing station for treatment or to await evacuation by hospital train. At a stated hour every day, the hospital train takes these patients to various casualty clearing stations along the line. Antitetanic serum (from 500 to 1,000 units) is given to all patients in the corps main dressing station, and morphin, ¼ grain, in restless cases.

Even in periods of relative calm, no surgical excision of lacerated tissues is attempted; no foreign bodies or pieces of detached bone are removed unless they appear in the wound and are readily removable. There is no roentgen-ray equipment present, or contemplated, in the dressing station.

The vast, bomb proof, well ventilated and well lighted cellars formed an ideal place for advanced surgery, and I received the distinct impression that such a possibility was being considered. There were ample means in the surrounding ruins to house a much larger surgical staff and personnel in bomb proof rooms, and several evacuation routes, roads, narrow and normal gage railroads, afforded ample means for receiving and evacuating the wounded.

### DIVISION AND CORPS REST STATIONS

The division and corps rest stations correspond to the French *hôpitaux des eclopçés* and to our own hospitals for the slightly wounded. The practice is to keep all sick and wounded who will presumably be well in a week at the division rest stations. If, in the opinion of the surgeon, a given case will require longer than a week, he is sent to the corps rest station, where he is further studied and accurately diagnosed. In order to keep up the morale of these patients, all sorts of amusements (concerts, movies, games, etc.), are provided.

Once daily, a special shuttle train carries the evacuation patients (not cured within the specified time) from the division rest station to the corps rest station, or from either of these stations to the casualty clearing station, if prolonged treatment is deemed necessary. The staff and personnel of these rest stations is obtained from the reserve divisions behind the two converging sectors. As a general practice, all patients requiring over two weeks' hospitalization are sent down to the casualty clearing station for treatment.

### TRENCH FOOT PROPHYLAXIS STATIONS

During the rainy season, and in the absence of massed attacks or "shows," as the British call their advances, trench foot produces the greatest single percentage of casualties. The whole question has been most minutely studied; no time or expense has been stinted in order to produce results. The present system of prophylaxis and active treatment has given the most satisfaction, but the ideal has not yet been attained. Whenever possible, the men in the shell holes constituting the front line are relieved every forty-eight hours. In a certain unusually exposed sector, this has not been found economical, the commanding officer being able to prove that the casualties incident to the relief of troops through barrage fire was greater than those caused by trench foot. The men in this sector are consequently required to remain at their posts for five-day periods.

Repeated questioning of trench foot victims brought out the fact that prophylaxis in shell holes could not be observed in many cases. One soldier tersely expressed himself thus: "If I get my feet out of the mud and water, I slip in and drown; after twelve hours my feet are so swollen that I cannot remove my shoes; how can I have my feet rubbed or change my socks?" Several officers corroborated this statement. Each man in the front line is equipped with a square of tarpaulin or rubber sheeting, on which he sits or crouches. In order to warm his tea, he is supplied with a "Tommy's cooker," a small lamp containing solidified paraffin as fuel, over which he heats his cup or pan, fifty of these lamps being supplied to each battalion. Hot food reaches him at night time in the cans described above. Before going to the trenches, and immediately on returning from them, each soldier is obliged to take the prophylaxis against trench foot described below. The use of rubber boots has proved disappointing on account of the impossibility of drying the interior of the boots. The perspiration soon soaks the socks through and through, and the men complain bitterly of cold feet. Puttees are prohibited in the shell holes because they favor venous stasis; the men wrap gunny sacks around their legs, with a piece of loosely applied string to keep them in place.

### TRENCH FOOT REGULATIONS OF THE BRITISH ARMY

*Prevention.*—In order to minimize the occurrence of trench foot and frost bite during winter, instruction in the measures of prevention detailed below will be commenced before cold weather commences.

Commanding officers will be reminded that the loss of effective strength due to the prevalence of this trouble is an indication of faulty discipline and faulty interior economy, and they will, therefore, be held responsible that the instructions laid down are carried out under the strictest supervision by company officers.

Regular foot-rubbing drills will be carried out throughout the army during inclement weather, both in and out of the trenches. Such drills improve the circulation, and should be started long before the men have to go in the trenches.

The following preventive treatment will be carried out, either by divisions (at the main dressing stations), or regimentally in a hut or building set apart for the purpose. The treatment will include the use of:

(*a*) A soap made of soft potash soap, 1,000 parts; powdered camphor, 25 parts; powdered sodium borate, 100 parts, and

(*b*) a powder composed of powdered talc, 1,000 parts, and camphor, 25 parts.

A teaspoonful of powder and ¼ ounce of soap will be required for each man.

The quantities of the ingredients required per division per week are, experimentally, potash soap, 300 pounds; camphor, 22 pounds; sodium borate, 35 pounds; talc powder, 500 pounds.

The feet will be washed in hot water with ordinary soap, then in hot water with the soap (*a*). They will next be carefully dried, and the nails will be attended to by the chiropodist. Particular care must be taken to clean out the grooves at the sides of the nails. Finally the feet will be dusted with the powder (*b*), a little of which will also be dusted into the socks. (In each trench foot prophylaxis, there is a central low table with a half inch of talcum powder spread over the top, over which the men walk barefooted in order to run the powder thoroughly over the feet. The socks are also turned inside out and thoroughly dusted with the same powder. This method has been found to be most rapid and thorough.) The men are then ready to go in the trenches.

While in the trenches, his boots and socks will be taken off at least twice a day. The men will be told off in pairs, and each man will be held responsible for the feet of his comrade. He will first dry and then massage the latter's feet from the toes upward. He will then dust some of the powder over the feet, between the toes, and into the socks. This treatment renders the feet antiseptic, gives rise to a very pleasant aromatic smell of camphor, and is very popular with all ranks.

*Cure.*—The measures detailed above will, if carried out thoroughly, reduce the numbers of cases of trench foot to a minimum, but they will not abolish them altogether. The application of the preventive treatment will result in a much milder class of cases, and these cases will be cured by the following treatment which will include the use of:

(*a*) The soap prescribed in (*a*) above.

(*b*) Camphorated oil.

(*c*) Camphor and ether solution, namely, camphor, 30 parts; ether, 1,000 parts.

(*d*) A spray of hydrogen peroxid, 10 volumes; 1 per cent. solution of sodium borate, 10 volumes.

(*e*) Boracic camphorated solution, namely, powdered camphor, 17 grains; borax, ½ ounce; boiled water, 1 quart.

Wash the feet with soap (*a*) and warm water. Cut and clean the nails, taking particular care with the grooves at the sides of the nails. Wrap the feet in absorbent cotton-wool soaked in solution (*e*). Cover this with gauze soaked in the same solution, being careful to include the toes. Apply jaconnet and loose bandage. Renew the dressings every day until the swelling and edema disappear. This frequently takes place in three or four days. The jaconnet can then be discontinued. Then anoint the feet every day with camphorated oil until the feet are quite cured. Small blisters or bullae need not be opened. Large ones, however, are freely excised aseptically and treated with solution (*c*).

In the graver forms with extensive sloughing, gangrene and suppuration, each dressing is preceded by spraying with the spray (*d*). It is necessary to remove sloughs as soon as possible, in order to get at the infective agents which multiply under the black patches; but care should be taken not to open up fresh channels of infection by too much surgical interference. Sores should not be made to bleed; only those portions should be removed which can be detached easily with forceps. Diseased portions of bone should be allowed to come away without help from bone forceps.

A dose of antitetanic serum should be invariably given in all cases. Where ulceration exists, the dose is repeated once weekly.

The effect of this treatment is most remarkable in promoting a healthy action in sloughing ulcers, rapid healing and cessation of pain. In fairly severe cases, the swelling quickly subsides and the men are fit for duty in two or three weeks.

The early application of the treatment is most important, and it is a mistake for men not to report sick early.

A continuance of exposure to wet and cold may cause loss of foot or limb.

Keep cases in the C. C. S., if possible, for five or six days, as this is the dangerous period. Evacuated cases should be lying, not sitting. This is most important; placing the feet in a dependent position favors sloughing and retards recovery.

Trench foot is favored by standing in wet boots and is aggravated by the use of tight boots, tight puttees and the wearing of anything causing constriction of the lower limbs. Action on the following lines, in addition to the preventive treatment given above, will, therefore, be carefully and systematically carried out:

(*a*) Trenches will be kept as dry as possible.

(*b*) Men in water-logged trenches will be relieved every twenty-four hours, if possible.

(*c*) Rubber boots are to be worn in water-logged trenches, or boots two sizes too large and very loosely laced.

(*d*) No puttees should be worn in the trenches.

(*e*) Extra pair of socks for every man in the trenches. (The men are now given three pairs of socks before they go up to the front lines; they should be provided with an extra pair of boots.)

(*f*) Encourage the men in the trenches to move about. Do not allow the men to hold their feet near a fire or to dip them in hot water.

(*g*) Warm food, hot drinks, shelter and warmth are to be provided for the men in the trenches.

(*h*) On leaving the trenches after a tour of duty, the men should remove wet boots and socks, thoroughly dry rub the feet, and put on dry socks and dry boots.

### CORPS DELOUSING STATION

It is wellnigh impossible to live in the zone of the advance without becoming "lousy." The station visited consisted of a stone building, with barracks for the men. While the latter are having a hot shower bath, with soap and soft brush, their clothes and leathers are being deloused. Air tight chambers with sliding doors, each capable of containing 300 pieces of clothing, hung on racks, are heated up to 214 for ten minutes, followed by dry heat for ten minutes, in order to dry the clothing. The leathers are treated in a separate chamber. The steam is turned on until the thermometer registers 200; it is then turned off until the thermometer drops down to 190, when the sliding door is opened and the leathers, strung on racks, are put in. The door is closed and hot air is turned in for half an hour. This method has been found not to injure leather. Both clothes and leathers are thoroughly dry after they have been given a shaking in the air, and they are immediately returned to the men in the bathing huts, who have been given numbered disks which correspond to those tied on to their clothing and leathers. The system is rapid, thorough, and has given perfect satisfaction. Before they take their bath, the men are regularly inspected by a junior medical officer for skin diseases, etc. There are separate cabins or rooms for the officers.

### THE BRITISH EVACUATION HOSPITALS OR CASUALTY CLEARING STATIONS

Owing to the exposed nature of the terrain and the constant harassing warfare carried out in the British sectors, the casualty clearing stations have been subjected to repeated bombardment by long distance guns or avion bombs. Several of them have been destroyed; others severely damaged. The result has been to place them much farther behind the lines than the corresponding French formations. This fact must not be lost sight of, while attempting to draw any comparisons. Again, largely owing to their precarious positions, the majority of them are still housed in tents or marquees, instead of wooden barracks. The experience of the British army has been that a tent which has been in place for four months cannot be taken down and moved without being torn to pieces. It is estimated that only about 10 per cent. of a tent can be salvaged on moving camp. They are looked on as expensive in the long run, cold, easy to catch on fire, and very liable to blow down during a hurricane. Semicircular corrugated iron barracks, containing forty-four beds, are now replacing the tents. Wooden or corrugated iron barracks are used for operating rooms.

Each casualty clearing station is based on a capacity of 300 beds, but the majority have expanded to 1,000 beds. It is freely admitted that during a "show," primary suturing is never attempted on account of insufficiency of operating teams and lack of beds. The wounds are surgically excised and the wounded sent down to the base by hospital train from twenty-four to forty-eight hours later, if transportable. The patients who have to remain longer become very nervous and apprehensive, on account of the constant noise of British and enemy aeroplanes and the occasional bombing at night.

The research casualty clearing station has been conducting a series of experiments in order to determine the value of primary closure of wounds and the relative value of various solutions. The presence of hemolytic streptococci in culture is regarded as a contraindication to primary suture, yet the tendency is to rely more and more on the general clinical aspect of the wound and patient, and less and less on the laboratory report. While the research casualty clearing station is not yet ready to render a final report on the various solutions employed, the results so far tend to prove that the sine qua non of success lies, not in the antiseptic used, but in the radical excision of devitalized tissues.

Joint injuries are being closed primarily, after removal of foreign bodies, including projectiles and lavage with physiologic sodium chlorid solution. Methylated spirit is used for cleansing and irrigating wounds, as it is cheaper than ether. Drainage in joint cases is restricted to those presenting extensive comminution of bone, particularly of the head of the tibia. The bismuth, iodoform and liquid petrolatum paste (bipp) of Rutherford Morrison is used once in extensive wounds. If the paste is repeatedly applied, the granulations become weak and show a tendency to break down. The present plan of treatment is to apply the paste once, and then use methylated spirit for subsequent dressings.

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# HEMOLYTIC STREPTOCOCCUS CAUSING SEVERE INFECTIONS AT CAMP ZACHARY TAYLOR, KY.

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The acute infections seen at the base hospital of this camp, so far as they pertain to the respiratory tract, have undergone a changing history. In September and October they were principally pneumococcal in nature, producing occasional angina and lobar pneumonia. With the advent of a measles epidemic in November, bronchopneumonia, due largely to a streptococcus infection, became prominent, and a few cases of typical lobar pneumonia continued to occur. Empyema, mainly streptococcal, accompanying 30 per cent. of the pneumonias, some also appearing secondary to other foci, such as angina and tonsillitis, was of a particularly fatal nature. Otitis media then appeared frequently, sometimes associated with angina, but also occurring primarily. Mastoiditis caused by a hemolytic streptococcus was followed by a fatal septic meningitis in three instances. Toward the end of January the case incidence and bacterial virulence of these infections decreased, and as will be seen later, the biologic characters of the organism changed somewhat. The investigation here reported refers to patients seen in the base hospital where the more severe ones are sent, and to one localized outbreak occurring in camp, although milder infections with the organisms mentioned were prevalent throughout the cantonment.

In an attempt to define, if possible, the direct etiologic factor of these conditions, cultures were taken from affected tissues, and tabulations made of the various organizations from which the patients came. From 270 individuals 358 cultures were studied and classified as shown in Table 1.

The occurrence of other colonies in considerable numbers, when hemolytic streptococci predominated, were noted in the instances given in Table 2.

### CULTURES OF HEMOLYTIC STREPTOCOCCI

Specimens were planted on 10 per cent. blood agar plates, and the growth noted after twenty-four hours' incubation. Hemolytic streptococci grew typically as small, round, gray, raised colonies with a wide surrounding zone of clearing, with the exception of a few cultures noted below. Transplants were then made into 1 per cent. glucose broth (ac. 0.1) which gave a sedimented growth in most instances. From this, organisms were studied morphologically, and it was noted that medium sized and long chained forms predominated. Tests for bile solubility, capsules, and inulin fermentation were made on thirty-five of the first 100 specimens selected at random, and also on all others showing turbidity on glucose broth, but in no instance were any of these positive.

No attempt was made to classify critically the strains examined other than to note hemolysis[1] and to grow twenty specimens selected at random on lactose and mannite serum water mediums. Of these, nine fermented both sugars, thereby identifying these strains with the group containing the *Streptococcus infrequens* and the *Streptococcus hemolyticus* 1, whereas eleven fermented lactose but not mannite, which places them in the group of *Streptococcus pyogenes* and *Streptococcus anginosus*. No salicin was available for final differentiation.

### PATHOGENICITY

In some cases of empyema in which many aspirations had been performed, extending over considerable periods of time, it was noted that initial specimens gave typical growth with marked hemolysis, whereas in the later ones, hemolysis, although distinct, was not so striking. This could be largely restored by two passages through mice. Likewise, less abundant growth appeared in a few of these specimens, and in two instances, eventual aspirations resulted in sterility.

TABLE 1.—CLASSIFICATION OF CULTURES *

| | Hemolytic Streptococcus | Nonhemolytic Streptococcus | Pneumococcus, Type I | Pneumococcus, Type II | Pneumococcus, Type IV | Pneumococcus, Unclassified | Micrococcus Catarrhalis | Staphylococcus Aureus | Staphylococcus Albus | Bacillus Mucosus-Capsulatus | No Predominating Organism | No Growth | Contaminated |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pleural fluid† | 51 | ... | 1 | 2 | 3 | 2 | ... | ... | ... | 1 | ... | 12 | 2 |
| Tonsils | 19 | 3 | ... | ... | ... | 2 | 1 | ... | 2 | ... | 9 | ... | ... |
| Throat (pharynx, larynx, etc.) | 48 | 1 | ... | ... | ... | 12 | 11 | 2 | 2 | ... | 5 | ... | ... |
| Sputum‡ | 22 | ... | 8 | 8 | 13 | ... | ... | ... | ... | ... | 3 | ... | ... |
| Blood culture | 6 | ... | 3 | 2 | ... | ... | ... | ... | ... | ... | ... | 42 | 3 |
| Mastoid | 9 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3 | ... |
| Joints | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Abscess (intramuscular, subcutaneous, lung) | 6 | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 | ... | ... |
| Middle ear | 2 | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... |
| Coujunctiva | ... | ... | ... | ... | ... | 1 | ... | ... | 1 | ... | 1 | ... | ... |
| Spinal fluid | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Postmortem— | | | | | | | | | | | | | |
| Lung | 8 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Heart's blood | 4 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 1 |
| Pericardium | 4 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Mastoid cells | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Lateral sinus | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Abscess in brain | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Peritoneum | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total | 190 | 4 | 12 | 14 | 16 | 18 | 12 | 3 | 5 | 1 | 19 | 58 | 6 |

* Only predominating organisms are listed. Repeated specimens from one tissue of the same patient are listed as a single specimen. Cultures were taken from Dec. 27, 1917, to Feb. 12, 1918.

† Holman (Jour. Med. Research, 1916, **34**, 377), reporting 1,027 human strains of hemolytic streptococcus from various sources, found only twenty-six, or 2.4 per cent., in pleural fluids, as contrasted with 14.3 per cent. in these statistics.

‡ Determined by Avery and by mouse methods. Pneumococcus Type II represents five typical and three atypical strains.

Guinea-pigs and large white rats resisted intraperitoneal injections of 0.5 c.c. of an eighteen hour broth culture, whereas white mice of approximate weights reacted thus: to 0.1 c.c., found dead after sixteen hours; to 0.01 c.c., found dead after sixteen hours; to 0.001 c.c., died after twenty-three hours.

Table 3 indicates the distribution of men from whom cultures were taken. These represent the majority of organizations in camp, and prove the infection to be widespread.

Thirty-four men of the Three Hundred and Ninth Sanitary Train, for the most part convalescent from acute bronchitis and infections of the upper respiratory tract, were isolated. Their throat swabs revealed the predominance of hemolytic streptococci in twenty-four instances. Dust from the floors of two of the barrack buildings (Three Hundred and Thirty-third and Three Hundred and Thirty-fourth Field Hospitals), where most of these men had been quartered, yielded hemolytic streptococci both by direct culture and from injection of suspensions of such dust into the peritoneal cavities of weaning rats. Floor sweepings from one of the squad rooms of Company L, Three Hundred and Thirty-sixth Infantry, which contributed more cases than any other company, likewise revealed hemolytic streptococci. Also in one of the rooms of the base hospital devoted to convalescent patients, floor dust yielded hemolytic streptococci, although after special cleansing, no further streptococci could be found. These organisms gave cultural reactions identical to those isolated from patients, and by sugar fermentations fell into the pyogenes-anginosus group.

TABLE 2.—OCCURRENCE OF COLONIES WHEN HEMOLYTIC STREPTOCOCCI PREDOMINATED

| | | | |
|---|---|---|---|
| Micrococcus catarrhalis | 17 | Influenza bacillus | 1 |
| Nonhemolytic streptococcus | 6 | Micrococcus tetragenus | 1 |
| Staphylococcus aureus | 6 | Large gram-negative bacillus, mucosus capsulatus group | 5 |
| Staphylococcus albus | 4 | | |
| Diphtheroid bacillus | 2 | | |

Specimens of milk showed occasional colonies of hemolytic streptococci, although only one source was tested, whereas the camp is supplied by many.

From four sick horses at the remount station, nasal swabs grew hemolytic streptococci in three instances; but this organization is several miles from the camp proper, where relatively few horses are used.

TABLE 3.—DISTRIBUTION OF MEN FROM WHOM CULTURES WERE TAKEN

| | Company | | | | | | | | | | | | Hdq. | Med. Dep. | M.G. | Supply | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | K | L | M | | | | | |
| 45 Inf. | 1 | .. | 2 | .. | 1 | 2 | .. | 3 | 1 | .. | .. | .. | .. | .. | 1 | .. | 11 |
| 46 Inf. | 3 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | .. | 1 | 1 | 1 | 1 | .. | .. | .. | 15 |
| 333 Inf. | 1 | 1 | 2 | .. | 1 | .. | .. | 2 | 1 | 3 | .. | 1 | 1 | 1 | .. | 1 | 15 |
| 331 Inf. | .. | .. | 2 | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 3 |
| 335 Inf. | 4 | 1 | 1 | 2 | 2 | 1 | 4 | 3 | 2 | .. | .. | .. | .. | .. | 3 | 1 | 24 |
| 336 Inf. | 1 | 4 | 2 | 5 | 1 | 3 | 4 | 3 | 2 | .. | 10 | 5 | .. | .. | 4 | .. | 44 |

| 159 Depot Brigade—Company | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 5 | 7 | 17 | 18 | 19 | 21 | 24 | 27 | 29 | 33 | 36 | 41 | Total |
| 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 15 |

| | Batt. A | Batt. B | Batt. C | Batt. D | Med Dep. | Total |
|---|---|---|---|---|---|---|
| 325 Field Art. | .. | .. | 1 | .. | .. | 1 |
| 326 Field Art. | 2 | 2 | 1 | 2 | 1 | 8 |

| | Company | | | | | Med. Dep. | 1 Truck | 2 Truck | Total |
|---|---|---|---|---|---|---|---|---|---|
| 309 Eng. | 1 | 2 | 2 | 1 | 2 | 1 | .. | .. | 9 |
| 309 Amm. Train | .. | .. | 2 | 2 | .. | 1 | 2 | 1 | 8 |
| 309 Amm. Train | .. | .. | 1 | .. | 1 | .. | .. | .. | 2 |

| | Field Hospital | | | | | |
|---|---|---|---|---|---|---|
| | 333 | 334 | 335 | 336 | Hdq. | Total |
| 309 San. Train | 12 | 9 | 6 | 7 | 1 | 35 |

| | | | |
|---|---|---|---|
| Base hospital | 13 | Signal Corps | 1 |
| Q. M. C. | 4 | Officer's Training Bn. | 1 |
| 309 Hdq. Troop | 3 | Recreation officer | 1 |
| 325 M. G. Bn., Co. A | 2 | Casuals | 3 |
| 327 M. G. Bn., Co. C | 1 | Nurses' home | 2 |
| Ordnance Dept. | 1 | Unclassified | 38 |
| Reg. Army Aviation Sec. | 5 | | |
| Total | | | 270 |

No hemolytic streptococci were isolated from the soil of the trenches, where many soldiers are employed.

The only antistreptococcus serum available was a commercial product which, tested against various strains, in no instance showed agglutinins in dilutions from 1:10 to 1:100.

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[1] Blake, F. G.: Jour. Med. Research, 1917, **36**, 99.

## *Special Article*

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# TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1917

### SIXTH ANNUAL REPORT

The Journal presents its sixth annual survey[1] of typhoid fever mortality in cities of the United States having over 100,000 population. The cities included in the summary number sixty, and are the same as those reported last year.[2]

The cities in Group 1 do not for the most part show any very material change from last year. Baltimore, New York, Philadelphia and Cleveland again make excellent records. Baltimore reaches a new minimum rate, a rate so low, indeed, that it was beaten by only two cities in the group in the five-year averages, 1906-1910. In addition to the improvements in the Baltimore water supply, the health department has made a vigorous attempt to find any typhoid carriers there might be among persons engaged in food-handling occupations.

In New York, milk was again responsible for a small typhoid outbreak in Manhattan in the first quarter of the year, and a more extensive one in Staten Island in the summer, the latter outbreak numbering seventy-two cases. "Patient inquiry among all who had possibly come into contact with the milk finally showed that an individual employed by the firm distributing the milk in Richmond had in his family two active cases of typhoid with which he came into intimate contact. On one or more occasions this individual appears to have acted as the direct conveyer of the infection." [3]

TABLE 1.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 1 (OVER 500,000 POPULATION)

| | Deaths from Typhoid per 100,000 Population 1917 | 1916 | Average 1911-1915 | Average 1906-1910 |
|---|---|---|---|---|
| Chicago | 1.7 | 5.2 | 8.2 | 15.8 |
| Boston | 2.9 | 3.5 | 8.0 | 16.0 |
| New York | 4.0 | 3.8 | 8.0 | 13.5 |
| Philadelphia | 6.2 | 7.8 | 11.2 | 41.7 |
| Cleveland | 7.1 | 5.3 | 10.0 | 15.7 |
| St. Louis | 7.5 | 9.4 | 12.1 | 14.7 |
| Pittsburgh | 11.2 | 8.6 | 15.9 | 65.0 |
| Baltimore | 15.5 | 18.0 | 23.7 | 35.1 |
| Detroit | 17.8 | 15.0 | 18.1 | 21.1 |

The chlorination of the Cleveland water continues to prove a source of trouble and complaint. Early in the year the chlorin dosage was materially reduced against the protest of the city health authorities. It is possible that the slightly increased typhoid rate in 1917 as compared with the preceding year may be connected with this action. St. Louis reached the lowest point in its whole typhoid history, with the exception of 1915, when the rate was about the same (7).

Perhaps the most interesting change in Group 1 is the dropping of Detroit to the very bottom of the list, a change which we apprehended a year ago might occur, although it could hardly have been anticipated that Baltimore would so soon change places with the former city. The contrast between typhoid in Detroit and typhoid in Boston, New York and Philadelphia is very striking. It is evident that excessive typhoid is still a live problem for Detroit citizens to consider.

TABLE 2.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 2 (FROM 300,000 TO 500,000 POPULATION)

| | Deaths from Typhoid per 100,000 Population 1917 | 1916 | Average 1911-1915 | Average 1906-1910 |
|---|---|---|---|---|
| Newark, N. J. | 3.5 | 5.3 | 6.8 | 14.6 |
| Cincinnati | 4.1 | 3.4 | 7.8 | 30.1 |
| San Francisco | 4.9 | 3.4 | 13.6 | 27.3 |
| Seattle | 5.1 | 3.0 | 5.7 | 25.2 |
| Los Angeles | 5.2 | 3.1 | 10.7 | 19.0 |
| Minneapolis | 5.9 | 5.8 | 10.6 | 32.1 |
| Milwaukee | 5.9 | 14.9 | 13.6 | 27.0 |
| Buffalo | 10.1 | 10.9 | 15.4 | 22.8 |
| Washington | 13.2 | 12.6 | 17.2 | 36.7 |
| New Orleans | 23.0 | 23.4 | 20.9 | 35.6 |

Chicago reports figures much lower than those heretofore recorded. Attention was called in our fifth annual report to the plea made by the Chicago Health Department in October, 1916, for "utmost care in the filling out of certificates" with special reference to typhoid fever. Some statistical objection has consequently been made to a direct comparison of the reported typhoid deaths before and after the date of this action. In a word, it is considered uncertain how far the reported typhoid rate in Chicago for 1917 really compares with that of preceding years.

The cities included in Group 2 (from 300,000 to 500,000 population) have records for the most part very similar to those for 1916. San Francisco, especially, maintains its excellent standing of a year ago, the figures for 1916-1917 indicating a material reduction as compared with the quinquennium 1911-1915. New Orleans, on the other hand, is not keeping up to its preceding five-year record.

The most noteworthy change in this group is shown by Milwaukee, which drops to a relatively low rate. As pointed out in our fifth annual report, Milwaukee suffered in January, 1916, from a severe water-borne typhoid outbreak, due apparently to some failure in the chlorination process. The health commissioner of that city deserves great credit for maintaining efficient chlorination throughout 1917 in spite of repeated complaints and objections. He is quoted in a Milwaukee paper as saying that "while the use of chlorin in the city water supply has its disagreeable features, it is absolutely necessary to use the chlorin in order to safeguard the health of the city." The continued use of chlorin in the water, he stated, was the penalty

TABLE 3.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 3 (FROM 200,000 to 300,000 POPULATION)

| | Deaths from Typhoid per 100,000 Population 1917 | 1916 | Average 1911-1915 | Average 1906-1910 |
|---|---|---|---|---|
| St. Paul | 2.4 | 4.9 | 9.2 | 18.3 |
| Rochester, N. Y. | 3.1 | 5.1 | 9.6 | 12.8 |
| Jersey City | 3.2 | 6.8 | 7.2 | 12.6 |
| Denver | 5.1 | 7.2 | 12.0 | 37.5 |
| Providence, R. I. | 5.4 | 5.1 | 10.2 | 14.3 |
| Portland, Ore. | 5.5 | 4.6 | 10.8 | 23.2 |
| Columbus, Ohio | 7.6 | 13.4 | 15.8 | 40.0 |
| Indianapolis | 10.0 | 26.6 | 20.5 | 30.4 |
| Kansas City, Mo. | 10.0 | 10.6 | 16.2 | 35.6 |
| Louisville, Ky. | 12.2 | 9.7 | 19.7 | 52.7 |

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[1] The preceding articles were published May 31, 1913, p. 1702; May 9, 1914, p. 1473; April 17, 1915, p. 1322; April 22, 1916, p. 1305, and March 17, 1917, p. 845.

[2] The number of typhoid deaths has been sent us by the local officer of health, and the rates have been calculated on the basis of population estimates made according to the method of the U. S. Census Bureau. It may perhaps be noted that the figures kindly furnished us by the municipal officials include the deaths of nonresidents as well as residents occurring within the city limits. In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13).

[3] Weekly Bull., Dept. of Health, New York City, Sept. 22, 1917.

people must pay for mistakes of the past. "Ample warning was given and given often, but Milwaukee continued to disregard the warnings and continued to pour raw sewage into its drinking water with the results that might be expected." Milwaukee is to be congratulated on having a health commissioner who stands by his guns. It is expected that a new water intake will be completed in September of the current year, and that the danger of contamination will be considerably diminished.

TABLE 4.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 4 (FROM 125,000 TO 200,000 POPULATION)

| | Deaths from Typhoid per 100,000 Population 1917 | 1916 | Average 1911-1915 | Average 1906-1910 |
|---|---|---|---|---|
| Oakland, Calif. | 1.9 | 4.0 | 8.7 | 21.5 |
| Worcester, Mass. | 4.8 | 3.7 | 5.0 | 11.8 |
| Scranton, Pa. | 6.0 | 5.4 | 9.3 | 31.5 |
| Syracuse, N. Y. | 6.3 | 12.2 | 12.3 | 15.6 |
| Omaha | 6.4 | 5.1 | 14.9 | 40.7 |
| Richmond, Va. | 7.0 | 24.1 | 15.7 | 34.0 |
| Spokane, Wash. | 7.1 | 2.0 | 17.1 | 50.3 |
| New Haven, Conn. | 9.2 | 8.0 | 18.2 | 30.8 |
| Toledo, Ohio | 9.7 | 22.9 | 31.4 | 37.5 |
| Paterson, N. J. | 11.3 | 1.4 | 9.1 | 19.3 |
| Atlanta, Ga. | 16.8 | 17.9 | 31.4 | 58.4 |
| Fall River, Mass. | 16.9 | 10.9 | 13.4 | 13.5 |
| Memphis, Tenn. | 21.1 | 36.3 | 42.5 | 35.3 |
| Birmingham, Ala. | 54.1 | 42.6 | .... | .... |

Group 3 (from 200,000 to 300,000 population) makes the best record of any of the five population groups. Seven of the ten cities have a lower rate than in 1916, and the group-rate shows the greatest proportionate reduction (Table 7). Three of the cities report rates under 5.0 (St. Paul, Rochester and Jersey City).

Indianapolis shows a marked decline from the relatively high typhoid rate of 1916, and now ranks well with other northern cities. During the past year, considerable criticism has been expressed about the sanitary conditions in Indianapolis. Among other things, the extension of the sewerage system and the enforcement of sewer connections in the more settled parts of the city have been specifically urged. In this connection it was pointed out that in 1916 some 20,000 open vaults existed in Indianapolis. If this is still the case, the powder magazine is evidently ready for the spark which shall touch it off. It will be noticed from the table that the 1911-1915 average in Indianapolis was the highest in the group. It is to be hoped that the marked improvement shown in the 1917 record is an indication that Indianapolis has turned the corner toward genuine sanitary betterment.

TABLE 5.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 5 (FROM 100,000 TO 125,000 POPULATION)

| | Deaths from Typhoid per 100,000 Population 1917 | 1916 | Average 1911-1915 | Average 1906-1910 |
|---|---|---|---|---|
| Tacoma, Wash. | 2.5 | 3.5 | 10.4 | .... |
| Camden, N. J. | 3.7 | 11.3 | 4.5 | .... |
| Cambridge, Mass. | 4.4 | 0.9 | 4.0 | 9.8 |
| New Bedford, Mass. | 5.7 | 4.2 | 15.0 | 16.1 |
| Springfield, Mass. | 6.4 | 4.7 | 17.6 | .... |
| Bridgeport, Mass. | 6.4 | 9.0 | 5.0 | 10.3 |
| Lowell, Mass. | 6.9 | 11.4 | 10.2 | 13.9 |
| Reading, Pa. | 7.4 | 18.7 | 31.9 | 42.0 |
| Albany, N. Y. | 10.5 | 7.7 | 18.6 | 17.4 |
| Grand Rapids, Mich. | 12.2 | 15.6 | 25.5 | 29.7 |
| Trenton, N. J. | 12.3 | 6.3 | 22.3 | .... |
| Hartford, Conn. | 13.3 | 6.3 | 15.9 | 19.0 |
| Dayton, Ohio | 13.7 | 14.7 | 14.8 | 22.5 |
| Salt Lake City | 18.1 | 10.2 | 13.2 | .... |
| Nashville, Tenn. | 18.3 | 27.3 | 40.2 | 61.2 |
| Dallas, Texas | 19.4 | 27.5 | .... | .... |
| San Antonio, Texas | 25.7 | 16.9 | 29.5 | .... |

In the course of the year some discussion has occurred as to the character of the Rochester water supply. An investigation was made by officials of the New York State Department of Health, and a reassuring report on the quality of the supply was published. The low typhoid rate in Rochester does not indicate that contamination of the public water supply has played any important part in the production of typhoid fever in that city. Louisville, although showing a slight increase as compared with 1916, has maintained a relatively satisfactory position.

The cities of Group 4 show in many instances an improvement on the 1916 record. Especial attention may be directed to the low rates in Oakland, Worcester, Scranton, Syracuse and Omaha. The 1916-1917 rates in all these cities indicate a still further reduction for the current five-year period over the relatively low averages, 1911-1915. The same is true of New Haven, which for the second time shows a rate under 10.

Perhaps the most significant typhoid diminution in this group is that shown by Richmond, Va. There now seems little doubt that in the past few years Richmond has suffered considerably from water-borne typhoid. The special efforts recently focused on this source of trouble have apparently reduced the typhoid rate to the lowest point in the city's history, and a rate that for a Southern city must be considered remarkably low. Typhoid reduction in Richmond in the past ten years reflects great credit on the health administration.

TABLE 6.—DEATH RATES FROM TYPHOID IN 1917

| | | | |
|---|---|---|---|
| First Rank (Under 5.0) | | | |
| Chicago | 1.7 | Newark, N. J. | 3.5 |
| Oakland, Calif. | 1.9 | Camden, N. J. | 3.7 |
| St. Paul | 2.4 | New York | 4.0 |
| Tacoma, Wash. | 2.5 | Cincinnati | 4.1 |
| Boston | 2.9 | Cambridge, Mass. | 4.4 |
| Rochester, N. Y. | 3.1 | Worcester, Mass. | 4.8 |
| Jersey City | 3.2 | San Francisco | 4.9 |
| Second Rank (5.0-10.0) | | | |
| Denver | 5.1 | Omaha | 6.4 |
| Seattle | 5.1 | Springfield, Mass. | 6.4 |
| Los Angeles | 5.2 | Lowell, Mass. | 6.9 |
| Providence, R. I. | 5.4 | Richmond, Va. | 7.0 |
| Portland, Ore. | 5.5 | Cleveland | 7.1 |
| New Bedford, Mass. | 5.7 | Spokane, Wash. | 7.1 |
| Minneapolis | 5.9 | Reading, Pa. | 7.4 |
| Milwaukee | 5.9 | St. Louis | 7.5 |
| Scranton, Pa. | 6.0 | Columbus, Ohio | 7.6 |
| Philadelphia | 6.2 | New Haven, Conn. | 9.2 |
| Syracuse, N. Y. | 6.3 | Toledo, Ohio | 9.7 |
| Bridgeport, Conn. | 6.4 | | |
| Third Rank (10.0-20.0) | | | |
| Indianapolis | 10.0 | Hartford, Conn. | 13.3 |
| Kansas City, Mo. | 10.0 | Dayton, Ohio | 13.7 |
| Buffalo | 10.1 | Baltimore | 15.5 |
| Albany | 10.5 | Atlanta, Ga. | 16.8 |
| Pittsburgh | 11.2 | Fall River, Mass. | 16.9 |
| Paterson, N. J. | 11.3 | Detroit | 17.8 |
| Louisville, Ky. | 12.2 | Salt Lake City | 18.1 |
| Grand Rapids, Mich. | 12.2 | Nashville, Tenn. | 18.3 |
| Trenton, N. J. | 12.3 | Dallas, Texas | 19.4 |
| Washington, D. C. | 13.2 | | |
| Fourth Rank (Over 20.0) | | | |
| Memphis, Tenn. | 21.1 | San Antonio, Texas | 25.7 |
| New Orleans | 23.0 | Birmingham, Ala. | 54.1 |

Toledo, for the first time, shows a substantial reduction in the typhoid rate. It is no longer in the fourth rank (cities with a typhoid rate of over 20), whereas in 1916 it was the only Northern city in that unenviable position.

Paterson and Fall River show considerable increases over 1916. We are informed that special investigations of the typhoid conditions in Fall River have been made with the cooperation of the state department of health, but that the precise cause for the increase has not been ascertained. The higher rate for Paterson seems to be due to a typhoid epidemic in a neighboring town. Since there were no local facilities for caring for the sick, the patients were sent to the Paterson hospitals. It is thought that the increase in the Paterson figures can be largely, if not altogether, accounted for in this way.

'The typhoid rate in Atlanta continues to show improvement, and the Memphis rate is the lowest ever recorded. Birmingham shows a disturbing increase in a rate already far too high. Why should Birmingham have three times as much typhoid as Atlanta?

TABLE 7.—AVERAGE DEATHS FROM TYPHOID PER HUNDRED THOUSAND IN EACH GROUP, 1916 AND 1917

| Group | Year | Number of Cities | Total Population | Number of Deaths | Average Deaths per 100,000 |
|---|---|---|---|---|---|
| 1 .... | 1916 | 9 | 13,743,746 | 854 | 6.2 |
| 1 .... | 1917 | 9 | 14,027,263 | 774 | 5.5 |
| 2 .... | 1916 | 10 | 4,053,281 | 344 | 8.5 |
| 2 .... | 1917 | 10 | 4,150,099 | 329 | 7.9 |
| 3 .... | 1916 | 10 | 2,635,983 | 248 | 9.4 |
| 3 .... | 1917 | 10 | 2,701,029 | 173 | 6.4 |
| 4 .... | 1916 | 14 | 2,250,991 | 330 | 14.7 |
| 4 .... | 1917 | 14 | 2,310,372 | 307 | 13.3 |
| 5 .... | 1916 | 17 | 1,983,918 | 235 | 11.8 |
| 5 .... | 1917 | 17 | 2,031,313 | 229 | 11.3 |
| Total .. | 1916 | 60 | 24,667,919 | 2,011 | 8.1 |
| Total .. | 1917 | 60 | 25,220,076 | 1,812 | 7.2 |

Group 5 (from 100,000 to 125,000 population), considered as a whole, shows less improvement over the 1916 rate than any of the other groups. Reading attains a remarkably good position, the typhoid rate in this city for 1917 contrasting very sharply with that for the preceding ten years. New Bedford and Lowell also make a good showing. Salt Lake City for some reason records a relatively high rate, while, on the other hand, Nashville reports typhoid figures that are most encouraging and that mark the beginning of a new period in the sanitary history of that city. Nashville passes for the first time into the rank of cities with a typhoid rate less than 20. Those familiar with Nashville conditions in the past will realize the amount of vigilance and unremitting labor necessary to bring about this result. As the work of establishing sewer connections in that city progresses, further improvement in the typhoid rate may be expected.

Dayton seems to have a relatively high rate for a Northern city, and does not show as marked improvement in the past two years as do some other cities in this group. A careful study of typhoid in Dayton in 1917 was made by the health commissioner, the study apparently indicating that the lack of sewer connections has a good deal to do with the occurrence of typhoid in that town.

TABLE 8.—TOTAL AVERAGE TYPHOID DEATH RATE (1910-1917)

| | Total Population (57 Cities)* Estimated by U. S. Census Bureau Methods | Typhoid Deaths | Typhoid Death Rate per 100,000 |
|---|---|---|---|
| 1910 ........................ | 20,996,035 | 4,114 | 19.59 |
| 1911 ........................ | 21,545,014 | 3,391 | 15.74 |
| 1912 ........................ | 22,093.993 | 2,775 | 12.56 |
| 1913 ........................ | 22,642,972 | 2,892 | 12.77 |
| 1914 ........................ | 23,191.951 | 2,408 | 10.38 |
| 1915 ........................ | 23.740,930 | 2,068 | 8.71 |
| 1916 ........................ | 24,205,359 | 1,842 | 7.61 |
| 1917 ........................ | 24,740,068 | 1,647 | 6.65 |

* Three cities are omitted from this summary because data for the full period are not available.

In 1917, thirty-one cities had a lower typhoid rate than in 1916; twenty-nine a higher. Thirty-seven cities had a typhoid rate under 10, as compared with thirty-five in 1916 and thirty-two in 1915. Fourteen cities had a death rate from typhoid fever under 5 in 1917, as compared with sixteen in 1916. In 1917, five cities reached a rate below 3. These are Chicago, Oakland, St. Paul, Tacoma and Boston.

Perhaps the most encouraging changes in our tabulation consist in the lowering of the total typhoid rate from 7.61 in 1916 to 6.65 in 1917 (Table 8), and in the fact that only four cities — all of them in the South — are left in the fourth rank (typhoid rates over 20). Three years ago (1914) there were thirteen cities in this rank. Only four cities were in the first rank three years ago, as compared with the present number of fourteen in 1917. The greatest improvement in rank in 1917 as compared with the preceding year seems to be made by Toledo, Richmond and Camden, each of these cities advancing two ranks: Toledo, from fourth to second; Richmond, from fourth to second, and Camden, from third to first.

## *New and Nonofficial Remedies*

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

**ARSENOBENZOL** (Dermatological Research Laboratories).—A brand of arsphenamine (see New and Nonofficial Remedies, 1918, p. 44).

Manufactured by the Dermatological Research Laboratories, Philadelphia Polyclinic, Philadelphia, Pa., under U. S. patent Nos. 986,148 (March 7, 1911; expires 1928), 1,081,897 (Dec. 16, 1913; expires 1930), 1,081,591 (Dec. 16, 1913; expires 1930), and 1,116,398 (Nov. 10, 1914; expires 1931) by license of the U. S. Federal Trade Commission.

The following dosage form has been accepted:

**Arsenobenzol (Dermatological Research Laboratories) 1 Gm. Ampules.**—Each hermetically sealed ampule contains arsenobenzol (Dermatological Research Laboratories) 1 Gm. Prepared for use in hospitals in divided doses.

**HALAZONE.** — Parasulphonedichloramidobenzoic acid. — $C_6H_4(SO_2NCl_2)COOH$—1:4.

*Actions, Uses, Dosage, Physical and Chemical Properties.*—See New and Nonofficial Remedies, 1918, p. 159.

**Halazone-Monsanto.**—A brand of halazone complying with the N. N. R. standards.

Manufactured by the Monsanto Chemical Works, St. Louis. No U. S. patent or trademark.

**PROCAINE.**—$CH_2(C_6H_4.NH_2.COO).[N(C_2H_5)_2].CHl$. The monohydrochloride of para-aminobenzoyldiethyl-amino-ethanol.

*Actions, Uses, Dosage, Physical and Chemical Properties.*—See New and Nonofficial Remedies, 1918, p. 32.

**Procaine-Abbott.**—A brand of procaine complying with the N. N. R. standards.

Manufactured by the Abbott Laboratories, Chicago, under U. S. patent No. 812,554 (Feb. 13, 1906; expires 1923) by license of the U. S. Federal Trade Commission.

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**Lead and the Birth Rate.**—Lead poisoning has a malign effect on the birth rate and infant mortality. The effect on the developing embryo is particularly disastrous. Adami tabulates 88 pregnancies in women with lead poisoning that resulted as follows: abortions, premature labor and stillbirths, 71; infants born living, 17, five of which died within one year.—H. G. Palmer, M.D., *Bulletin*, R. I. Board of Health.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 16, 1918

## TYPHOID IN AMERICAN CITIES

In this issue[1] is the sixth annual summary of typhoid death rates in American cities of over 100,000 inhabitants. It need hardly be said that absolute accuracy is not claimed for these figures. Clerical errors are occasionally made in reporting figures to us and exact verification is naturally impossible. It is evident, too, that the usage in reporting typhoid deaths varies somewhat in different communities so that the recorded death rates are in some instances not strictly comparable. One source of error and misapprehension to which reference has been specifically made (see footnote, page 777) is the inclusion of deaths of non-residents occurring in city hospitals along with the deaths properly attributed to the city's own population. This procedure naturally tends to exaggerate city typhoid rates generally as compared with the rates in the neighboring suburbs and rural communities. There is, however, no satisfactory means of controlling data of this sort, and it is believed that the practice we have followed in this particular is in general not unfair, especially when the same method is observed consistently through a series of years. It must be remembered also that if non-resident deaths were eliminated from the city figures in each case, it would still not be possible to include the deaths of residents occurring outside the city itself or the deaths due to infection contracted by non-residents within the city limits. In no case can it be maintained that exact accuracy is secured, and the figures that we employ can be regarded as only an approximation.

Making all reservations as to the precision and completeness of the statistical data furnished us, it may be considered that these typhoid summaries have a definite value. It may be true that the relative differences in the typhoid death rates of cities with rates under 5.0 per 100,000 are not specially significant, but there can be little doubt that the difference between those with rates under 5.0 and those with rates over 15.0 is significant and should be taken into account by public health authorities. There is reason to believe, also, that the annual typhoid summaries printed by The Journal have had a real influence in stimulating local interest in the typhoid situation, and in a number of instances in causing methods of sanitary reform to be set on foot. The Journal has received so many communications to this effect that there is no escape from the conclusion that these annual summaries have been useful to members of the profession and to health officials in many places.

It is of great interest to note the remarkable decline in the total average typhoid rate that has occurred in the large cities of this country since 1910. Whatever be the statistical objections in regard to accepting the figures on their face value, it can hardly be questioned that a very great improvement has taken place in the typhoid situation in this country since the publication of these annual summaries was first begun. The 1917 typhoid death rate in a population of approximately 25,000,000 will bear comparison with the rate in a similar population anywhere in the world. The health officials of American cities deserve great credit for this improvement which has, to a large extent, freed sanitary science in this country from the reproach of excessively high city typhoid.

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[1] Page 777.

## CREATININ AND CREATIN IN THE BLOOD

The more recent quantitative microchemical studies of the blood have indicated that among the nonprotein nitrogenous constituents the estimation of creatinin is likely to be of especial service from a diagnostic and prognostic standpoint. There are few, if any, normal nitrogenous components of the urine for which the kidneys are more permeable; so that when creatinin begins to accumulate in undue proportions in the circulating blood, there can be little question as to the seriousness of the finding.

But what constitutes an abnormally high content of creatinin in the blood? Folin and Denis placed the normal limits at from 1 to 1.4 mg. per hundred c.c.; according to Myers and Fine, who have accumulated exceptionally extensive statistics on this question, the range is set at from 1 to 2 mg. Other investigators have been in essential accord with such figures. Only Gettler and Baker[1] indicate 0.5 mg. as the upper limit of normality; and they have reported many specimens of normal blood to contain as little as 0.1 mg. The problem of establishing definitely a standard of composition is further complicated by the fact that creatinin has been demonstrated to occur in the corpuscles as well as in the plasma. Obviously only the plasma component can be concerned directly in the passage of creatinin in or out of the circulation. As a recent writer has expressed it, the accumulation of creatinin in the blood has shown itself to be a useful index of renal insufficiency; but we are as yet unaware whether the excess present in the circulation of a nephritic permeates all the elements of the blood, or accumulates in the plasma alone. If the latter alternative should prove to be correct, the variations of the plasma creatinin in kidney disease would be even more striking than those of the whole blood creatinin, and would form a still more delicate index of the organ's capacity to excrete. A separate study of plasma and whole blood creatinin and creatin in different pathologic conditions might even reveal significant variations in the permeability of the corpuscles for these substances.

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[1] Gettler, A. O., and Baker, J.: Jour. Biol. Chem., 1916, **25**, 211. Gettler, A. O.: Jour. Biol. Chem., 1917, **29**, 47.

Thanks to the researches of Wilson and Plass,[2] of the Johns Hopkins Medical School, and more recently of Hunter and Campbell[3] at the University of Toronto, it seems conclusive now that in general the creatinin of normal human blood is distributed among its different elements at a practically uniform concentration. It is not confined more particularly to either plasma or corpuscles. The figures ascertained for the plasma indicate, therefore, also the true creatinin content of whole blood. According to Hunter and Campbell, the creatinin content of normal human blood plasma ranges under different conditions from 0.7 to 1.3 mg. per hundred c.c., the average for sixty specimens examined being 1 mg. This is in substantial agreement with the figures of all the previous workers except Gettler, whose divergent results were reported above.

With respect to the content of creatin in the blood, the conditions are apparently unlike the equal distribution of creatinin. Hunter and Campbell believe that the creatin is chiefly concentrated in the corpuscles. With the method used, exact determinations were unattainable; but it is roughly estimated that the average creatin content of the corpuscles lies between 6 and 9 mg. per hundred c.c., while that of the plasma is not more than from 0.4 to 0.6. The blood as a whole contains apparently an average of about 3 mg. per hundred c.c. There seems to be more in the blood of females than of males. In other words, the corpuscles contain from five and a half to ten times as much creatin as creatinin, while in the plasma it is the latter that is predominant.

The Toronto investigators point out that the blood creatinin is apt to be lower in females than in males, and lower in subjects deprived of exercise than in those leading an active life. It is suggested that the blood creatinin is related to muscular development in much the same way as the creatinin coefficient of the urine. We have already discussed the peculiar occurrence and as yet unknown significance of creatin in the urine. Hunter and Campbell have found this substance present at times in the blood. They state that there is a distinct correspondence between increase of plasma creatin and the appearance of creatin in the urine; but whether the plasma, in the absence of creatinuria, is creatin free or whether there exists a threshold for creatin excretion has not been positively determined. If there is a threshold, it is a very low one.

## MENINGOCOCCUS CARRIERS

There have been approximately 1,500 cases of meningitis since last summer among our troops assembled in the various Army encampments. This is a much higher rate of incidence than has existed in any civilian population of similar size in this country during this period. In Chicago during the whole year 1917 only 354 cases were reported, and this was an incidence three times as high as in 1916. Even if there were no European experience to guide us, therefore, we should have convincing evidence of the special prevalence of meningitis among the new recruits in military organizations.

Nearly all observers of the epidemiology of meningitis have laid great stress on the rôle of meningococcus carriers in spreading infection. The Journal has previously discussed various aspects of this question. Under the acid test of practical experience, new views about the significance of carriers and about the methods of practical procedure are finding expression. From the administrative standpoint probably the most important of these differences concerns the measures that should be taken for control in the Army organization. Two quite divergent opinions have found advocates: one, that it is desirable and practicable to examine all the troops in an encampment, to eliminate all or most of the carriers and thus stop or greatly limit the spread of infection; the other, that the search for carriers is of doubtful value, and if pushed to its logical conclusion would seriously cripple military efficiency. The latter view has been especially expressed as the result of experience at the Great Lakes Naval Training Station.[1]

The difference in these two views with their momentous practical corollaries is so great as to require serious consideration at this time. If it is true, to quote the report of Mink,[1] that "measures to control the disease through the carrier method are absolutely worthless," then preventive measures should be based on the elimination of predisposing causes rather than on sources of infection. No one questions the great influence of inadequate clothing, improper housing and possibly fatigue in increasing the susceptibility to cerebrospinal fever among troops; but there is abundant evidence that these are not the only factors that facilitate infection. It is a common observation that within the same military organization certain units are stricken much more severely than others under substantially similar conditions of housing and weather. When meningitis is studied by the spot map method, definite foci of infection will often be distinguished, and these foci are at points where no material differences in predisposing influences can be detected. The explanation usually given for the development of these meningitis foci at certain points and not at others is that meningococcus carriers are particularly numerous or particularly dangerous at the affected localities. Many bacteriologic observations in this country and abroad support this view. It is rather suggestive that no specific interpretation of meningitis foci based on differences in the action of predisposing factors has been established. It is also true that so-called seasoning or hardening influences are not universally effective in modifying the occurrence of meningitis. Foster and Gaskell point out that the epidemic of meningitis among the British troops in the spring of 1915 occurred when the troops were living under conditions considerably better than in the preceding autumn, and when they had become more acclimatized to their new mode of life. The same observers draw attention to the fact that there is no direct connection between a severe winter and an outbreak of cerebrospinal fever, some of the most severe epidemics in England having occurred with a mild winter. Rolleston[2] also gives figures showing that there were more cases in the personnel of the British navy in the third year of the war (143) than in the second (104), although there were fewer in the second than in the first (170), and he adds that "the absolute rise of the naval cases during the third year of the war corresponds with a rise in the number of cases in the civil and military population, and also with an increased percentage of carriers in the navy." Perhaps the most significant fact of all, however, is the one to which we have already referred, namely, the very definite localization of meningitis cases in army camps on some basis other than that of predisposing factors. Without underestimating in any degree the importance of predisposing influences in this infection, we are forced to regard them as only one element in the situation. Causes that affect individual susceptibility cannot be ignored in the practical control of meningitis; but we are not justified on that account in neglecting other measures of combating meningitis dissemination.

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[2] Wilson, D. W., and Plass, E. D.: Jour. Biol. Chem., 1917, **29**, 413.

[3] Hunter, A., and Campbell, W. R.: The Amount and the Distribution of Creatinine and Creatine in Normal Human Blood, Jour. Biol. Chem., 1918, **33**, 169.

[1] Mink, O. J.: Points in the Epidemiology of Meningitis, abstr., The Journal A. M. A., Feb. 23, 1918, p. 563.

Probably the real issue is not so much the importance of meningococcus carriers as the practicability of segregating carriers while at the same time maintaining a reasonable degree of military efficiency. It will be generally admitted that more specific evidence is needed respecting the results actually accomplished by meningococcus carrier work in the Army camps. At the same time some of the criticisms of the effectiveness of this work are themselves of questionable cogency. In making comparisons of carrier conditions, the number of carriers in a unit is only one factor; we should also know the proportion of chronic carriers (probably the more dangerous type), the proportion of new recruits in the units that are compared, and the possible influence of overcrowding and other living conditions, as well as the period of time over which observations extend. It must not be forgotten that the examination of healthy persons in a locality where meningitis does not prevail and there is no obvious association with cases of the disease has shown the relative absence of carriers. One obvious difficulty in the way of satisfactory comparison is the evaluation of the relative efficiency of the methods of meningococcus isolation and identification in the hands of different investigators. The use of fairly uniform methods embodying the results of the latest experiences in this field would be a step in advance.

Respecting the feasibility of making meningococcus carrier examinations and utilizing the results under military conditions, we have quite a body of experience to draw on. It is rarely, if ever, that the examination of a large body of troops — say a division — will justify itself on grounds either of adaptation to the military situation or of control of epidemic spread. It is never possible to obtain absolute segregation of the military population from the surrounding civilians, or of the various units of the military group one from the other. The result is that new carriers are being more or less steadily created or introduced while the work is going on. The labors of Sisyphus were small in comparison with the attempt to find and segregate all the meningococcus carriers in an assemblage of 35,000 men.

It seems probable that the most useful practical procedure lies somewhere between the extremes of universal nasopharyngeal examination and no examination at all. If those soldiers who have been in close association with the one attacked by meningitis are examined, it is often found that one and possibly more of these "healthy contacts" is a carrier of large numbers of meningococci. Authenticated instances have been recorded in which the isolation of such a carrier has been followed by the cessation of meningitis in his organization. The inference also seems warranted that the failure to remove such a carrier early in his career is responsible for the development of the striking and characteristic meningitis foci already mentioned.

From the army standpoint it seems likely that the procedure here indicated can be carried out without undue interference with essential military needs. Prompt segregation of ten or twenty or more immediate contacts until the bacterial results are obtainable

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[2] Rolleston, H. D.: Cerebrospinal Fever in the Royal Navy, Lancet, London, 1918, 1, 87.

— say for a period of forty-eight hours — and isolation of the carriers found, only one or two of whom may prove to be chronic carriers, are not measures likely to produce serious disorganization of the camp activities. There is reason to believe that they will aid materially in preventing the development of meningitis foci. It goes without saying that there are military situations, as at an embarkation port, where even this measure of control can hardly be carried out. It will also be granted that a more comprehensive examination would show the presence of meningococcus carriers in troop units in which no case of meningitis had developed and did not develop through a long period of observation. Such carriers, however, evidently do not possess the urgent practical importance attaching to those carriers in the immediate vicinity of a case of meningitis. In a word, the prevention of the formation of meningitis foci would seem the most reasonable point of attack. Isolated or so-called sporadic cases of meningitis will always be likely to occur among new Army recruits and will often be very difficult or impossible to connect with any other center of infection. But careful inquiry will doubtless show that even in such cases a connection can be traced more frequently among soldiers whose movements can be fairly definitely ascertained than among members of the civilian population.

On the whole, the position that seems most clearly justified at the present time is not to abandon the examinations for meningococcus carriers, but to make such examinations on a reasonable scale under all conditions in which military exigencies do not forbid. To obtain the best results the examination should be made as soon as possible after the existence of a meningitis case is suspected, and the laboratory methods used should be rapid and precise. The available evidence indicates that such a procedure is valuable in checking the spread of meningitis. The success of preventive measures in any disease is beset with some degree of uncertainty. The fact that we cannot assert in any particular instance how many cases of meningitis have been prevented is no argument against the judicious application of meningococcus carrier control.

**Delayed Reaction Time as a Cause of Aero Accidents.**—The pupil may misjudge distances, and on examination one occasionally finds that his standard of vision is below normal; but, on the other hand, he may be found physically fit, with normal vision and good balancing power. In the latter cases it may be a question of delayed reaction time, especially the visual reaction time on which the aviator is so much dependent. Normally this reaction time takes 19/100 or 20/100 of a second. It may be delayed by fatigue, drugs and excesses, but, on the other hand, in some individuals, who are otherwise physically fit, it is found to be much slower than in others. Hence, in the selection of candidates for aviation, the visual and other reaction times must be up to the normal standard. By the French medical authorities on aviation candidates are rejected if the reaction times are found to be of the delayed type.—H. Graeme Anderson, Surgeon, R. N. Air Service, *Brit. Med. Jour.*, 1913, **1,** 73.

# Current Comment

## THE ARMY MEDICAL DEPARTMENT ENCOURAGING A FALLACY

The drug supplies that are being purchased by the medical department of the United States Army are commendably free from unscientific and worthless proprietary preparations. This is progress. One's optimism, however, is tempered in looking through a long list of drugs and chemicals on which bids are asked by the General Purchasing Office of the Medical Department, U. S. A. Item No. 148 of "Post Supplies" calls for three tons (in one pound bottles) of the "Compound Syrup of Hypophosphites"! It is safe to say that there is not a physician in one of the army posts who, if the question were put to him frankly, would admit that "Compound Syrup of Hypophosphites" belonged in the armamentarium of a scientific physician. Yet, six thousand bottles of this relic of a past generation are called for, are to be paid for and are to occupy valuable freight space in shipping to the various army posts. What utter waste! And what a reflection!!

## MUNICIPAL SUPPORT OF HOSPITALS AND OF MEDICAL SCHOOLS

Like other large cities, Cincinnati has a large general hospital erected and maintained by the municipality. But it has, what no other city has, a municipally supported medical school — the medical department of the University of Cincinnati, which is supported by a municipal tax. Because of their joint municipal support, the recent development in both medical school and hospital has attracted considerable attention. Since 1914, a group of new hospital buildings, which provides for 850 beds, has been erected at a total cost of approximately $4,000,000. The new city charter, adopted recently,[1] places the control of this and the other hospitals of Cincinnati under the board of directors of the University of Cincinnati, and provides that the heads of the departments of the medical schools shall constitute the attending staff of the hospital. A school of nursing and health has also been provided for under the charge of the medical school. The new charter, therefore, not only provides the medical school with an abundance of clinical material, but also makes it possible for the university to provide the hospital with an attending staff that is entirely removed from politics. The medical school also in recent years has been undergoing considerable improvement. In the last eight years, in addition to the income from the university and from students' fees, the medical school has received over a million dollars in gifts from citizens of Cincinnati. Of this sum, about $600,000 has been expended in the erection and equipment of a new medical school building, which, as noted in our new columns last week,[2] has just been dedicated. This new building has been erected on property immediately adjoining the Cincinnati General Hospital which is in keeping with the closer relationship that has been established between the hospital and the medical school. Thus municipal responsibility for both medical school and hospital in Cincinnati has brought a relationship by which both may reach the highest stage of efficiency. This represents what should be done in other cities, where too often the splendid material available in large municipal or county hospitals cannot be or is not utilized, owing to a separate control over hospital and medical school, which is often made worse by a political favoritism by which the attending staff may be selected. It is only by the closest possible relationship that both medical school and hospital will be able completely to fulfil their functions and best serve the public. The medical school needs for teaching purposes the clinical material available in the hospital, and, on the other hand, the hospital needs what a high grade medical school is in position to supply, namely, an attending staff composed of high grade and progressive medical men who are not only imbued with the spirit of research, but who are also in touch with the latest and best methods of diagnosis and treatment, which they are in position to utilize in the care of the hospital patients. The service of our large city hospitals to the public will be greatly increased by a closer working relationship with high grade medical schools.

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[1] Closer Relationship Between the University of Cincinnati and the Cincinnati General Hospital, The Journal A. M. A., Feb. 9, 1918, p. 411.

### PURINS IN COW'S MILK

Ever since purin-free foods have found an application in dietotherapy, milk has been classed among the products that belong in this category, despite the fact that Burian and Schur long ago asserted that it contains small quantities of purin compounds. Voegtlin and Sherwin[3] of the Hygienic Laboratory of the United States Public Health Service have now actually isolated two well recognized purins in sufficient amounts to be able to identify them. They found that cow's milk contains at least 5 mg. of adenin and 10 mg. of guanin per liter (quart). It is obvious, of course, that such quantities can play only an insignificant part as sources of the so-called endogenous uric acid, usually amounting in adults to more than 300 mg. per day that is secreted in the urine. Hence for the purposes of the purin-free dietary, milk, in the quantities ordinarily consumed, may still be classed along with eggs, certain cereals, fruits and vegetables, as practically purin-free. Why adenin and guanin appear at all in the secretion of the mammary gland remains an interesting speculation. Either they are derived from the blood stream and excreted analogously to the urinary purin compounds, or they may be formed incident to the nuclear metabolism of the cells that are engaged in the manufacture of the milk solids.

## Medical Mobilization and the War

### New Commandant for Medical Officers' Training Camp

Brig.-Gen. Henry P. Birmingham, M. C., N. A., has been relieved from duty in the office of the Surgeon-General of the Army and directed to proceed to Fort Riley, Kan., to inspect the Medical Officers' Training Camp at that post. On completion of this duty he is to proceed to Fort Oglethorpe, Ga., for duty as commandant of the Medical Officers' Training Camp at Camp Greenleaf.

### Revision of Manual of Instructions for Medical Advisory Boards.

As we go to press it is announced that a medical board consisting of Brig.-Gen. Charles Richard, M. C., N. A., and Major Frank Billings, M. R. C., has been appointed to revise the Manual of Instructions for Medical Advisory Boards working under the Selective Service Law. It is understood that the revision will be extensive and that the manual will be considerably abbreviated. The present manual, as our readers know, represents the work of a large board representing various specialties, together with representatives from the Medical Corps.

### PERSONNEL OF THE MEDICAL DEPARTMENT

For the week ending March 8, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 796, including 1 major-general, 66 colonels, 102 lieutenant-colonels, 177 majors, 2 captains and 448 lieutenants.

MEDICAL RESERVE CORPS: 17,654, including 1,069 majors, 4,063 captains and 12,522 lieutenants. *On active duty:* 14,283, including 942 majors, 3,492 captains and 9,849 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,243, including 11 lieutenant-colonels, 257 majors, 149 captains and 826 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 70, including 4 brigadier-generals, 12 colonels, 49 lieutenant-colonels and 5 majors.

The DENTAL CORPS, 211; DENTAL RESERVE CORPS, 5,114, of whom 1,334 are on active duty; DENTAL CORPS NATIONAL GUARD, 260; VETERINARY CORPS, 24; VETERINARY RESERVE CORPS, 1,400, of whom 781 are on active duty; VETERINARY CORPS NATIONAL GUARD, 57; VETERINARY CORPS NATIONAL ARMY, 294; SANITARY CORPS, 940, and AMBULANCE SERVICE, 138, constitute the remainder of the commissioned personnel.

### Board Organized to Standardize the Care of Remediable Defects

The following named officers have been constituted a board to standardize the management of soldiers with remediable defects and of those with defects not remediable which do not prevent the performance of some military duty; this is in accordance with the provisions of the regulations under the Selective Service Law: Cols. G. E. Bushnell, U. S. Army, retired; F. F. Russell, M. C., U. S. Army; W. H. Moncrief, M. C., N. A.; Lieuts.-Cols. T. L. Rhoads, M. C., U. S. Army; P. W. Huntington, M. C., U. S. Army; E. G. Brackett, M. C., N. A.; W. R. Parker, M. C., N. A.; W. T. Longcope, M. C., N. A., and P. Bailey, M. C., N. A.; Majors W. J. Mayo, M. R. C.; H. P. Mosher, M. R. C., W. H. G. Logan, M. R. C.; J. C. Bloodgood, M. R. C.; C. H. Mayo, M. R. C., and S. Harris, M. R. C.; Contract Surgs. F. R. Hagner and G. W. Wende, alternating. This board is in great part the same as that which prepared the "Manual of Instructions for Medical Advisory Boards." There were twelve men on the former board; there are seventeen on the present board.

### Vacancies in the United States Public Health Service

Owing to greatly increased activities in the Public Health Service, there is urgent need of the services of medical officers for field duty in connection with the sanitation of numerous civil sanitary districts. The salaries of the positions in question vary from $1,800 to $2,500 per annum, depending on the qualifications and experience of the appointees. Men who have been disqualified physically for the Medical Reserve Corps are eligible for appointment, provided they are not suffering from complaints which will seriously interfere with the performance of their duties. It is especially desired to secure the services of competent sanitarians and those who have had previous experience in health work. There are also numerous vacancies for sanitary engineers, scientific assistants, sanitary inspectors, and others. Applications for appointment to these vacancies should be made to the Surgeon-General, U. S. Public Health Service, Washington, D. C., and in order to avoid unnecessary correspondence should include complete data concerning age, nativity, experience and training, and other necessary information.

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[2] The Journal A. M. A., March 9, 1918, p. 712.

[3] Voegtlin, C., and Sherwin, C. P.: Adenine and Guanine in Cow's Milk, Jour. Biol. Chem., 1918, **33**, 145.

### Navy Medical Notes

Surg.-Gen. William C. Braisted, U. S. Navy, is planning to have available the medical personnel and supplies which will be made necessary by the probable passage of legislation authorizing the addition of 50,000 enlisted men to the Navy and Marine Corps.

The new hospital ships *Mercy* and *Comfort*, accommodating 400 patients each, will soon be ready for active service. Surg. Charles M. Oman has been selected as commander of the *Comfort;* no commander has as yet been selected for the *Mercy*. These ships, together with the U. S. S. *Solace*, now in service, gives the Navy Department three hospital ships.

Med. Insp. J. A. Murphy, of the Surgeon-General's Office, spent several days last week studying the needs for hospital expansion at the Philadelphia Navy Yard.

Dr. William Seaman of the Navy has been promoted to be medical inspector and Dr. George B. Trible to be surgeon with the rank of lieutenant-commander.

The following promotions are also announced: Medical Inspector Charles P. Kindleberger to be a medical director with the rank of captain; medical inspectors to be medical directors with the rank of captain: Arthur W. Dunbar and Theodore W. Richards; surgeons to be medical inspectors with the rank of commander: Joseph C. Thompson, Karl Ohnesorg, Frederick W. S. Dean; in the same capacity for temporary service: Clarence F. Ely, Albert J. Geiger, Perceval S. Rossiter, Charles C. Grieve and John D. Manchester; passed assistant surgeons to be surgeons with the rank of lieutenant-commander: William H. Short, Herbert L. Kelley and Julian T. Miller.

### Changes in Manual of Instructions for Medical Advisory Boards

The War Department has authorized a statement to the effect that through an inadvertence there appeared in the manual of instructions from the office of the Provost-Marshal-General, for medical advisory boards, the following paragraph, page 92:

> The foreign born, and especially Jews, are more apt to malinger than the native born.

The attention of the President and Acting Secretary of War having been called to it, the President under date of March 4, wrote the following letter to the Acting Secretary of War:

> I am very much distressed that the sentence quoted in the inclosed telegram should have been contained in the draft instructions to the medical advisory boards. They, of course, represent a view absolutely contrary to that of the administration, and express a prejudice which ought never to have been expressed or entertained. In all of this I am sure you will be kind enough to make an immediate excision of these sentences and instruct the medical advisory boards accordingly, letting it be known, if you will be kind enough, to the senders of the inclosed telegrams that you have done so.
>
> I am making this request with all the greater confidence because I am sure you will sympathize with my point of view in the matter.
>
> Cordially and sincerely yours, Woodrow Wilson.

Mr. Crowell, Acting Secretary of War in the absence of Secretary Baker, responded to the effect that an amendment of the paragraph has been submitted by the Surgeon-General and telegraphed to all the boards. A new reprint of the regulations will be distributed as soon as received from the Government Printing Office, and the edition already distributed is to be recalled and destroyed.

The new paragraph reads:

> CASES WHERE MALINGERING IS SUSPECTED
>
> Cases of malingering are to be detected by positive conclusions resulting from careful examination of claimed defects and ailments. Conclusions based on suspicion engendered by the circumstances or environment of the registrant may result in grave injustice. All suspected cases are to be subjected to such tests as are herein prescribed or to other tests that may be devised by the examiner. The statements of registrants concerning their physical condition should be patiently considered in the same manner applied to other statements affecting his liability to military service, and where fraud or deception is suspected, the statements should be subjected to careful cross-examination and considered in the light of all other evidence obtainable. If investigation of doubtful statements is desired the board may call upon the local authorities of the selective service system for investigation and report.

## NEWS OF THE CANTONMENTS

March 3, 1918.

### Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Surgeons of the ambulance companies of the Twenty-Eighth Division have entered a course in dissection at the University of Georgia Medical School, Augusta.

Lieutenant Wadhams, M. C., of Maine, One Hundred and Ninth Field Artillery, is now acting assistant division surgeon in Lieut.-Col. William Crookston's office, and Major Dillinger is division sanitary inspector.

All men of the division will be required to exhibit their qualifications in first aid work.

### Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

March 11, 1918.

#### ORGANIZATION CHANGES

Changes in the organization of Camp Zachary Taylor are being made. The camp is larger than the division, there being a number of organizations here which do not belong to the Eighty-Fourth Division, among them being the base hospital, Seventeenth Brigade of regulars, camp quartermaster department, school for cooks and bakers, and training school for officers. Major-Gen. Harry C. Hale being the senior officer is in command of the entire camp. The first intimation that two separate organizations were planned was the naming of Lieut.-Col. John H. Allen, former division surgeon, as camp surgeon; the naming of Lieut.-Col. William E. Smart as division surgeon, and detaching Major Luther Poust as division sanitary officer and naming him camp sanitary officer and assistant camp surgeon under Colonel Allen. Capt. Alfred M. Allen has been named as camp adjutant.

#### TENTS FOR MEDICAL OFFICERS

Tents, which have not been used since the First Kentucky Regiment left, will again be pitched to house medical officers detailed to the base hospital. Between 50 and 100 graduates from Army medical training schools are expected to report at the base hospital in the near future. Congested condition of the officers' quarters necessitates this action. Carpenters have begun the additions to the officers' quarters, but these will not be completed in time to receive the new arrivals.

A prisoners' ward is to be erected at the base hospital group at an estimated cost of $5,000. Sick soldiers who are military prisoners will be treated there.

Fifteen Red Cross nurses arrived at the hospital on the fifth instant.

Hospital Unit No. 40 has been mobilized at Camp Zachary Taylor. This unit is under the command of Major David Barrow of Lexington, who is chief surgeon, and Major McClymonds, chief internist. The enlisted personnel is under the command of Capt. Virgil Simpson, M. R. C., of Louisville.

#### INSPECTIONS

Inspections at the base hospital are part of the regular routine now. They occur several times a day by line officers and no one knows what phase the next one will take. General Hale, the commanding general, visited the hospital unexpectedly last week and questioned many men regarding their care, comfort and food. The result of all of this is to keep the medical officers in a turmoil all the time, they are literally "up on their toes" and in all departments there is a feeling of unrest which will undoubtedly be detrimental to the morale of the organization if this form of inspection is continued.

#### PERSONAL

The trial of Major Milton Board, M. R. C., before a special court martial under charges of violation of the eighty-fifth article of war, proceeds slowly. Only five of the many witnesses called had been examined on adjournment of the court on March 9. Much comment was caused by a ruling of Colonel Guthrie, president of the court, that reporters were not to publish anything until the reports had been censored. The matter was laid before General Hale, division commander, who reversed Colonel Guthrie and allowed fullest publicity to the press reports of the trial.

## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending March 1, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (DISEASE ONLY):

| | |
|---|---|
| All Troops | 1,372.2 |
| National Guard Camps | 1,101.7 |
| National Army Camps | 1,557.1 |
| Regular Army | 1,334.6 |

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

| | |
|---|---|
| All Troops | 47.8 |
| National Guard Camps | 42.2 |
| National Army Camps | 54.5 |
| Regular Army | 42.9 |

3. ANNUAL DEATH RATE PER 1,000:

| | |
|---|---|
| All Troops | 6.6 |
| National Guard Camps | 6.4 |
| National Army Camps | 5.9 |
| Regular Army | 7.9 |

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING MARCH 1, 1918

| Camps | Pneumonia | Dysentery | Malaria | Venereal | Measles | Meningitis | Scarlet Fever | Deaths | Annual Admission Rate per 1,000 (Disease Only) | Noneffective per 1,000 |
|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 7 | .. | .. | 15 | 4 | 1 | ... | 2 | 591.8 | 23.6 |
| Hancock | 6 | .. | .. | 23 | 10 | 6 | 3 | 2 | 432.2 | 26.9 |
| McClellan | 5 | .. | .. | 18 | 10 | .. | 2 | 1 | 743.8 | 28.7 |
| Sevier | ... | .. | 2 | 22 | 2 | .. | 1 | 3 | 1,670.1 | 70.0 |
| Wheeler | 9 | 1 | 3 | 45 | 2 | .. | ... | 6 | 1,360.6 | 46.6 |
| Logan | 8 | .. | .. | 70 | 32 | .. | 2 | 2 | 1,127.2 | 34.6 |
| Cody | 30 | .. | .. | 7 | ... | 1 | ... | 2 | 634.8 | 37.5 |
| Doniphan | 14 | .. | 1 | 8 | ... | .. | 3 | 8 | 1,772.2 | 47.6 |
| Bowie | 27 | .. | .. | 74 | 3 | 2 | 1 | 3 | 2,058.2 | 61.0 |
| Sheridan | 2 | .. | .. | 19 | 3 | 1 | 3 | 0 | 443.1 | 21.8 |
| Shelby | 2 | .. | 1 | 29 | ... | .. | ... | 2 | 1,252.0 | 54.2 |
| Beauregard | 26 | .. | 2 | 16 | ... | 2 | ... | 7 | 1,318.1 | 55.4 |
| Kearny | ... | .. | .. | 6 | 1 | .. | 4 | 4 | 1,181.3 | 47.1 |
| Devens | 9 | .. | .. | 68 | 6 | .. | 3 | 5 | 1,077.5 | 36.4 |
| Upton | 7 | .. | .. | 21 | ... | .. | ... | 4 | 575.4 | 23.4 |
| Dix | 1 | .. | .. | 64 | 11 | .. | 9 | 1 | 1,560.9 | 44.7 |
| Meade | 9 | .. | .. | 19 | 15 | .. | 6 | 1 | 508.6 | 30.9 |
| Lee | 14 | .. | .. | 49 | 10 | 2 | ... | 4 | 1,474.3 | 58.0 |
| Jackson | 5 | .. | .. | 29 | 7 | .. | 4 | 4 | 1,794.0 | 71.4 |
| Gordon | 1 | .. | .. | 118 | 1 | .. | ... | 3 | 1,333.7 | 34.9 |
| Sherman | 10 | .. | .. | 31 | 35 | .. | 27 | 3 | 1,934.7 | 61.8 |
| Taylor | 11 | .. | .. | 48 | 13 | 1 | 2 | 5 | 1,612.0 | 60.6 |
| Custer | 5 | .. | .. | 6 | 9 | .. | 6 | 2 | 1,171.4 | 46.0 |
| Grant | 7 | 1 | .. | 10 | 12 | .. | 9 | 3 | 919.3 | 31.3 |
| Pike | 15 | 1 | .. | 138 | 17 | 2 | 9 | 3 | 3,050.9 | 95.6 |
| Dodge | 8 | .. | .. | 111 | 54 | 1 | 11 | 2 | 1,577.3 | 54.4 |
| Funston | 7 | .. | .. | 58 | ... | 3 | 2 | 3 | 2,081.7 | 97.3 |
| Travis | 33 | 1 | .. | 66 | 26 | .. | ... | 8 | 3,081.8 | 72.3 |
| Lewis | 3 | .. | .. | 31 | 52 | 2 | 37 | 0 | 1,404.0 | 65.8 |
| N. E. Department | ... | .. | .. | 13 | 1 | .. | ... | 0 | 984.8 | 31.9 |
| Eastern Dept. | 11 | .. | 2 | 16 | 10 | 1 | 2 | 1 | 681.6 | 27.0 |
| S. E. Department | 4 | 1 | .. | 29 | 13 | 1 | 6 | 5 | 1,456.7 | 46.7 |
| Southern Dept. | 22 | 1 | .. | 85 | 84 | 3 | 4 | 11 | 1,111.8 | 43.2 |
| Central Dept. | 4 | .. | .. | 31 | 10 | 2 | 9 | 1 | 1,499.6 | 47.8 |
| Western Dept. | 12 | .. | .. | 39 | 42 | .. | 8 | 7 | 986.5 | 31.5 |
| Aviation, S. C. | 41 | .. | 3 | 125 | 146 | 3 | 29 | 19 | 1,680.8 | 44.9 |
| Camp Greene | 11 | .. | .. | 17 | 13 | 1 | ... | 1 | 980.0 | 39.8 |
| Camp Fremont | 4 | .. | 1 | 26 | 3 | .. | ... | 0 | 1,304.7 | 45.5 |
| El Paso | ... | .. | .. | 5 | 3 | .. | ... | 0 | 847.1 | 4.6 |
| Fort Slocum | 1 | .. | .. | 12 | 4 | .. | 1 | 2 | 1,762.2 | 39.2 |
| Columbus Bks. | 2 | .. | .. | 13 | ... | .. | 2 | 0 | 1,970.5 | 60.5 |
| Fort Thomas | ... | .. | .. | 6 | ... | 1 | ... | 4 | 1,634.3 | 77.6 |
| Jefferson Bks. | 4 | .. | .. | 7 | 14 | .. | 6 | 0 | 2,025.2 | 127.1 |
| Fort Logan | 5 | .. | .. | 2 | 7 | .. | 3 | 0 | 2,249.3 | 74.9 |
| Fort McDowell | ... | .. | .. | 2 | 6 | .. | 1 | 0 | 1,698.6 | 52.0 |
| D. B. Fort Leavenworth | ... | .. | .. | 1 | ... | .. | ... | 0 | 1,368.4 | 30.5 |
| D. B. Alcatraz | ... | .. | .. | .... | ... | .. | ... | 0 | 656.1 | 15.7 |
| Aberdeen P. G. | ... | .. | .. | .... | 1 | .. | ... | 0 | 2,451.0 | 54.0 |
| Allentown, A.C.C. | 7 | .. | .. | 1 | 2 | .. | ... | 0 | 1,516.6 | 33.2 |
| Camp Humphreys | ... | .. | .. | 11 | ... | .. | ... | 0 | 1,858.5 | 18.9 |
| J. E. Johnston | 1 | .. | .. | 25 | 17 | .. | 1 | 0 | 913.3 | 32.0 |
| Camp Meigs | 2 | .. | .. | 11 | 7 | .. | 1 | 0 | 2,648.6 | 35.5 |
| Camp Merritt | 17 | .. | .. | 20 | 5 | .. | 37 | 4 | 1,526.4 | 62.2 |
| Camp Stuart | 19 | .. | .. | 9 | 8 | 1 | 1 | 5 | 1,754.1 | 53.7 |
| West Point, N. Y. | ... | .. | .. | .... | 19 | .. | ... | 0 | 1,052.0 | 20.2 |
| N. G. Depts. | 1 | .. | .. | 16 | 24 | .. | 4 | 2 | . | |
| N. A. Depts. | 15 | .. | 1 | 136 | 46 | .. | 25 | 2 | | |
| Total | 464 | 6 | 16 | 2,292 | 820 | 37 | 284 | 157 | 1,372.2 | 47.8 |

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

| | All Troops in U. S., Week Ending Mar. 1, 1918 | Regulars in U. S., Week Ending Mar. 1, 1918 | National Guard, All Camps, Week Ending Mar. 1, 1918 | National Army, All Camps, Week Ending Mar. 1, 1918 | Expeditionary Forces, Week Ending Feb. 21, 1918 |
|---|---|---|---|---|---|
| Pneumonia | 19.7 | 22.0 | 20.6 | 16.8 | 21.3 |
| Dysentery | 0.2 | 0.2 | 0.1 | 0.3 | 0.4 |
| Malaria | 0.5 | 0.8 | 1.3 | 0.0 | 0.4 |
| Venereal | 97.1 | 121.5 | 53.4 | 100.6 | 55.3 |
| Paratyphoid | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Typhoid | 0.2 | 0.6 | 0.0 | 0.1 | 0.0 |
| Measles | 34.7 | 54.7 | 10.2 | 31.1 | 26.9 |
| Meningitis | 1.5 | 1.7 | 1.9 | 1.3 | 6.0 |
| Scarlet fever | 12.0 | 14.6 | 2.9 | 14.5 | 10.5 |

## PROMOTIONS

### Captains of the Medical Reserve Corps Recommended for Promotion as Majors, from Jan. 7-Feb. 10, 1918

JOS. W. BAUMAN, Lansdale, Pa.; SHADWORTH OLDHAM BEASLEY, San Francisco, Calif.; SIDNEY R. BURNAP, New York City; JOSEPH C. BREITLING, San Antonio, Tex.; CHAS. SUMNER CHRISTIE, Riverpoint, R. I.; EDGAR B. FRIEDENWALD, Baltimore, Md.; JOHN VINCENT LITTIG, Davenport, Ia.; JOHN HANCOCK McCLELLAN, Chicago; ELI B. MOSS, Chicago; GEO. ALLEY RENN, Norfolk, Va.; JAMES T. RUGH, Philadelphia, Pa.; FREDERICK WM. SHAW, Mt. Vernon, Mo.; EDWARD D. SINKS, Lima, Ohio; ROBERT L. I. SMITH, Pasadena Calif.; MARTIN J. SYNNOTT Montclair, N. J.; and DAYTON CARROLL WIGGIN, Rosebank, Staten Island.

### First Lieutenants of the Medical Reserve Corps Recommended for Promotion as Majors, from Jan. 26-Feb. 2, 1918

WM. GRANVILLE BAIRD, Oak Hill, Okla.; ALFRED J. BROWN, New York City; and JAMES SPROAT GREEN, Elizabeth, N. J.

### First Lieutenants of the Medical Reserve Corps Recommended for Promotion as Captains, from Dec. 10, 1917-Feb. 9, 1918

HERMAN E. ALBRECHT, Philadelphia, Pa.; GERHARD A. BADING, Milwaukee, Wis.; WM. E. BAXTER, Topsfield, Mass.; HENRY SMITH BARTHOLOMEW, New York City; IRA BENNETT BARTLE, North Bend, Ore.; ANTHONY H. BENNEWITZ, Cicero, Ill.; PIERRE BERGERON, Manchester, N. H.; THOMAS B. BIRD, New Orleans, La.; FREDERICK WALLACE BLACK, Punxsutawney, Pa.; WALTER PARKS BLISS, New York City; RUDOLPH BLOOM, Washington, D. C.; DAVID OLIVER BRIDGFORTH, Forrest City, Ark.; WALLACE L. BRITT, Jackson, Miss.; RALPH EARLE BRODIE, Albion, N. Y.; BAIRD U. BROOKS, W. Durham, N. C.; ALFRED JOSEPH BUKA, Pittsburgh, Pa.; HENRY EDGAR BUNCH, Jr., Kennecott, Alaska; WM. JOHN BURDELL, Lugoff, S. C.; TULLIE VAN BOYD, E. St. Louis, Ill.; FREDERICK DEAN CARTWRIGHT, Bowling Green, Ky.; WM. EDWIN CHAPMAN, Leland, Ill.; GLENN LONG COAN, Wyandotte, Mich.; JAMES L .COBB, New York City; FRANK ALBERT DAVIS, Boston, Mass.; FREDERICK EARLE DIEMER, Hot Springs, Ark.; RICHARD B. DILLEHUNT, Portland, Ore.; ROLLAND B. DOIG, Schenectady, N. Y.; SAM WRIGHT DONALDSON, Maryville, Tenn.; RAFAEL GABRIEL DUFFICY, San Rafael, Calif.; DOYLE LEE EASTLAND, Waco, Texas; LANCELOT ELY, Somerville, N. J.; JESSE ETTELSON, New York City; MERTON ALMOND FARLOW, Melroy, Ind.; JESSE FRANKLIN GAMBLE, Houston, Texas; JULIAN E. GAMMON, Jacksonville, Fla.; EDGAR LORRINGTON GILCREEST, Gainesville, Texas; JOSEPH GIRSDANSKY, New York City; HUBERT GRIEGER, Englewood, Colo.; ORVILLE R. HAGEN, Patterson, N. J.; ARTHUR JOSEPH HALL, Washington, D. C.; CHARLES WESLEY HALL, Mt. Vernon, Ill.; WALTER E. HEMPSTEAD, Oregon City, Ore.; WALTER LOWNY HENDERSON, East McKeesport, Pa.; RALPH HENDRICKS, Spokane, Wash.; AUGUST G. HINRICHS, Pittston, Pa.; LOUIS HOUGH, Denver, Colo.; RAYMOND G. HUSSEY, Baltimore, Md.; SAMUEL JAFFE, Norristown, Pa.; JAMES CRAIK JANNEY, Boston, Mass.; CHAS. WORLEY JONES, Elma, Wash.; CLARENCE KENNETH JONES, Indianapolis, Ind.; MILTON B. KATZENSTEIN, Pittsburgh, Pa.; BENJAMIN W. KELLY, Aitkin, Minn.; JERE WILLIAMS KIRKPATRICK, Copenhagen, Tenn.; ROLLAN W. KRAFT, Ann Arbor, Mich.; E. GECONIA MAXWELL, Barden, Tenn.; EDWIN McKAY, Charleroi, Pa.; GEO. C. MILLER, Kansas City, Mo.; EVERETT HUMPHREY MORGAN, Gallipolis, Ohio; WM. ALEXANDER MORGAN, New York City; OTIS P. MORGANTHALER, Templeton, Iowa; HARRY THOS. MORTON, New York City; LEO C. MUNDY, Wilkes-Barre, Pa.; ARTHUR L. MUNGER, Sacramento, Calif.; WOODFIN GRADY PAGE, Dothan, Ala.; CHAS. B. PALMER, Phoenix, Ariz.; CHAS. ARTHUR PAUSON, San Francisco, Calif.; KENNETH ALLEN PHELPS, West Point, N. Y.; WM. SCOTT PIPER, Clearfield, Pa.; ROBERT B. PRATT, Bellefontaine, Ohio; ADDISON J. PROVOST, Oshkosh, Wis.; WM. ELKIN RAKEN, Philadelphia, Pa.; JAMES WM. ROBINSON, Pittsburgh, Pa.; ROY THOMAS RODAWAY, Chicago; BERTOLET PERRY ROSEN-

BERRY, Winona, Minn.; PAUL RICHARD EDDINS SHEPPARD, Terrell, Texas; CHAS. ANTHONY SQUIRES, Binghamton, N. Y.; WM. CLIFTON STIFF, Plymouth, Pa.; WAID JAMES STONE, San Rafael, Calif.; JEROME F. STRAUSS, Chicago; JOHN M. TRACY, Springfield, Mass.; CHAS. DAVID TREISTER, Cleveland, Ohio; DONALD V. TRUEBLOOD, Seattle, Wash.; JAMES F. WAGNER, Bristol, Pa.; THOMAS E. WALKER, Cleveland, Ohio; CHAS. LEONARD WEBER, Cairo, Ill.; B. F. WEEMS, Jr., New York City; ROY DELISLE WILSON, Houston, Texas; CARL H. WITHERELL, Augusta, Me., and CHAS. SIAS WRIGHT, Portland, Me.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Camp Dix,* Wrightstown, N. J., to make inspection and on completion *to his proper station,* Col. EDWARD L. MUNSON. As assistant to camp surgeon, from Camp Dix, Lieut. VAL EMILE MILTENBERGER.

*To Camp Meade,* Annapolis Junction, Md., to make inspection, and on completion *to his proper station,* Col. JOSEPH N. WHITE. For duty, from Fort Des Moines, Lieut.-Col. ERNEST G. BINGHAM. As assistant to camp surgeon, Major GUY L. QUALIS.

*To Fort Oglethorpe* to organize and inspect instruction in tuberculosis and cardiovascular examinations and on completion *to his proper station,* Col. GEORGE E. BUSHNELL; Lieut.-Col. WARFIELD T. LONGCOPE.

*To New York City* for duty and on completion *to his proper station,* from Philadelphia, Col. CARROLL D. BUCK. To make inspection of disinfecting plants and on completion *to his proper station,* Col. CLAUDE E. MORGAN. For investigation and on completion *to his proper station,* Lieut.-Col. EDWARD B. VEDDER.

*To Camp Doniphan,* Fort Sill, Okla., for temporary duty, from Camp Logan, Lieut.-Col. SAMUEL S. CREIGHTON.

*To Camp Gordon,* Atlanta, Ga., for temporary duty, from Camp Greene, Lieut.-Col. CONDON C. McCORMACK.

*To Cape May, N. J.,* Ordnance Proving Grounds and Gas Shell Proving Ground, Aberdeen, Md., and *Ordnance Filling Station,* Edgewood, Md., for inspection and on completion *to his proper station,* Lieut.-Col. FRANK W. WEED.

*To Fort Des Moines, Ia.,* as commanding officer of base hospital, from Camp Dodge, Lieut-Col. ALEXANDER T. COOPER.

*To Army Medical School* for duty, from Rockefeller Institute, Major CLARENCE L. COLE, Lieut. ROYAL K. STACEY.

*To Camp Greenleaf,* Fort Oglethorpe, Ga., Evacuation Hospital, for temporary duty, from Camp Greenleaf, Majors WILLIAM H. ALLEN, WILLIAM D. HERBERT.

*To Camp Sherman,* Chillicothe, Ohio, base hospital, from Fort Benjamin Harrison, Majors LEOPOLD MITCHELL, ALEXANDER W. WILLIAMS.

*To Fort Riley,* Evacuation Hospital, for temporary duty, from Fort Riley, Majors ROBERT H. DÜENNER, SAMUEL J. TURNBULL.

*To Hoboken, N. J.,* for duty, from Cape May, Major JAMES S. FOX.

*To Garden City,* L. I., N. Y., as sanitary inspector, from Camp Jackson, Capt. WILLIAM C. RIDDLE.

*To Camp Lee,* Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. CLAY R. MURRAY.

*To Fort Sam Houston, Texas,* department laboratory, from Fort Bliss, Lieut. JAMES S. SIMMONS.

The following officers of the Medical Reserve Corps who have passed the preliminary examination for appointment in the Medical Corps of the Army will proceed *to the Army Medical School* for the required course of instruction: Lieuts. PHILIP H. CLARKE, JOHN E. DWYER, Jr., BOWERS H. GROWT, CARL FREUND, EARLE K. HALLOCK, MICHAEL G. HEALY, LELAND O. W. MOORE, LUTHER R. MOORE, LESTER A. SMITH, WILLARD H. WATEROUS, RALPH G. WILLY; from Camp Bowie, Lieut. ROBERT S. CUNNINGHAM; from Camp Dodge, Lieut. ARTHUR V. MURTHA; from Camp Greene, Lieut. FRANCIS E. WEATHERBY; from Camp Jackson, Lieut. FLOYD C. SHUGART; from Camp McClellan, Lieut. ROBERT G. FULLER; from Camp Sheridan, Lieut. CHARLES L. MAXWELL; from Fort Clark, Capt. W. AUDA V. CASH, Lieut. RAWLEY W. WARD; from Fort Riley, Lieut. LEO C. DONNELLY; from Fort Sam Houston, Lieut. DONALD H. PITTS; from New York City, Lieuts. CLAYTON L. McCOY, CHARLES W. PEABODY; from San Antonio, Lieut. JAMES J. FITZGERALD.

## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Army Medical School* for instruction, Lieut. JOSEPH W. SPEARING, Anniston.

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to Camp Devens,* base hospital, from Fort Oglethorpe, Lieut. MILES A. WATKINS, Birmingham.

*To Camp Greene,* Charlotte, N. C., *Camp Wadsworth,* Spartanburg, S. C., *Camp Sevier,* Greenville, S. C., for inspecting the base hospitals, and on completion *to his proper station,* Major SEALE HARRIS, Birmingham.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp Beauregard, Lieut. JAMES H. PHILLIPS, Dora.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. HIRAM O. BARKER, Cardiff.

*To Fort Bayard,* New Mexico, for duty, from Camp Hancock, Lieut. ERNEST A. MOORE, Coatopa.

*To Fort Oglethorpe* for duty, from Fort Oglethorpe, Lieut. ERNEST C. HAGOOD, Springfield. For instruction, from duty as a private at Fort McPherson, Lieut. JOHN PRATHER, Seale.

### Arizona

*To Fort Riley* for instruction, from Nogales, Ariz., Capt. CHARLES FORD, Nogales. For instruction, Lieut. JACOB PRITCHARD, Winslow.

### Arkansas

*To Camp Custer,* Battle Creek, Mich., for duty, from Fort Riley, Lieut. LEE V. PARMLEY, Little Rock.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. WILBUR R. HARWELL, Osceola.

*To Fort Oglethorpe* for instruction, Lieut. NEWMAN B. BURCH, Colt. Hospital train, from Fort Riley, Lieut. SHEROD A. DRENNEN, Rush.

*To Fort Riley* for instruction, Lieut. WILLIAM J. KING, Branch.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. EDGAR L. LINDSEY, Fort Smith; MATTHEW A. BISSELL, Texarkana.

### California

*To Alcatraz,* California, for temporary duty, from Camp Kearny, Lieut. FRED C. SHURTLEFF, Los Angeles.

*To Army Medical School* for instruction, Lieut. JOHN W. ROBINSON, Stockton.

*To Camp Cody,* Deming, N. M., *Camp Travis,* Fort Sam Houston, Texas, *Camp Beauregard,* Alexandria, La., for duty and on completion *to his proper station,* from Camp Kearny, Major PHILIP S. CHANCELLOR, Santa Barbara. *To Camp Cody,* base hospital, Lieut. GEORGE P. HALL, Sunnyvale.

*To Camp Kearny,* Linda Vista, Calif., base hospital, Capt. CLARENCE E. IDE, Los Angeles.

*To Chicago, Ill.,* Northwestern University Dental School, for instruction, Capt. EMIL F. THOLEN, Los Angeles.

*To Hoboken, N. J.,* for duty, Major CLARENUCE QUINAN, San Francisco.

*To Los Angeles, Calif.,* for orthopedic instruction, Lieuts. FRANK J. BRESLIN, JAMES H. McLAUGHLIN, Los Angeles; RALPH M. SMITH, San Bernardino.

*To report* to the Commanding General, Southern Department, Fort Sam Houston, Texas, for duty, from San Antonio, Major FREDERICK P. GAY, Berkeley.

*To San Francisco, Calif.,* for duty, from Camp Kearny, Capt. THOMAS J. ORBISON, Los Angeles.

*To Western Department,* San Francisco, Calif., for duty, Lieut. MEYER B. FRACTMAN, San Francisco.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. JACK K. HANSON, Newman; Lieuts. HOWARD B. DIXON, Daly City; JOHN G. ABBOTT, Riverside.

### Colorado

*To Fort Riley* for instruction, Lieut. SAMUEL B. McFARLAND, Longmont. Hospital train, from Fort Riley, Lieut. ARTHUR E. GILL, Sopris.

*To Fort Sam Houston, Texas,* for temporary duty, from St. Louis, Lieut. FRED F. STOCKING, Florista.

*To Markleton, Pa.,* U. S. Army General Hospital, for duty, from Camp Joseph E. Johnston, Capt. PHILIP A. LOOMIS, Colorado Springs; from Camp Sheridan, Capt. HENRY W. HOAGLAND, Colorado Springs.

### Connecticut

*To Army Medical School* for instruction, Lieut. HERBERT C. OELSCHLEGEL, Torrington.

*To Belleville, Ill.,* Scott Field, Signal Corps Aviation School from Fort Riley, Lieut. EDWARD J. HOWLAND, Colchester.

*To Camp Doniphan,* Fort Sill, Okla., *Fort Riley, Camp Dodge,* Des Moines, Iowa, for duty and on completion *to his proper station,* from Camp Bowie, Major James C. GREENWAY, Greenwich.

*To Camp Lee,* Petersburg, Va., base hospital, Lieuts. SAMUEL J. CHERNAIK, New Britain; GEORGE A. LEONARD, Waterbury.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp Meade, Capt. WILLIAM T. OWENS, Hartford.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, Lieut. WILLIAM L. SHEAHAN, New Haven.

*To Fort Oglethorpe,* base hospital, from Army Medical School, Lieut. WILLIAM F. COLLINS, New Haven. For instruction, Lieuts. WILLIAM C. GAYLORD, Branford; JAMES A. HARTEN, FREDERICK H. HYNES, New Haven: from duty as a private at Camp Devens, Lieut. ABRAHAM B. GROSS, Hartford.

*To San Antonio, Texas.* Kelly Field, for duty, from Camp Travis, Lieut. ARTHUR F. McDONALD, Waterbury.

### District of Columbia

*To Camp Hancock,* Augusta, Ga., base hospital, on completion of his instruction at the Rockefeller Institute, Lieut. EUGENE C. RICE, Jr., Washington.

*To Camp Upton,* L. I., N. Y., base hospital, on completion of his instruction at Rockefeller Institute, Lieut. JOHN J. O'LEARY, Washington.

*To Fort Oglethorpe* as instructor, from Fort Oglethorpe, Capt. HENRY C. DREW, Washington. For instruction, Capt. RODMAN H. WILLIAMS, Washington.

### Florida

*To Arcadia,* Carlstrom Aviation Field, for temporary duty, from Aberdeen, Md., Lieut. HENRY P. BEVIS, Arcadia.

*To Fort Benjamin Harrison, Ind.,* Hospital Train, from Fort Oglethorpe, Lieut. WALTER P. DICKINSON, Nichols.

*To Fort Oglethorpe* as instructor, from Fort Oglethorpe, Capts. JULIAN E. GAMMON, Jacksonville; for instruction, Capt. FRANK F. FERRIS, Tallahassee.

*To Washington, D. C.,* Government Hospital for the Insane, for intensive training from Fort Oglethorpe, Lieut. JOSEPH P. SCHELL, Chipley.

### Georgia

*To Camp Greene,* Charlotte, N. C., base hospital, Capt. WILLIAM W. CARNOG, Lavonia.

*To Camp Hancock,* Augusta, Ga., for duty, Lieut. ULDRICK McL. KIEFER, Savanah.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. SEARLE B. GILLESPIE, Willacoochee.

*To Fort Oglethorpe,* for instruction, from Allentown, Pa., Lieut. GORDON BURNS, Douglas. On completion of his instruction at Rockefeller Institute, Lieut. ROLAND L. BROOKS, Geneva.

*To Hoboken, N. J.,* hospital train, Lieut. WILLIAM H. LYDAY, Hampton.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieut. JAMES D. DELAMAR, West Point.

*To New York City,* Post-Graduate Medical School and Hospital, for instruction in urology and dermatology from Fort Oglethorpe, Capt. WALPOLE C. BREWER, Atlanta; Lieut. CHARLES J. WOODS, Darien.

*To Pittsburgh, Pa.,* Carnegie Institute of Technology, for instruction in automobile maintenance and gas engine operation and on completion *to his proper station,* Lieut. LUCIUS K. PATTERSON, Cuthbert.

*Resignation* of Lieut. AUSTIN J. KEMP, Tifton, accepted.

### Idaho

*To Fort Oglethorpe* for instruction, from Fort Caswell, N. C., Lieut. CLYDE E. WATSON, Nampa.

*To Fort Riley,* for instruction, Capt. JOSEPH ASPRAY, Moscow.

### Illinois

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. RICHARD W. DENEY, OLIVER R. SPALDING, SIDNEY N. TROCKEY, FRANK W. YOUNG, Chicago; FRANK E. SMITH, Decatur; HARLEY G. STANTON, East St. Louis; FLOYD E. BEST, Freeport; ERNEST C. ASBURY, O'Fallon; ERNEST J. WORTHINGTON, Olney; HOMER P. MacNAMARA, Springfield; ALAN G. BROOKS, Stoy.

*To Belleville,* Scott Field Signal Corps Aviation School, from Camp Custer, Capt. WILLIAM J. UPPENDAHL, Peoria.

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to Fort Ethan Allen, Vt.,* for duty, from Fort Oglethorpe, Lieut. LOUIS C. SONDEL, Columbia.

*To Camp Beauregard,* Alexandria, La., base hospital, from Camp MacArthur, Capt. HARRY ROBESTEIN, Chicago.

*To Camp Custer,* Battle Creek, Mich., for duty, from Fort Riley, Lieuts. ABRAHAM L. DESSER, HARRY J. DWYER, HENRY C. JOHNSON, Chicago; Lieut. LEO V. GATES, Zeigler.

*To Camp Dodge,* Des Moines, Ia., base hospital, Lieuts. SAMUEL STEIN, ALBERT VANDERKLOOT, Chicago.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Capt. OSCAR A. HANSEN, Lieut. CHARLES B. BROMBERG, Chicago. Base Hospital, Lieuts. JAMES E. HUNTER, Chicago; HOBART C. RUDDICK, Condoval; ROY D. SHORT, Melrose Park.

*To Camp Gordon,* Atlanta, Ga., Military School of Aeronautics, from Camp Gordon, Lieut. OTTO J. SCHOTT, Chicago.

*To Camp John Wise,* San Antonio, Texas, for duty, from Fort Riley, Lieut. CHARLES N. COEN, Cornell.

*To Camp MacArthur,* Waco, Texas, Aviation Mobilization Corps, from Camp Hancock, Lieuts. ALEXANDER A. DRILL, Chicago. For duty from Fort Riley, HARRY S. SOLOMON, Chicago.

*To Camp Pike, Little Rock, Ark.,* base hospital, Lieut. VICTOR P. DIEDERICH, Chicago.

*To Camp Sevier,* Greenville, S. C., base hospital, Capt. JOSEPH C. FRIEDMAN, Chicago.

*To Camp Shelby,* Hattiesburg, Miss., *Camp Sheridan,* Montgomery, Ala., *Camp McClellan,* Anniston, Ala., for duty, and on completion *to his proper station,* from Camp Pike, Major ARTHUR SMALL, Chicago. Base hospital, Lieuts. WILLIAM V. GOODER, Marengo; JOHN W. MARTIN, Oliver.

*To Camp Sheridan,* Montgomery, Ala., base hospital, from Camp Sheridan, Capt. FORD C. WALSH, Rock Island.

*To Camp Taylor,* Louisville, Ky., base hospital, Lieuts. HYMAN W. BAU, RALPH WALDO CARPENTER, HARRY KATZ, MAX J. MINKER, MEYER S. PEDOTT, Chicago; FLORIAN G. OSTROWSKI, Cicero.

*To Chicago,* Northwestern University Dental School, for instruction, Lieuts. HARRY E. VANDER BOGART, SAMUEL C. FLEMING, Chicago.

*To Dansville, N. Y.,* for duty, from Fort Riley, Leiut. ALFRED T. EIDE, Chicago.

*To Fort Benjamin Harrison, Ind.,* for duty, from Fort Benjamin Harrison, Capt. EUGENE A. MOULTON, Chicago.

*To Fort Oglethorpe* for instruction, Capt. JAMES H. WILLIAMSON, Danville; from Camp Grant, Capt. FRENCH S. CARY. For instruction, Lieuts. LEROY H. HARNER, CHARLES F. HARRIS, CLAYTON J. HYSLEP, REXIN P. JOHNSON, Chicago; GEORGE P. POWELL, Dixon; THOMAS K. BOWLES, Ludlow; CLARENCE E. FRYBARGER, Oak Park; from Key West Barracks, Florida, Lieut. EDWARD G. SEPPLE, Chicago.

*To Fort Riley,* Evacuation Hospital, from Fort Riley, Lieut. EDWARD MacDONALD, Chicago. Hospital train, from Fort Riley, Lieuts. ULYSSES S. GEIGER, Chicago; GEORGE O. DEMOSS, Cropsey; LAWRENCE J. BERNARD, East St. Louis; CLYDE J. CHAMNESS, Elkville.

*To Fort Sam Houston, Texas,* for duty, on completion of his instruction at New York City, Lieut. FREDERICK H. MAURER, Peoria.

*To Fort Sill, Okla.,* Fort Field, for duty, from Camp Doniphan, Lieut. David R. Scott, Macomb.

*To Newport News, Va.,* for duty, from St. Louis, Capt. ROBERT L. MORRIS, Decatur.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to his proper station,* from Williamsbridge, Lieut. CHARLES S. PHALEN, Harvard.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. CHARLES H. MANLOVE, Jr., Chicago.

*To St. Paul, Minn.,* for duty, from Rantoul, Capt. OSCAR YARNELL, Decatur.

*To Waco, Texas,* Aviation Mobilization Camp, from Fort Riley, Lieuts. JOHN E. McGUIGGAN, Chicago; WILLIAM H. RYANS, Murphysboro; HARRY H. HANLEY, Peoria; JOHN J. WILKINSON, Springfield; GEORGE W. KIMBALL, Stewart.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. FREDERICK H. FERGUSON, Chicago.

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. JOHN H. FRANKLIN, Spring Valley.

*Resignations* of Lieut. WILLIAM THOMSON, Belknap; ORIN R. WAKEFIELD, Princeton, and H. A. ZINSER, Washington, accepted.

### Indiana

*To Army Medical School,* Washington, D. C., for duty, from Rockefeller Institute, Capt. KARL C. EBERLY, Fort Wayne. For instruction, Lieuts. CHARLES E. MARTIN, Carlos; GEORGE C. TAYLOR, Claypool; ALBERT A. WATTS, Gary; DONALD L. MILLER, Indianapolis.

*To Camp American University,* Washington, D. C., as camp surgeon, from Camp American University, Capt. CLARENCE K. JONES, Indianapolis.

*To Camp Logan,* Houston, Texas, base hospital, from St. Louis, Lieut. WARREN D. CALVIN, Fort Wayne.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from Camp Meade, Lieut. LOUIS A. BOLLING, Attica.

*To Camp Sevier,* Greenville, S. C., base hospital, Lieut. MELVIN S. TETERS, Middlebury.

*To Fort Oglethorpe* as commanding officer of hospital train, from Fort Oglethorpe, Lieut. IRVING H. WILLETT, Valparaiso.

*To Fort Riley* for instruction, from Fort Riley, Lieut. FRED G. EBERHARD, South Whitley.

*To New Orleans, La.,* for instruction, and on completion *to his proper station,* from Camp Travis, Lieut. GEORGE L. MARSHALL, Bourbon.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieut. HARRY B. GUDGEL, Princeton.

*To San Francisco, Calif.,* for instruction and on completion *to Camp Kearny,* Linda Vista, Calif., base hospital, from South Bend, Wash., Lieut. ARLIE J. ULLRICH, Aurora.

*Honorably discharged,* Capt. CHARLES F. HOPE, Coatesville.

*Resignations* of Capts. WILLIAM R. PHILLIPS, Glenwood, CHARLES E. STONE, Shoals, accepted.

### Iowa

*To Army Medical School,* Washington, D. C., for instruction Lieuts. EDWARD C. HENRY, Oil City; JAMES K. GUTHRIE, Rockwell.

*To Camp Cody,* Deming, N. M., base hospital, Lieut. DAN W. SHINE, Oelwein; Lieuts. FRANCIS J. HOMBACH, Council Bluffs; JAMES E. DYSON, Manilla; GEORGE E. HERMANCE, Marshalltown.

*To Camp Custer,* Battle Creek, Mich., for duty, from Fort Riley, Lieuts. GEORGE S. GILPIN, Des Moines; OLIVER E. McGREW, Grandview.

*To Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. JAMES A. PORTER, Hedrick.

*To Camp John Wise,* San Antonio, Texas, for duty, from Fort Riley, Lieut. ERNEST D. COOK, Maquokata.

*To Camp Sherman,* Chillicothe, Ohio, base hospital, from Rockefeller Institute, Capt. GEORGE A. PLUMMER, Cresco.

*To Chicago,* Northwestern University Dental School, for instruction, Lieut. GEORGE R. NARRLEY, Keokuk.

*To Danville, N. Y.,* for duty, from Fort Riley, Lieut. MILTON A. GIVEN, Des Moines.

*To Fort Oglethorpe,* for instruction, Capt. GEORGE R. HILL, Charter Oak; Lieuts. WILLIAM L. GRIFFIN, Charles City; JAMES E. EDGINGTON, Washington.

*To Fort Riley,* for instruction, Capt. PRINCE E. SAWYER, Sioux City.

### Kansas

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. CHARLES W. ROBINSON, Atchinson; ALBERT A. STOLL, Longton; EARL C. LIGHTFOOT, Mineral.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. EDWARD K. LAWRENCE, Great Bend.

*To Camp John Wise,* San Antonio, Texas, for duty, from Fort Riley, Lieut. GUY H. WINSLOW, Grainsfield.

*To Camp MacArthur,* Waco, Texas, Aviation Mobiliatzion Camp, from Fort Riley, Lieut. DAVID E. KISECKER, Caldwell; Lieut. JOHN C. McKINNON, Caldwell.

*To Chicago,* Northwestern University Dental School, for instruction, and on completion *to Fort Riley,* for temporary duty, from Fort Riley, Capt. HARRY L. CHAMBERS, Lawrence.

*To Fort Riley,* for instruction, Lieut. EARL J. FORST, Wichita.

*To New Haven, Conn.,* for duty, from Fort Riley, Capt. JOHN B. BRICKNELL, Americus.

*To Newport News, Va.,* for duty, from Fort Logan H. Roots, Lieut. CLYDE M. ZINK, Wellington.

*To Waco, Texas,* Aviation Mobilization Camp, from Fort Riley, Lieut. GEORGE W. MATESON, Wichita.

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. CLAUDE F. HAYES, Arlington.

### Kentucky

*To Army Medical School,* Washington, D. C., for instruction, Capt. GRIFFIN C. KELLY, Louisville.

*To Camp A. A. Humphreys,* Accotink, Va., for duty, from Fort Oglethorpe, Lieut. EARLE E. SMITH, Fristoe.

*To Camp Beauregard,* Alexandria, La.; *Camp Pike,* Little Rock, Ark.; *Camp Bowie,* Fort Worth, Texas, and *Camp MacArthur,* Waco, Texas, for duty, and on completion *to his proper station,* from Camp Logan, Major JOHN H. BLACKBURN, Bowling Green.

*To Camp Bowie,* Fort Worth, Texas, base hospital, Capt. GEORGE H. DAY, Louisville.

*To Camp Custer,* Battle Creek, Mich., for duty, from Fort Riley, Lieut. ZACHARY M. ABSHEAR, Buckhorn.

*To Camp Greene,* Charlotte, N. C., base hospital, Lieut. ZEBULEN H. SCHULTZ, Utica.

*To Camp Sevier,* Greenville, S. C., base hospital, from Camp Sevier, Lieut. RICHARD R. SNOWDEN, Irvine.

*To Fort Oglethorpe,* for instruction, from Camp Meade, Capt. WALTER A. LACKEY, Paducah; from Camp Zachary Taylor, Capt. MARVIN S. NEAL, Daniel Boone. For instruction, Lieut. HENRY D. BERRYMAN, Eastwood.

*To Pittsburgh,* for instruction, and on completion *to Camp Dodge,* base hospital, Capt. WILLIAM S. LITTLE, Owensboro.

*To their homes* and honorably discharged, Lieuts. JOHN G. SIDDENS, Lucas; HOMER A. SUTTER, Newport. On account of physical disability existing prior to his entrance into the service, Lieut. HUGH L. McLEAN, Wilmore.

Resignations of Lieuts. HERMAN T. CARTER, Gilbertsville, and JOSEPH H. ALLEN, Langley, accepted.

### Louisiana

*To Camp A. A. Humphreys,* Accotink, Va., for duty, from Rockefeller Institute, Lieut. CHARLES W. PHILLIPS, Lensburg.

*To Camp Pike,* Little Rock, Ark., as orthopedic surgeon, from Camp Pike, Lieut. EARL D. McCLEAN, Oskaloosa.

*To Fort Oglethorpe,* for instruction, Lieut. EWELL A. KLEINPETER, Thibodaux. Hospital train, from Fort Oglethorpe, Lieut. PHILIP H. NEVITT, Plain Dealing.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Lieut. WINFIELD N. FLOYD, New Orleans.

*To Rockefeller Institute,* for instruction in laboratory work, and on completion *to Army Medical School* for duty, from Camp Logan, Lieut. EDWARD B. F. FAGET, New Orleans.

*To Waco, Texas,* Aviation Section, Signal Corps, Lieut. JOSEPH M. HOUNTHA, New Orleans.

*To his home* and honorably discharged, Lieut. WALTER C. MIDDLETON, Cravens.

### Maine

*To Army Medical School,* for instruction, Lieuts. ALBERT G. KINNEY, Blue Hill; DANA F. CUMMINGS, Cherryfield.

*To Camp Jackson,* Columbia, S. C., base hospital, Major THOMAS J. BURRAGE, Portland.

*To Camp Logan,* Houston, Texas, as a member of a board to examine the command for nervous and mental diseases, from Camp Shelby, Capt. FRANK E. LESLIE, Andover.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. H. W. JOHNSON, Wytopitlock.

*To Fort Oglethorpe,* for instruction, Lieut. WALTER W. HENDEE, National Soldiers' Home. Hospital train, from Fort Oglethorpe, Lieut. HARRY L. KILGORE, Belfast.

### Maryland

*To Army Medical School,* for instruction, Capt. JOSEPH W. COOK, JOHN G. MURRAY, Baltimore. For duty, Lieut. CHARLES A. LAUBACH, Baltimore.

*To Camp Devens,* Ayer, Mass., tuberculosis examining board, from Camp Upton, Lieut. SAMUEL NEWMAN, Baltimore.

*To Camp Greene,* Charlotte, N. C., base hospital, Lieut. BRYANT E. HARRELL, Baltimore.

*To Camp Hancock,* Augusta, Ga., base hospital, on completion of instruction at Rockefeller Institute, Lieut. VERNON S. WILKINSON, Aberdeen.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from New York City, Lieut. AUSTIN H. WOOD, Baltimore.

*To Camp Sheridan,* Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. LOUIS M. LIMBAUGH, Baltimore.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. HUGH C. F. GILL, Baltimore.

*To Fort McHenry,* for duty, Capt. ARTHUR P. HERRING, Baltimore.

*To Fort Oglethorpe* for instruction, Lieut. JACK M. HUNDLEY, JR., Baltimore. On completion to Army Medical School for duty, Lieut. CHARLES B. ENSER, Baltimore.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Hancock,* Augusta, Ga., base hospital, Capt. JOHN G. MURRAY, Baltimore. Neurological Institute for instruction, Lieut. MICHAEL J. EGAN, JR., Baltimore. Roosevelt Hospital, for instruction, and on completion to Camp Beauregard, base hospital, from Fort Oglethorpe, Lieut. HENRY H. STANSBURY, Baltimore.

### Massachusetts

*To Army Medical School* for instruction, Lieuts. FREDERICK R. BARNES, Fall River; PERCY F. MILLER, Harwich; BURTON E. HAMILTON, West Roxbury.

*To Boston, Mass.,* Aviation Section Signal Corps, Charitable Eye and Ear Infirmary, as officer in charge, from Boston, Lieut. WILLIAM J. HARKINS, Boston.

*To Cambridge,* Institute of Technology, for duty, from Boston, Lieut. EDWARD F. W. BARTOL, Milton.

*To Camp A. A. Humphreys,* for duty, from Fort Oglethorpe, Lieut. ANDREW F. SHEA, Lawrence.

*To Camp Custer,* Battle Creek, Mich., base hospital, from Fort Oglethorpe, Major WALTER R. WEISER, Springfield.

*To Camp Devens,* base hospital, Major FRANKLIN G. BALCH, Jamaica Plain.

*To Camp Dix,* Wrightstown, N. J., *Camp Meade,* Annapolis Junction, Md., and *Camp Lee,* Petersburg, Va., for duty and on completion *to his proper station,* from Camp Devens, Major HOMER GAGE, Worcester.

*To Camp Greene,* Charlotte, N. C., as sanitary inspector, from Camp Greene, Major WILLIAM J. McDONALD, Brookline. Base hospital, Major HARRY W. GOODALL, Boston.

*To Camp MacArthur,* Waco, Texas, Aviation Mobiliaztion Camp, for duty, from Camp Devens, Lieut. ALFRED J. BONNEVILLE, Hatfield.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Fort Oglethorpe, Capt. FORREST F. PIKE, Melrose; Lieut. FRANK W. A. MITCHELL Lynn. Base hospital, from New York City, Lieut. EVERETT A. MERRILL, Lynn.

*To Camp Sevier,* Greenville, S. C., base hospital, Lieut. WARREN M. PETTENGILL, Boston.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, Lieut. MANUEL F. CUNHA, Somerville; from Rockefeller Institute, Lieut. JOHN H. TAYLOR, Cambridge.

*To Camp Sherman,* Chillicothe, O., for duty, from Fort Oglethorpe, Lieut. HARRY H. SUMNER, Lowell.

*To Fort Oglethorpe* for instruction, Capt. GEORGE P. COGSWELL, Cambridge; Lieuts. EDWARD A. DUFFY, EN YOUNG KAU, Boston; LEO P. CRIMMIN, Brockton; EDWARD M. HODGKINS, Dorchester. Hospital train, from Fort Oglethorpe, Lieuts. CHARLES MOLINE, Sunderland; CHARLES W. DEWOLF, Tewksbury.

*To Hoboken,* New Jersey, for duty, from Fort Oglethorpe, Lieut. CLARENCE W. SEWALL, Boston; ALFRED M. LEMAY, Brockton.

*To Houston, Texas,* Signal Corps Aviation School, Ellington Field, from Boston, Lieut. JOHN G. JENNINGS, Boston.

*To Newport News, Va.,* for duty, from Fort Logan H. Roots, Ark., Lieut. JOHNSTON L. CHERESKIN, Springfield; from New York City, Lieut. CLARENCE G. LANE, Woburn.

*To New York City,* Bellevue Hospital, for instruction, from Fort McHenry, Lieut. BERNARD A. GODVIN, Boston.

*To Rochester, N. Y.,* Rochester General Hospital, from Camp Devens, Lieut. WILLIAM F. RYAN, Lowell.

*To his home* and the inactive list from Washington, D. C., Major SAMUEL J. MIXTER, Boston.

*Resignation* of Lieut. CHARLES H. DAVID, Hamilton, accepted.

### Michigan

*To Ann Arbor,* Psychopathic Hospital, for intensive training, Lieut. WILLIAM D. MUELLER, Traverse City.

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. HARRY F. DIBBLE, Detroit; HARRY J. DEFNET, VICTOR F. RYAN, Escanaba; MIAR J. McLAUGHLIN, Jackson; ALBERT E. CATHERWOOD, Middleton; RENE J. ST. LOUIS, Midland.

*To Camp Custer,* base hospital, from New York City, Lieut. DAUNE W. CRANKSHAW, Lawrence.

*To Camp Dix,* Wrightstown, N. J., *Camp Upton,* L. I., N. Y., *Camp Devens,* Ayer, Mass., for duty, and on completion *to his proper station,* from Camp Meade, Major NELLIS B. FOSTER, Ann Arbor.

*To Camp Logan,* Houston, Texas, for duty, from Fort Riley, Capt. NORMAN J. PIKE, Saginaw.

*To Cape May, N. J.,* for temporary duty, from Camp Jackson, Capt. FREDERICK W. BAESLACK, Detroit.

*To Fort Oglethorpe* for instruction, Lieuts. HARTHAT L. KEIM, Ann Arbor; ROLAND E. TOMS, Grand Rapids; from Fort Caswell, Lieut. WM. A. O'BRIEN, Detroit.

*To Fort Riley* for instruction, Capt. CHARLES V. HIGH, Coleman; Lieut. WAYNE A. COCHRANE, East Lansing.

*To Fort Sam Houston, Texas,* for duty, from Camp Beauregard, Lieut. KENNETH F. MAXEY, Detroit.

*To New York City,* Bellevue Hospital, for instruction and on completion *to his proper station,* from Camp Lee, Capt. HUGH McD. BEEBE, Ann Arbor.

*To Pittsburgh, Pa.,* Carnegie Institute of Technology, for instruction in automobile maintenance and gas engine operation and on completion *to his proper station,* Capt. GEO. S. FODEN, Highland Park.

*Resignation* of Lieut. LESTER F. KENNEDY, Detroit, accepted.

### Minnesota

*To Camp Dodge,* Des Moines, Ia., as commanding officer of the base hospital, from Camp Dodge, Major FRANK C. TODD, Minneapolis.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp Dodge, Lieut. WALTER N. LEE, Madison.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from St. Louis, Capt. WILLIAM V. LINDSAY, Winona.

*To Fort Riley,* hospital train, from Fort Riley, Major EDWARD A. MEYERDING, St. Paul; Lieuts. HUGH H. SLOCUMB, Belgrade; OTTO J. SEIFERT, New Ulm; CLARENCE A. RATHBUN, Rice.

*To Pittsburgh, Pa.,* Carnegie Institute of Technology, for instruction in automobile maintenance and gas engine operation and on completion *to his proper station,* from Fort Riley, Lieut. FRANK E. ELLISON, Monticello.

*To St. Paul,* Signal Corps Detachment, for duty, Lieuts. FRANK A. GRAWN, Duluth; PAL L. ASHLEY, Minneapolis; FRANCIS L. POWERS, Pipestone.

*To his home* and the inactive list, Major WILLIAM J. MAYO, Rochester.

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. HENRY E. BINET, Coleraine.

### Mississippi

*To Fort Oglethorpe* for instruction, Lieut. THOMAS M. KANE, Jr., Jackson.

*To Fort Riley, Camp Pike,* Little Rock, Ark., *Camp MacArthur,* Waco, Texas, *Camp Bowie,* Fort Worth, Texas, for duty, and on completion *to his proper station,* from Camp Doniphan, Major JOHN W. MARKSDALE, Winona.

### Missouri

*To Army Medical School,* Washington, D. C., for instruction, Lieuts. BENJAMIN E. COBB, Lemons; CLAUDE L. SELLERS, St. Louis.

*To Camp American University,* Washington, D. C., as sanitary inspector, from Camp A. A. Humphreys, Accotink, Va., Capt. EDWARD S. SMITH, Macon.

*To Camp Bowie,* Fort Worth, Texas, for duty, from Camp Bowie, Lieut. ARTHUR C. F. BROWN, Kansas City.

*To Camp Custer,* Battle Creek, Mich., for duty, from Fort Riley, Lieuts. CARTER A. PROCTOR, Doniphan; HERMAN RAMMING, St. Louis; GEORGE A. NIEWEG, Vancleve.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. WALTER L. BRANDON, Broseley.

*To Camp Greene,* Charlotte, N. C., base hospital, from Camp Greene, Capt. CHARLES H. HECKER, St. Louis. As divisional tuberculosis specialist, from Fort Oglethorpe, Lieut. ROBERT E. BYRNS, St. Louis.

*To Camp MacArthur,* Waco, Texas, Aviation Mobilization Camp, Lieut. CLARENCE J. LAWS, Princeton.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from St. Louis, Mo., Lieut. JAMES B. BIGGS, Bowling Green.

*To Camp Pike,* Little Rock, Ark., base hospital, from St. Louis, Lieut. EDWIN D. EDWARDS, St. Louis.

*To Camp Travis,* Fort Sam Houston, Texas, *Camp Logan,* Houston, Texas, *Camp Beauregard,* Alexandria, La., for duty, and on completion *to his proper station,* from Camp MacArthur, Major OLIVER H. CAMPBELL, St. Louis.

*To Chicago, Ill., Camp Grant,* Rockford, Ill., *St. Louis, Mo., Camp Sherman,* Chillicothe, Ohio, for investigation, and on completion *to his proper station,* Major FREDERICK W. BAILEY, St. Louis. Northwestern University Dental School, for instruction, Capt. JOHN F. HASSIG, Lieuts. FRANK H. BACH, LOT D. MABIE, Kansas City.

*To Fort Leavenworth,* for duty, Lieut. ARLESS A. BLAIR, St. Louis.

*To Fort McPherson, Ga.,* base hospital, from Army Medical School, Lieut. BERNARD J. McMAHON, St. Louis.

*To Fort Riley* for instruction, Capts. BENJAMIN R. McALLASTER, Carthage; CLIFTON R. DUDLEY, St. Louis; Lieuts. ALLEN G. SCOTT, Cardwell; JOSEPH L. BUTTON, QUITMAN U. NEWELL, St. Louis.

*To Lonoke, Ark.,* Signal Corps, Aviation School, Eberts Field, Lieut. ALFRED L. WESSLING, Martinsville.

*To New York City,* Neurological Institute, for intensive training, from Camp Stuart, Capt. MARC R. HUGHES, St. Louis.

*To Pittsburgh, Pa.,* Carnegie Institute of Technology, for instruction in automobile maintenance and gas engine operation, and on completion *to his proper station,* from Fort Riley, Lieut. CLAY E. MULLINAX, Princeton. For instruction, and on completion *to Camp Taylor,* base hospital, Lieut. HERMAN A. LAFORCE, Jasper.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School* for duty, from Fort Riley, Lieut. FRED S. PERRINGS, St. Louis.

### Montana

*To Camp Custer,* Battle Creek, Mich., for duty, from Fort Riley, Lieut. HOMER J. FLINN, Butte.

*To Fort Riley,* hospital train, from Fort Riley, Major ROBERT E. HATHAWAY, Glendive. For instruction Capt. SAMUEL G. ARNOLD, Billings; Lieut. RALPH G. NELSON, Cut Bank.

*To Fort Sam Houston, Texas,* base hospital, from San Antonio, Lieut. GEORGE J. JUCKEM, Big Sandy.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Taylor,* base hospital, from Fort Riley, Lieut. HAROLD SCHWARTZ, Butte.

### Nebraska

*To Camp Joseph E. Johnston,* Jacksonville, Fla., base hospital, from Camp Joseph E. Johnston, Lieut. JOHN F. ALLEN, Omaha.

*To Camp Sevier,* Greenville, S. C., for duty, from Camp Doniphan, Lieut. MARION T. SIGLER, Pickrell.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, Capt. JOHN C. MOORE, Omaha.

*To Fort Oglethorpe* as instructor, from Fort Oglethorpe, Capt. WILLIAM N. ANDERSON, Omaha.

*To Fort Riley* for instruction, Lieuts. WILEY S. COZART, EDWARD R. SWEENEY, Filley; from duty as a private at Fort Riley, Lieuts. HARRY J. PITTOCK, Ingleside; FRANCIS P. MURPHY, Omaha. Hospital train, from Fort Riley, Lieut. CHARLES W. W. HARMS, Omaha.

*To Waco, Texas,* Aviation Mobilization Camp, for duty, from Fort Riley, Lieut. CHARLES L. HOUSEL, Ansbury.

### Nevada

*To Army Medical School* for instruction, Lieut. CLIFFORD ASHBY, East Ely.

### New Hampshire

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to Camp Jackson,* base hospital, Lieut. PHILIAS A. PION, Concord. On completion *to Fort Slocum,* New York, for duty, from Fort Oglethorpe, Lieut. PHILIP McQUESTON, Nashua.

*To Camp American University,* Washington, D. C., as assistant to the camp surgeon, from Fort Oglethorpe, Lieut. EDWARD C. DURGIN, East Andover.

*Resignation* of Capt. WILLIAM N. SOUTER, Fort Constitution, accepted.

### New Jersey

*To Army Medical School* for instruction, Lieut. DAVID C. THOMPSON, Bloomfield.

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to Camp Dix,* base hospital, from Fort Oglethorpe, Lieut. LYMAN B. HOLLINGSHEAD, Pemberton.

*To Camp Dix,* Wrightstown, base hospital, from New York City, Lieut. CHARLES RICH, Newark.

*To Camp Gordon,* Atlanta, Georgia, base hospital, from Camp Jackson, Lieut. LEO E. FROMESSES, Elizabeth.

*To Camp Wheeler,* Macon, Ga., base hospital, from New York City, Lieut. EDWARD GUION, Atlantic City.

*To Fort Oglethorpe,* for instruction, Lieuts. LEONARD M. KALAHER, Jersey City; VANE B. SIGLER, Trenton. Hospital train, Lieut. EDWARD P. ESSERTIER, Hackensack.

*To Newport News, Va.,* for duty, from New York City, Lieut. SAMUEL ROTHENBERG, Newark.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* Lieut. HALVOR L. HARLEY, Pleasantville.

*To their homes* and honorably discharged, Lieut. LESTER H. SPARKS, Lakewood; Lieut. JAMES F. WALLIS, Pleasantville.

### New Mexico

*To Fort Riley* for instruction, from Fort Logan, Major WILLIAM P. MILLS, East Las Vegas.

*To San Francisco, Calif.,* Letterman General Hospital, for duty, from Camp Lewis, Capt. DAVID C. TWICHELL, Albuquerque.

### New York

*To Army Medical School,* Washington, D. C., for orthopedic instruction, from Williamsbridge, N. Y., Capt. JAMES C. DAVIS, Rochester. For instruction, Lieuts. JOHN D. EVERLOF, New York City; FRANK K. RYAN, Plattsburgh; HENRY M. MITCHELL, Yorkville. For orthopedic instruction, Lieut. RAEBURN J. WHARTON, Brooklyn. For duty, from Rockefeller Institute, Lieut. RAY S. NELSON, New York City.

*To Belleville, Ill.,* Scott Field Signal Corps, Aviation School for duty, from Buffalo, Lieut. EDWARD F. MEISTER, Buffalo.

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to Camp Upton,* base hospital, from Fort Oglethorpe, Capt. FREDERIC N. WILSON, New York City.

*To Camp Beauregard,* Alexandria, La., as orthopedic surgeon, from New York City, Lieut. JESSE R. PRICHARD, New York City.

*To Camp Dix,* Wrightstown, N. J., as cardiovascular examiner with the tuberculosis board, from Camp Meade, Capt. CHARLES G. O'CONNOR, Brooklyn. Base hospital, Capt. ALEXANDER L. ANDERSON, Brooklyn.

*To Camp Gordon,* Atlanta, Ga., *Camp McClellan,* Anniston, Ala., and *Camp Pike,* Little Rock, Ark., for duty, and on completion *to his proper station,* from Camp Zachary Taylor, Major JUNIUS N. McHENRY, New York City. As assistant to the camp surgeon, from Fort Oglethorpe, Major EDWARD A. SOUTHALL, Buffalo. As division psychiatrist, from Camp Bowie, Capt. JOHN J. HUGHES, New York City.

*To Camp Greene,* Charlotte, N. C., base hospital, Capt. FREDERICK M. IVES, New York City; from Camp Pike, Capt. MYRON L. MORRIS, New York City.

*To Camp Hancock,* Augusta, Ga., for duty, from Memphis Tenn., Lieut. RICHARD P. DOODY, Cohoes.

*To Camp Lee,* Petersburg, Va., for investigation in connection with the treatment of meningitis carriers, and on completion *to his proper station,* Major EDWARD K. DUNHAM, New York City. To examine the command for nervous and mental diseases, from Neurological Institute, Lieut. BERTRAM BROWN, Brooklyn.

*To Camp Logan,* Houston, Texas, as divisional tuberculosis specialist from Fort Oglethorpe, Capt. JAMES P. HUNT, New York City. As a member of a board to examine the command for nervous and mental diseases, from Camp Doniphan, Lieut. WARD W. MILLIAS, Rome.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp Cody, Lieut. SAMUEL ROTH, Blackwell's Island.

*To Camp McClellan,* Anniston, Ala., base hospital, from Camp McClellan, Lieut. JOHNSTON MacLEOD, Flushing.

*To Camp Pike,* Little Rock, Ark., as a member of the tuberculosis examining board, from Fort Oglethorpe, Lieut. FELIX GRABOFF, New York City.

*To Camp Shelby,* Hattiesburg, Miss., as orthopedic surgeon, from Boston, Lieut. RAYMOND B. MORRIS, Olean.

*To Camp Sheridan,* Montgomery, Ala., base hospital, on completion of his instruction at Rockefeller Institute, Lieut. HAROLD L. MEIERHOF, New York City.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieuts. BERNATH WEISS, Brooklyn; JOSEPH SUBKIS, New York City.

*To Camp Upton,* Long Island, as orthopedic surgeon, from New York City, Lieut. WALTER H. McSHANE, Troy.

*To Fort Oglethorpe,* as instructor, from Fort Oglethorpe, Capt. JAMES W. PRICE, Saranac Lake. For instruction, from Fort Caswell, Capt. JOSEPH P. O'BRIEN, Albany; from Key West Barracks, Florida, Capt. MAXWELL K. WILLOUGHBY, Auburn; STANMORE L. CASH, New York City. For instruction, Lieuts. BYRON E. CHAPMAN, Broadalbin; JOHN D. COLSON, LOUIS F. CRASSON, HENRY J. FEASTER, DAVID D. KRUPP, WILLIAM J. PUDNEY, JOSEPH B. STENBUCK, Brooklyn; EARL C. HOLDEN, Canastota; DAVID DAVIDSON, Good Ground; ARNOLD M. GOODHART, RAYMOND T. POTTER, New York City; WILLIAM P. SWEENY, Saratoga Springs. Hospital train, from Fort Oglethorpe, Lieuts. ROBERT S. FAMILTON, JACOB N. FEINBERG, New York City; ENRICO C. SOLDINI, Stapleton.

*To Fort Riley,* hospital train, from Fort Riley, Lieut. ANDREW J. GOODWIN, Ithaca.

*To Fort Sam Houston, Texas,* for duty, from Camp Beauregard, Lieut. ROBERT L. LEVY, New York City.

*To Fort Sheridan, Ill.,* for investigation in connection with the prevention of meningitis, and on completion *to his proper station,* Major GEORGE DRAPER, New York City, from Rockefeller Institute, Major SIMON FLEXNER, New York City.

*To Fairfield, Ohio,* Wilbur Wright Field, Signal Corps, Aviation School for duty, from Dayton, Ohio, Lieut. MILTON H. GOLDBERG, Buffalo.

*To Mineola,* Long Island, Hazelhurst Field, Signal Corps, Aviation School, for duty, from Army Medical School, Lieut. JAMES P. FITZGERALD, Clayton.

*To Newport News, Va.,* for duty, from Fort Logan H. Roots, Ark., Lieut. GEORGE D. UBEL, Salamanca; from New York City, Lieut. THOMAS P. BURRUS, Brooklyn.

*To New York City,* for inspecting classes of instruction, and on completion *to his proper station,* Major RAYMOND P. SULLIVAN, Brooklyn. Bellevue Hospital for instruction and on completion *to Brooklyn* for duty, Lieuts. KURTHA P. BLABER, Brooklyn. Neurological Institute for intentive training, from Camp Dix, Lieut. LEON M. WILBOR, Jasper. Post-Graduate Medical School and Hospital, for instruction in urology and dermatology, Lieut. DAVID E. KREMAN, New York City; from Camp Hancock, Lieut. WALTER L. WEEDEN, Clifton Springs. Roosevelt Hospital for instruction, Lieut. GEORGE R. HORTON, Brooklyn. Roosevelt Hospital for instruction, and on completion *to Camp Grant,* base hospital, from Fort Oglethorpe, Lieut. GEORGE B. PACE, New York City.

*To Philadelphia, Pa.,* University Hospital, for instruction and on completion *to Camp Dix,* Wrightstown, New Jersey, base hospital, from Camp Upton, Capt. HARRY P. MENCKEN, Long Island, N. Y.

*To report* to the Surgeon-General for duty in his office, from Army Medical School, Lieut. JOHN P. SHARP, Niagara Falls.

*To Rochester, N. Y.,* Rochester General Hospital, for duty, from Camp Jackson, Capt. ALEXANDER S. SIM, Brooklyn.

*To Rockefeller Institute* for instruction, and on completion *to Fort McPherson,* for temporary duty, from New York City, Major EDWARD W. PINKHAM, New York City. On completion *to Army Medical School,* for duty, from Fort Oglethorpe, Lieut. JOSEPH D. ROSENTHAL, Brooklyn.

*To his home* and honorably discharged Capt. MAURICE A. STURM, New York City.

*Resignations* of Capt. JOHN R. LE COMTE, New York City; Lieuts. BENJAMIN E. HELPRIN, Brooklyn, and VICTOR A. TYRASINSKI, Tonawanda, accepted.

### North Carolina

*To Boston, Mass.,* Boston City Hospital, for instruction and on completion *to Hoboken, N. J.,* Lieut. BURNICE E. MORGAN, Stocksville.

*To Camp Greene,* Charlotte, N. C., base hospital, Lieut. HENRY W. TIDMARSH, Bethel.

*To Fort Oglethorpe* for instruction, Lieut. LOUIS G. BEALL, Asheville.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Lieut. RACK F. BENTHALL, Ahoskie.

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. BENJAMIN G. ALLEN, Henderson.

### North Dakota

*To Camp Doniphan,* Fort Sill, Oklahoma, for duty, from Fort Riley, Lieuts. GEORGE MONTEITH, Hazleton; BANJAMIN FRANKSON, Rugby.

*To Camp McClellan,* Anniston, Ala., base hospital, from Camp McClellan, Lieut. HOWARD L. SAYLOR, Cogswell.

*To Chicago, Ill.,* Northwestern University Dental School, for instruction, and on completion *to his proper station,* from Camp Dodge, Lieut. ALOYSIUS P. NACHTWEY, Dickinson.

*To Fort Leavenworth, Kan.,* for duty, from Fort Riley, Lieut. FRED E. REDMAN, Mott.

*To Hoboken, N. J.,* hospital train, from Fort Riley, Capt. ORVILLE B. MELAND, Grand Forks.

*To Newport News, Va.,* for duty, from New York City, Lieut. WILLIAM H. GOLDSTEIN, Kearny.

### Ohio

*To Army Medical School,* Washington, D. C., for instruction, Lieut. EDWARD C. GOLDCAMP, Ironton.

*To Boston, Mass.,* Boston City hospital, for instruction, and on completion to Fort Slocum, N. Y., for duty, from Fort Oglethorpe, Lieut. JOHN D. KESSLER, Columbus.

*To Camp Custer,* Battle Creek, Mich., *Camp Grant,* Rockford, Ill., and *Camp Zachary Taylor,* Louisville, Ky., for duty, and on completion *to his proper station,* Major ALFRED FRIEDLANDER, Cincinnati.

*To Camp Grant,* Rockford, Ill., base hospital, from St. Louis, Capt. CLAREN E. PFEIFER, Columbus; Lieut. ARTHUR R. KNAUF, Cincinnati.

*To Camp Greene,* Charlotte, N. C., base hospital, Lieut. STANLEY L. ALLEN, Zanesville.

*To Camp Lee,* Petersburg, Va., as assistant to the camp surgeon, from Fort Oglethorpe, Capt. RUFUS SOUTHWORTH, Glendale.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp Sevier, Lieut. ARTHUR W. CARLEY, Dayton.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, from Rockefeller Institute, Lieut. JAMES H. WARREN, Columbus.

*To Fort McPherson, Ga.,* for duty, from Fort Oglethorpe, Lieut. WILLIAM S. NICHOLS, Cleveland.

*To Fort Oglethorpe* for instruction, Capt. HARRY S. NOBLE, St. Mary's; Lieuts. EARL C. WOOD, Columbus; SILAS W. SAXTON, Steubenville; ARTHUR N. SMITH, Upper Sandusky. Hospital train, from Fort Oglethorpe, Lieut. CHALLIS H. DAWSON, Portsmouth.

*To Fort Riley,* Evacuation Hospital, from Fort Riley, Lieut. A. H. HIXSON, Johnstown.

*To Fairfield,* Signal Corps Aviation school, Wilbur Wright Field, for duty, from Dayton, Lieuts. JAMES W. ALLBRITAIN, KENNETH A. CLOUSE, Columbus.

*To Newport News, Va.,* for duty, from New York City, Lieut. LAWRENCE D. MILLER, Toledo; from St. Louis, Lieut. EDWARD J. BRAUN, Youngstown.

*To New York City,* Roosevelt Hospital, for instruction, and on completion *to Camp Custer,* base hospital, from Fort Oglethorpe, Lieut. FREDERICK T. MILES, Salem.

*To Rockefeller Institute* for instruction in laboratory work, Lieut. JAMES R. DAVIS, Painesville.

*To Southern Department* for assignment to duty, from Fort Sill, Major ROBERT CONARD, Blanchester.

*To Walter Reed General Hospital,* Takoma Park, D. C., for temporary duty, from Army Medical School, Capt. CARROLL L. STOREY, Oberlin.

### Oklahoma

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to Camp Devens,* base hospital, from Fort Oglethorpe, Lieut. THOMAS M. TOLER, Wirt.

*To Camp Beauregard,* Alexandria, La., as orthopedic surgeon in the camp, from Camp MacArthur, Capt. LEONARD S. WILLOUR, McAllester.

*To Camp Pike,* Little Rock, Ark. base hospital, from St. Louis, Lieuts. JAMES C. HAWKINS, Blackwell; CLAUDE E. PUTNAM, Oklahoma City.

*To Fort Riley* for instruction, Lieuts. FRANK G. FRANCISCO, Enid; PHILIP F. HEROD, El Reno.

### Oregon

*To Camp Lewis,* American Lake, Wash., for duty, from Camp Lewis, Lieut. WILL H. POTTER, Scio.

*To Camp Taylor,* Louisville, Ky., as assistant to the camp surgeon from Fort Riley, Capt. DAVID N. ROBERG, Portland.

*To Chicago, Ill.,* Northwestern University Dental School, for instruction, Lieut. GARRETT L. HYNSON, Portland.

*To Fort Riley,* for instruction, Lieut. FRANK E. BUTLER, Hot Lake.

*To Washington, D. C.,* Army Medical Museum, and on completion *to his proper station,* from Philadelphia, Capt. LAWRENCE SELLING, Portland.

### Pennsylvania

*To Ann Arbor, Mich.,* Psychopathic Hospital, for intensive training, Lieut. WILLIAM W. McC. MILLS, Duquesne.

*To Army Medical School,* Washington, D. C., for instruction Lieut. HOMER LeR. HILL, Johnstown.

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion to Camp Lee, base hospital, from Fort Oglethorpe, Lieut. FRANK G. SCHARMANN, Johnstown.

*To Camp American University,* Washington, D. C., as assistant to the camp surgeon, from Washington, D. C., Lieut. LEON C. DARRAH, Reading.

*To Camp Beauregard,* Alexandria, La., as divisional tuberculosis specialist, from Fort Oglethorpe, Lieut. WILLIAM C. SPALDING, Cresson.

*To Camp Dix,* Wrightstown, N. J., as cardiovascular examiner with the tuberculosis board, Lieut. ALVIN S. SIEGEL, Philadelphia. For duty, from Fort Oglethorpe, Lieuts. SAMUEL A. KAMERER, Ellsworth; ABRAHAM E. COLCHER, Philadelphia.

*To Camp Gordon,* Atlanta, Ga., *Camp Hancock,* Augusta, Ga., *Camp Sevier,* Greenville, S. C., for duty, and on completion *to his proper station,* Major JOSEPH SAILER, Philadelphia.

*To Camp Greene,* Charlotte, N. C., *Camp Wadsworth,* Spartanburg, S. C., *Camp Jackson,* Columbia, S. C., for duty, and on completion *to his proper station,* Major LAWRENCE LITCHFIELD, Pittsburgh. Base hospital, Capts. JAMES S. MOSHER, Hillsgrove; ROBERT WATT, Philadelphia; Lieut. CHARLES B. SHORTLIDGE, Lima.

*To Camp Jackson,* Columbia, S. C., *Camp Sevier,* Greenville, S. C., *Camp Wadsworth,* Spartanburg, S. C., and *Camp Gordon,* Atlanta, Ga., for duty, and on completion *to his proper station,* from Camp Greene, Major JONATHON M. WAINWRIGHT, Scranton.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieuts. CLARENCE D. DANIELS, MARSHALL B. MORGAN, Jr., Philadelphia.

*To Camp Pike,* Little Rock, Ark., base hospital, on completion of his instruction at Rockefeller Institute, Lieut. GEORGE R. LACY, Pittsburgh.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. JAMES G. MATTERNES, Sinking Spring.

*To Camp Upton,* Long Island, N. Y., base hospital, Lieut. FRANK G. UNGERMAN, McKeesport.

*To Cape May, N. J.,* for temporary duty, from Philadelphia, Lieut. LYNDON H. LANDON, Pittsburgh.

*To Chicago, Ill.,* Northwestern University Dental School, for instruction, from Fort Oglethorpe, Lieut. JAMES F. TRIMBLE, Jeannette.

*To Fort Oglethorpe* for instruction, from Fort Oglethorpe, Capt. ROBERT A. KEILTY, Philadelphia. For instruction, Lieuts. CHARLES A. GOBLE, Jeannette; DAVID D. REYNOLDS, Kennett Square; LEWIS M. SCHULTZ, Minersille; EDGAR B. SLOTERBECK, Monessen; JOHN J. SOSNOWSKI, Pittsburgh; from Allentown, Lieut. EDWIN S. POTTER, Ardmore. Base hospital, from Fort Oglethorpe, Lieut. RANDALL ZIMMERMAN, Wilmerding. Hospital train, from Fort Oglethorpe, Lieut. DAVID E. GRIFFITHS, Scottdale.

*To Fort Sam Houston,* Southern Department, for duty, Lieut. CHARLES W. McCLURE, South Bethlehem.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Lieuts. LOUIS J. GOLDBLATT, McKeesport; ISRAEL SPIERS, Philadelphia.

*To Newport News, Va.,* for duty, from Army Medical School, Lieut. GEORGE W. MELLON, Woodlawn; from Fort Oglethorpe, Lieuts. FRANKLIN W. MATHEWSON, Oakdale; CLARE H. HANLEY, Scranton; from New York City, Lieuts. DAVID P. McCUNE, Jr., McKeesport; JOSEPH M. KENWORTHY, Philadelphia; EDWARD A. STEINHILBER, West Philadelphia.

*To New York City,* Neurological Institute, for intensive training, Lieut. HORACE L. CARNCROSS, Philadelphia. Roosevelt Hospital for instruction, and on completion *to Camp Grant,* Rockford, Ill., base hospital, from Fort Oglethorpe, Lieut. EUGENE C. MURPHY, Philadelphia; on completion *to Fort Jay, N. Y.,* for duty, Lieut. EUGENE B. SHARP, Johnsonburg; on completion *to Hoboken, N. J.,* base hospital, from Fort Oglethorpe, Lieut. ADAM G. HEILMAN, Lebanon; on completion *to Newport News* base hospital, from Fort Oglethorpe, Lieut. CLAUDE A. ROBB, Butler.

*To Philadelphia,* University of Pennsylvania, for duty, Major JOHN B. CARNETT, Philadelphia. Evans Dental Institute, for instruction, from Camp Gordon, Lieut. JOHN W. BRANSFIELD, Philadelphia. Jefferson Medical School, for duty, Lieuts. HENRY K. MOHLER, Philadelphia; HARRY W. BAILY, Tamoqua.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. JOHN N. HAYES, Pittsburgh.

*To the inactive list,* Lieut. HAROLD A. FLETCHER, Philadelphia.

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. BARNETT H. COOPER, Glen Lyon.

### Philippine Islands

*To San Francisco, Calif.,* and report to the Adjutant-General and Surgeon-General for instructions, Lieut. JOHN H. BULLOCK, Manila.

### Rhode Island

*To Fort Oglethorpe* for instruction, Capt. ALLEN A. WEEDEN, Woonsocket.

### South Carolina

*To Army Medical School,* Washington, D. C., for instruction, Lieut. ADOLPHUS L. LITTLE, Blacksburg.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. ASHLEY B. WEATHERSBEE, Belton.

*To his home* and honorably discharged, Lieut. WM. D. LYNCH, Scranton.

### South Dakota

*To his home* and honorably discharged on account of physical disability incurred in line of duty, Lieut. JAMES C. WALTON, Isabel.

### Tennessee

*To Boston, Mass.,* Boston City Hospital, for instruction, and on completion *to Camp Devens,* base hospital, from Fort Oglethorpe, Capt. THOMAS A. P. R. JONES, Knoxville. On completion *to Camp Dix,* base hospital, from Fort Oglethorpe, Lieut. ELLIS L. WILKINS, Dyersburg.

*To Camp Dix,* Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. THOMAS C. CHAPMAN, Brownsville.

*To Camp Gordon,* Atlanta, Ga., Military School of Aeronautics, from Camp Gordon, Capt. EDWIN D. WATKINS, Memphis.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp Greene, Lieut. CURTIS R. SENTER, Memphis.

*To Fort Oglethorpe* for instruction, Capts. CARL T. SPECK, Cleveland; DAVID M. HENNING, Memphis; from Camp Dix, Lieut. FREDERICK W. LEE, Springfield.

*To Fort Sam Houston, Texas,* for duty, Lieut. ELMER S. MAXWELL, Nashville.

*To Lonoke, Ark.,* Eberts Field, Signal Corps, Aviation School, for duty, Capt. CHARLES W. BROWN, Nashville.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieut. AUBIN T. KING, Jefferson City.

*To Waco, Texas,* Aviation Mobilization Camp, from Fort Riley, Lieut. ORVILLE B. MOON, Bell Buckle.

### Texas

*To Army Medical School,* for instruction, Lieut. IVAN E. HIX, Fort Worth.

*To Camp A. A. Humphreys,* Accotink, Va., Lieut. MAURY J. PERKINS, Alice. For duty, from Fort Oglethorpe, Lieut. OLIVER R. TIMMINS, San Antonio.

*To Camp American University,* Washington, D. C., as assistant to the camp surgeon, from Fort Oglethorpe, Lieut. CHARLES H. OTKEN, Paige.

*To Camp Dix,* Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. MILEY B. WESSON, El Paso; Lieut. JAMES D. BOZEMAN, Fort Worth.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp Bowie, Lieut. JAMES W. REID, Maysfield.

*To Fort Oglethorpe* for instruction, Capt. SHADRACK L. BOREN, Del Rio; Lieuts. CRANZ NICHOLS, Maxwell; JESSE C. MAY, Ochiltree.

*To Fort Riley* for instruction, Lieuts. WILLIAM B. FOSTER, Huckabay; EDMUND C. HANCOCK, Paris. Hospital train, from Fort Riley, Lieut. SIMSON H. NEWMAN, El Paso.

*To Fort Sam Houston, Texas,* for duty, from Fort Sam Houston, Major WALTER H. MOURSUND, Dallas.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Lieuts. IVISON GRIMES, Camden; HARRY P. HARBER, Galveston.

*To New York City,* Neurosurgical School, Neurological Institute, for instruction, and on completion *to Hoboken, N. J.,* for temporary duty, from Fort Riley, Lieut. GEORGE L. LANGWORTHY, Lakeview.

*To Southern Department* for assignment to duty, from Fort Sill, Capt. ARTHUR W. C. BERFELD, Seguin.

*To Walter Reed General Hospital,* Takoma Park, D. C., for temporary duty, Lieut. EDWARD C. BRANNON, Waco.

### Utah

*To Army Medical School* for instruction, Lieuts. CLIFFORD J. HEATH, Marysvale; WILLIAM J. BROWNING, Roosevelt.

*Resignation* of Lieut. LESLIE S. MERRILL, Bingham Canyon, accepted.

### Vermont

*To Camp Meade,* Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. ANSELME E. HOULE, Bennington.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, from Fort Oglethorpe, Lieut. JULIUS E. DEWEY, Montpelier.

*To Camp Upton,* Long Island, N. Y., base hospital, Lieut. EDWARD V. FARELL, Danby.

*To Fort Benjamin Harrison, Ind.,* hospital train, from Fort Oglethorpe, Lieut. CHARLES P. CHANDLER, Montpelier.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieut. PERCY E. BUCK, Glover.

### Virginia

*To Camp Greene,* Charlotte, N. C., base hospital, Lieut. RAYMOND B. LOCKRIDGE, Mount Grove.

*To Camp Lee,* base hospital, Lieuts. EDWARD E. SCHILLINGER, Hampton; SIMON H. ROSENTHAL, Lynchburg.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp Jackson, Lieut. BERNARD BARROW, Barrow's Store.

*To Fort Oglethorpe* for instruction, Lieuts. MARSHALL L. BOYLE, Jr., CHARLES W. MERCER, Richmond.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Lieuts. WILLIAM WILSON, Greenwood; FRANK W. LEWIS, Morattico.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieut. RALPH M. THOMPSON, Purcellville.

### Washington

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. ALEXANDER W. SEIBERT, Wenatchee.

*To Camp Grant,* Rockford, Ill.; *Camp Dodge,* Des Moines, Iowa, and *Camp Funston,* Fort Riley, Kan., for duty, and on completion *to his proper station,* from Camp Lewis, Major HORACE J. WHITACRE, Tacoma.

*To Fort Benjamin Harrison, Ind.,* hospital train, from Fort Riley, Capt. FREDERICK W. NATHER, Spokane.

*To Fort Riley* for instruction, from Portland, Ore., Lieut. LORENZO S. DEWEY, Okanogan.

*Resignation* of Lieut. CARL O. LIND, Seattle, accepted.

### West Virginia

*To Camp Dix,* Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. ARCHIE B. RINEHART, McMechen.

*To Camp Lee,* Petersburg, Va., to examine the command for nervous and mental diseases, from Neurological Institute, New York, Lieut. ROSS DODSON, Spencer.

*To Camp MacArthur,* Waco, Texas, for duty, from Camp McClellan, Lieut. ADLAI E. CALLAGHAN, Parkersburg.

*To Fort Oglethorpe* for instruction, Capt. CHARLES O. STAATS, Spencer; Lieuts. ALVAH L. PARSONS, Charleston; DAVID McA. AIKMAN, War; JAMES E. HATFIELD, Williamson.

*To Newport News, Va.*, for duty, from Fort Oglethorpe, Capt. WALTER F. LEECH, Richmond.

### Wisconsin

*To Camp Custer*, Battle Creek, Mich., for duty, from Fort Riley, Lieut. MARTIN J. TREICHLER, Hancock.

*To Camp John Wise*, San Antonio, Texas, for duty, from Fort Riley, Lieut. ARTHUR F. STUECK, Michicot.

*To Camp Taylor*, Louisville, Ky., base hospital, Lieut. ERNST L. HENNIG, Beloit; CECIL B. HAKE, Milwaukee.

*To Camp Travis*, Fort Sam Houston, Texas., for duty, from Allentown, Lieut. LEON G. SMITH, Ellsworth.

*To Cape May, N. J.*, for duty, and on completion *to his proper station*, Major NELSON M. BLACK, Milwaukee.

*To Newport News, Va.*, for duty from Fort Logan H. Roots, Lieut. CHARLES B. RYDELL, Superior.

*To St. Paul, Minn.*, Signal Corps Detachment, Lieut. DAVID D. MEHIGAN, Milwaukee.

*To Waco, Texas*, Aviation Mobilization Camp, from Fort Riley, Lieut. JAMES H. FOWLER, Lancaster.

### Wyoming

*To his home* and honorably discharged on account of physical disability existing prior to his entrance into the service, Capt. WALTER M. LACEY, Cheyenne.

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## *Medical News*

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

### ILLINOIS

**Dwyer Asks Rehearing.**—Lieut. John G. Dwyer, who was recently ordered dismissed from the Army at Camp Funston, following a court martial, has asked for a rehearing. Lieutenant Dwyer was a practitioner at Cullom. He states that the charges against him were made by Captain Whistler, who afterward robbed the bank at the camp of $62,000, killed four men with an ax, and then took his own life.

**Safeguarding Camps.**—Plans for the joint supervision of sanitary conditions in Illinois training camps by state and federal authorities have been formulated by the office of Dr. C. St. Clair Drake, state director of health. It has been recommended to enlarge the military camp at Scott Field, Belleville, to include East St. Louis. The other six military zones in Illinois are Fort Sheridan; Great Lakes; East Peoria, which includes Peoria; Chanute Field, Rantoul; Rock Island and Moline, and Camp Grant, Rockford. Medical directors will be appointed to oversee the work of sanitation in these military zones.

#### Chicago

**Personal.**—Dr. Robert Lenard, South Chicago, was shot through the head by the husband of a patient, March 1.——Dr. Robert A. Allen, for six years medical director of the Westside Y. M. C. A., left, March 6, for similar work in France.

**Grievance Committee Formed.**—The Chicago Medical Society has formed a grievance committee to protect the profession from medical quacks, violators of the medical and other laws, and to investigate disreputable persons in the city. The committee is composed of Dr. Fred L. Glenn, George L. Apfelbach and Otto T. Freer.

**Sanitary Inspector in Washington.**—Mr. C. B. Ball, chief medical inspector of the Chicago Health Department, is in Washington, D. C., where he has been asked to remain as a member of the staff of Otto Eidlitz, head of the housing department of the Department of Labor and the Council of National Defense.

### INDIANA

**Hospital Opened.**—A new hospital constructed of brick, concrete and steel, containing thirty-three beds and costing $60,000, has been opened at Connersville.

**Hygiene for Police.**—A hygiene school for policemen is to be opened in Indianapolis. Dr. H. C. Morgan, secretary of the board of health, is to be the instructor. The course will prepare the police force for supervising conditions affected by alleys and premises, and will aim to teach the primary precautions against disease and bad living conditions. Proper sewage disposal and housing conditions will be included in the instruction.

### LOUISIANA

**Personal.**—Dr. J. George Dempsey, New Orleans, has been called to France for special tuberculosis work under the American Red Cross.——Dr. Rudolph Matas, New Orleans, recently spoke before the New Orleans Association of Commerce, on "Recent Achievements in War Surgery."——Dr. Ernest C. Samuel has been reelected radiologist of the Eye, Ear, Nose and Throat Hospital, New Orleans.

### MAINE

**Graduation Exercises.**—March 2 the annual graduation exercises of the Medical School of Maine were held in Portland. Acting President Kenneth C. Sills of Bowdoin College presided. The annual address was delivered by the Rev. Ashley Day Leavitt.

**Progress of State Health Department.**—The newly established department of health is progressing in material welfare as well as in accomplished work. In a short time the department will move from the state house into new quarters recently modeled for the use of the various divisions, including the laboratories. The staff of workers is being constantly increased on account of the growth of the work. Recently a successful joint conference was held by the state department and the local boards of health. This was the first meeting of its kind to be held in the state.

### MARYLAND

**Campaign to Raise Funds for Hospital.**—Plans have been inaugurated for a campaign to raise $25,000 for the South Baltimore Eye, Ear and Throat Hospital. The money raised will be used to enlarge the hospital and convert it into a general hospital.

**Pneumonia Still Prevalent.**—Pneumonia continues on the increase despite the advent of springlike weather, as recently there were reported within twenty-four hours, twenty-two new cases and seven deaths. The health department is confident that the present apparent epidemic will soon subside, as the general public is rapidly becoming educated to the necessity of observing its rules for the protection of health.

### MINNESOTA

**Personal.**—Lieut. John S. Abbott, M. R. C., St. Paul, on duty with the British forces is reported to be suffering from a slight attack of trench fever at a base hospital.——Drs. Thomas Russell, Grand Rapids; Delbert F. Dumas, Deer River; R. V. C. Blythe and Edward Seguin, Bovey, have been appointed physicians of Itasca County.

**Service Flag for Medical College.**—A service flag bearing fifty stars was hoisted over Millard Hall, the main hall of the University of Minnesota, Minneapolis, February 25. The stars represent the members of the faculty who have entered the Medical Corps.——February 26, the students of the college of medicine dedicated a service flag bearing about 700 stars, representing all the students who have entered the government service since the outbreak of the war.

**Lectures on Social Hygiene.**—Dr. Mabel S. Ulrich, Minneapolis, supervisor of social hygiene education for the state board of health, has arranged for a course of lectures to be given at the University of Minnesota, Minneapolis, for the purpose of training women to extend the work of giving social hygiene lectures throughout the state. Professors Nochtrieb, Frank C. Todd, Coffman and Woodrow of the faculty are cooperating with Dr. Ulrich, and each will give two or three lectures on problems of social hygiene along their respective lines of work in the university. This course is open only to women outside the university, students and other persons suggested by the state board of health.

### MISSOURI

**Academy Banquet.**—At the twenty-third annual banquet of the Kansas City Academy of Medicine, February 13, twenty-five officers of Base Hospital Unit No. 28 were the guests of honor. Dr. Peter T. Bohan officiated as toastmaster, and addresses were made by Majors Reginald H. Meade, Lindsay S. Milne, John F. Binnie, and Jabez N. Jackson, and by Dr. C. Lester Hall, all of Kansas City.

**Social Diseases Reportable.**—By unanimous vote, the city council of Kansas City has passed ordinances ruling that persons who have social diseases are reportable for isolation and treatment, prohibiting all persons from pandering or from living as inmates of disorderly houses, and making it a misdemeanor for an owner or driver of a public conveyance to solicit the patronage of questionable places.

**Service Flag Presentation.**—At its meeting, February 22, the Greene County Medical Society was presented with a service flag bearing eleven stars to represent the members of the society who are in the Medical Reserve Corps of the Army. Attorney Perry T. Allen, in his presentation speech, commended the physicians for their loyalty in sacrificing a good practice to accept the fortunes of war. Dr. William Smith, a pioneer member of the society, accepted the flag and the Rev. C. B. Miller made a patriotic address which was followed by a banquet tendered the members and guests at the Physicians' Club.

**Personal.**—Dr. Elliott Washburn, formerly business manager of the Kansas City General Hospital, and for the past few weeks in charge of the tuberculosis ward of the institution, has accepted a position on the state tuberculosis commission of New York.——Dr. John Kay, Perrin, was operated on for appendicitis at the Sisters' Hospital, St. Joseph, February 18, and is doing well.——Dr. William M. Kerr, Savannah, health officer of Andrew County, is convalescing after an attack of smallpox.——Dr. John F. Binnie, chief of the surgical staff of Base Hospital Unit No. 28, has resigned as a member of the staff of the Kansas City Hospital.

## NEW YORK

**Physicians' Building Sold.**—The Physicians' and Surgeons' Building, Rochester, was sold under foreclosure action against the Rochester Medical Building Company, incorporated, February 14. The purchase price was $30,000, subject to two incumbrances amounting to $125,000.

**Physical Training in Public Schools.**—Dr. Eugene Lyman Fisk, medical director of the Life Extension Institute has issued a protest against various amendments pending in the legislature which would greatly weaken the present system of compulsory physical training in the rural schools.

**Smallpox in New York State.**—A recent report issued by the New York State Health Department states that within the past few months there have been more than 250 cases of smallpox in various parts of the state, several of them being in the city of New York. In Utica there were forty-seven cases within two months, and seventy-eight cases in Frankfort County.

**Personal.**—Dr. Adolph I. Ringer has been appointed special consultant in diseases of metabolism in the German Hospital.——Dr. John E. Daugherty, Brooklyn, medical superintendent of Green Point Hospital for many years, was ordered transferred by Charity Commissioner Bird S. Coler, and has been succeeded by Dr. Thomas I. Price, assistant medical superintendent for the Kings County Hospital.——Lieut. Albert E. Gilmartin, Brooklyn, M. R. C., on duty at the base hospital at Camp Merritt, has been given leave of absence because of a nervous breakdown.

## OHIO

**Personal.**—Dr. Albert C. Carney has been elected president of the Hamilton Tuberculosis Sanatorium.——Dr. James G. Alcorn, Columbus, has just returned after five months' service with a base hospital at LaPanne, Belgium.——Dr. Clayton W. Russell, Springfield, is reported to be ill in the Springfield City Hospital.

**Licenses Revoked and Reinstated.**—It is reported that the license of Dr. George W. W. Walker of Roseville has again been revoked. He was formerly associated with the notorious "United Doctors" and his license was revoked several months ago. He was reinstated on the promise to cease itinerant practice, but on failure to do so, his license has been again revoked.——The license of Dr. Alfonza Aratus of Cincinnati was revoked by the state medical board on April 6, 1909, but at a recent meeting of the board he has been reinstated. He has been practicing in Kentucky during the interim.——The state medical board has postponed definite action on the reinstatement of Dr. Henry O. Davis of Steubenville whose license was revoked in 1914.

## PENNSYLVANIA

**Succeeds Dixon.**—Dr. B. Franklin Royer, who has been chief medical inspector of the state department of health for a number of years and who has supervised the work in the Harrisburg office during the long illness of Dr. Dixon, has been appointed active health chief, pending the selection of a permanent successor to the late commissioner.

**Admission of Venereal Diseases to Hospitals.**—The bureau of medical education and licensure has sent a notice to all the hospitals in the state urging them to admit patients with venereal diseases to their wards and dispensaries and to make adequate provision for their treatment. Emphasis was laid on the need of training of interns in the care of such cases.

**Personals.**—Dr. J. Louis Borsch, Jr., formerly of Philadelphia, has been awarded the Legion of Honor in recognition of his services as eye surgeon in the military hospital of Grand Père.——Dr. J. Solis Cohen celebrated his eightieth birthday anniversary, February 28.——Dr. George A. Knowles has been appointed a member of the board of trustees of the state hospital for the insane at Norristown.——Dr. Nathaniel S. Yawger has been appointed consulting neurologist to the eastern state penitentiary.

### Philadelphia

**Officers Elected.**—At the meeting of the Philadelphia Neurological Society, February 27, the following officers were elected for the ensuing year: president, Dr. Max H. Bochroch; vice presidents, Drs. Samuel C. Ingraham and Augustus A. Eshner; secretary, Dr. Nathaniel S. Yawger, and treasurer, Dr. S. F. Gilpin.

## WISCONSIN

**Personal.**—Dr. Daniel Hopkinson, Milwaukee, read a paper on "The Medical Witness" at the first session of the annual meeting of circuit judges of the state, held at Milwaukee, February 22.——Dr. Morris Morrison, Cashton, sustained serious injuries to the head and body in a runaway accident, February 26.

**Banquet to Base Hospital.**—The medical members of the Milwaukee Base Hospital Unit were tendered a complimentary dinner at the University Club by the Milwaukee Medical Society, February 21. Dr. Horace Manchester Brown was toastmaster, and addresses were made by Col. Thomas J. Kirkpatrick, director of the unit, Drs. Arthur T. Holbrook and Philip P. Rogers, and the Rev. Paul B. Jenkins.

## CANADA

**University News.**—The Carnegie Corporation, New York City, has presented McGill University, Montreal, with $1,000,000 in recognition of the devoted service and sacrifice of that institution in helping to bear Canada's burden of the war.——Mrs. Frank Oliver, Edmonton, Alta., has offered McGill University $10,000 or more to establish an annual scholarship of the value of $500 in memory of her son, the late Lieut. Allen Oliver, M.C., killed at the Somme.——The Ontario legislature is granting to the Ontario universities for 1918, the following amounts: Western, London, $20,000 for the public health department; $15,000 for the medical department; $15,000 for the arts, and a special grant of $10,000; Toronto University, large grants, including a special grant of $175,000; Queen's, Kingston, $80,000, including a special grant amounting to $25,000.

**Personal.**—Dr. Murdock D. Morrison, Dominion, Nova Scotia, has been appointed chief medical officer of the Nova Scotia Workmen's Compensation Board. He has been colliery doctor at Dominion since 1897.——Dr. Delmar Craig, London, Ont., has given up his position as superintendent of the Byron Sanatorium, and has joined the Canadian Army Medical Corps.——Dr. John W. Wood has been appointed surgeon to the jail at Lindsay, Ont., succeeding the late Dr. Wellington C. Jeffers.——Dr. Geraldine Oakley, Toronto, has been appointed supervisor of medical inspection in the public schools of Calgary, Alta., succeeding Dr. Rosamond B. Leacock, who will devote herself to pathologic work.——Col. William B. Hendry, D. S. O., who has been in command of the University of Toronto Base Hospital at Basingstoke, England, is expected to arrive in Toronto in a few days on a two months' leave of absence. While here he will consult with the university authorities with regard to increasing the accommodation at that hospital.——Lieut.-Col. Harold C. Parsons, Toronto, will be in command of the University of Toronto Base Hospital while Colonel Hendry is in Toronto.——Major Howard D. Harrison, Toronto, who joined the R. A. M. C. in 1915, is returning to Toronto to enter private practice.

## GENERAL

**Discharge of Carriers.**—The attention of the Surgeon-General of the United States Public Health Service has been called to the fact that men from the military service who are carriers of various infectious diseases, particularly meningitis, have been discharged into the civil communities of the country. Dr. Oscar Dowling, president of the Louisiana State Board of Health, has made a particularly strong protest against this action by the government authorities, calling attention to specific instances in which meningococcus carriers have been discharged from the service.

**British Medical Journal Under Handicap.**—Our contemporary, the *British Medical Journal*, states that in addition to a fire which has recently handicapped it in its mechanical department, it is about to suffer from restrictions which are to be enforced by the paper commission, and that its number of pages will be reduced, although to what extent is not announced.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Physicians Hospital, Plattsburg, N. Y., the bulk of the estate of Arnold H. Ellis, Plattsburgh, appraised at $50,000.

New York Association for the Blind, and Home of Rest for Consumptives, $10,000 each, and a hospital in Syracuse to be designated by Grace Church of Baldwinsville, $5,000, by the will of Mrs. Mary Elizabeth Turnure.

**Posture League.**—The annual meeting of the American Posture League in New York City, March 9, closed with a dinner for the honorary boards at the Aldine Club. The following officers were elected: Miss Jessie H. Bancroft, president; Major Frederick R. Green, M. R. C., U. S. Army, Chicago, vice president; Dr. Henry Ling Taylor, New York City, secretary, and Dr. Percy W. Roberts, treasurer, New York City. The reports for the year showed great activity along lines created by war conditions, indicating a quickened public conscience on the subject of health. The technical committees of the league reported that the work for the year was completed on factory and school seats, and shoes and other articles of clothing for men, women and children. They also reported a large educational service rendered by the league.

**License for the Sale of Chemicals.**—A license is now required for the sale of certain chemicals. This license must be procured from the Bureau of Mines, Washington, D. C., and Pittsburgh, or from a designated representative in certain localities. The cost of the license is 25 cents, and covers the following chemicals: nitro acids of all kinds, perchloric and picric acids, ammonium bichromate, chromate, nitrate and picrate, barium chlorate, chromate, nitrate and peroxid, calcium chromate, permanganate and peroxid, copper and ferric nitrate, lead chromate and citrate, magnesium nitrate, perborate and peroxid, nickel nitrate, oxone, potassium bichromate, chlorate, chromate, nitrate, perchlorate and permanganate, phosphorus, silver nitrate, sodium bichromate, chlorate, chromate, perborate, permanganate and peroxid, strontium chlorate, nitrate and peroxid, and zinc perborate and peroxid.

## FOREIGN

**Prize Offered for Work on Biochemical Causes of Cancer.**—A Swedish exchange, *Hygiea*, reproduces a circular sent out by the Senckenberg Scientific Society at Frankfurt a. M., Germany, announcing that a prize of 15,000 marks is to be awarded in September, 1920, for the best work on the biochemical causes of malignant tumors. The circular further states that an annual stipend of 5,000 marks may be allowed to one or several workers in this line after Sept. 1, 1918, for the purchase of material, etc. Prof. A. Knoblauch is in charge of the matter.

**Deaths in the Profession Abroad.**—**A. W. E. Erlandsen**, professor of hygiene at the University of Copenhagen, aged 39. His works on phosphatids, on the titrated skin tuberculin tests and on phlorizin diabetes have attracted attention, and his work in recent years as consultant in public health matters has been of fundamental importance. He succumbed to granulomatosis.——**C. I. Istrati**, professor of organic chemistry and dean at the University of Bucharest, president of the Roumanian Academy of Sciences.——**J. W. Runeberg**, professor emeritus of clinical medicine at the University of Helsingfors, Finland, aged 75. He was on the editorial staff of the *Nordiskt Medicinskt Arkiv* and of the *Finska Läkaresällskapets Handlingar* and was a prominent figure at international medical gatherings. His name is best known by his work on the bothriocephalus and pernicious anemia.——**G. Walling**, medical member of the Havana board of health for thirty-four years.

## LONDON LETTER

London, Feb. 19, 1918.

### Improvement in Health of London Schoolchildren During the War

At the meeting of the Education Committee of the London County Council, the Children's Care Subcommittee reported on the physical condition of children in London schools, to which close attention has been given during the war. It is found that there has been an all-round improvement in the physical condition of the children, and that the number undernourished has greatly decreased. The explanation appears to be the high wages earned during the war and the absence of unemployment, which have more than compensated for the increased cost of living.

### Army Medical Records

The problem of army medical records is a complicated one. The sick or wounded soldier passes through many hands from the time he is struck down on the field till he reaches the hospital in England. It is important not only for his treatment but also for the compilation of the medical history of the war that complete records should be kept. The case sheets that have been in use in the army, however suitable in time of peace, have been found cumbersome under the pressure of this gigantic war. The statistical department of the Medical Research Committee (a body appointed under the insurance act for medical investigation which, as previous letters to The Journal show, has rendered great service in investigations connected with the war) has devised a new medical field card to serve as a condensed diary of the patient's hospital career at the seat of the war. The first entry is made by the field ambulance; it gives the date of the wound or onset of illness, a note of the administration of antitetanic serum or morphin, and the diagnosis. The card is enclosed in a stout envelop, which is tied to the man's tunic, and goes with him to the casualty clearing station. There, as at the base hospital, any alteration or addition to the diagnosis is noted, and the inside of the folded card affords space for clinical notes. The envelop contains spaces for particulars of the ambulance train, convoy and hospital ship by which the man is transferred, as well as for information regarding his needs in transit. Temperature charts or additional notes may be sent in the envelop. Thus the patient reaches the home hospital with a brief record of the early stages of his case. On his admission to an oversea base hospital another card—the index card—is issued. There the diagnosis, any operation and its result, and all complications in order of occurrence and a brief summary of other important facts are entered. When the patient reaches a home hospital from overseas, a similar card, printed in red, is made out for him. The cards eventually reach the Medical Research Committee, which arranges and files them for future reference. The three (or two) cards taken together obviate the necessity of maintaining the old medical case sheet, which is no longer required, except for cases of special importance or interest. In addition to this uniform system, applicable to all cases, another more elaborate system has been set up to facilitate inquiries into special classes of cases. Special note-taking schedules have been supplied by the Medical Research Committee to be used for grouping the records of special types of cases, the treatment of which is being studied by chosen medical officers. These subjects include wounds of joints and fractures of long bones; amputations; wounds of the head, chest and abdomen; functional nervous disorders; injuries of the spine; disorders of the heart; nephritis, and gas poisoning.

### The Army Medical Service

Since he abandoned practice (except that of consulting surgeon to the navy) for Parliament, Sir Watson Cheyne has done useful work by bringing his special knowledge to bear on medicopolitical questions. His maiden speech on the question of bone-setters and the treatment of wounded soldiers has been previously given in The Journal. He has now criticized the government for the delay in the publication of the report of the committee that has inquired into the medical service in France. It appears that the matter has been under the consideration of the Army Council for two months. Sir Watson Cheyne expressed the opinion that the delay may be in part due to the fact that there is no medical member on this council. Had the director-general of the army medical service been a member of the council when the medical arrangements were being devised for the

Mesopotamia expedition, there would have been no scandal. A similar question with regard to the more complete recognition of the medical service of the United States Army has recently been discussed in The Journal. Sir Watson Cheyne also pointed out that quite early in its work the Air Board had recognized the need of a medical service for the new force. A committee was appointed to advise, but action on its report was delayed and it became known that some sort of intrigue had been going on with the view of preventing the establishment of a special service. Thereupon a second committee was appointed, which tried to keep the two older services in touch with the air service, and a compromise has been reached. The delay of many months such as had occurred was very serious; airmen were losing their lives for want of a proper medical service, and during the period of delay medical officers could not be trained to cope with their illness. Though he did not think much of the compromise, he hoped that it would allow the air service to begin at once to train medical officers. If the compromise broke down, it would be possible to fall back on the original complete scheme.

## PARIS LETTER

Paris, Feb. 14, 1918.

### Surgical Results Obtained During the Last Aisne Offensive

At a recent meeting of the Académie de médecine, Dr. Tuffier, professeur agrégé à la Faculté de médecine de Paris, and chirurgien des hôpitaux, read a very interesting communication on this subject. As consulting surgeon of the armies in the field, he has been instrumental in effecting the organization of the medical services for the wounded, following the operations during the battle and confirming the ultimate results. He said that our soldiers attained more than the assigned objective on the first day. The irresistible assault necessarily entailed a high proportion of severe wounds; in fact, although 80 per cent. of the wounded were evacuated at once, 20 per cent. were found to be untransportable. So far as the site of the wound is concerned, 16 per cent. were head wounds; 33 per cent. legs; 34 per cent. arms; 10 per cent. thorax; 4 per cent. abdomen, and 2.6 per cent. spine; 20 per cent. of the men suffered multiple wounds. Shell fragments caused 72 per cent. of the wounds; bullets, 17 per cent. The general mortality among the wounded has been 5.18 per cent., due to hemorrhage, to shock, and to the gravity of the wounds. Complicating gangrene had a rate of 3 per thousand, and tetanus of 5 per 10,000. The abdominal wounds were always the most severe. They caused 61 per cent. of the mortality; on the other hand, wounds of the thorax yielded the greatest number of successes (20 per cent. mortality). The fractures and wounds of joints comprised 77 per cent. of the sutures. The wounds of the soft parts gave most remarkable results (83 per cent. cured), so that after forty-five days there remained in the army zone posts only 1.43 per cent. of the wounded.

These results, heretofore unknown during periods of offensive of such intensity, were due to the best possible arrangement of well organized surgical posts; the rapidity of the relief given and the evacuation of the wounded to the special posts for each class of wounds, of which the need was well foreseen; the close cooperation between all the surgical services, which made use of the same technic and the fact that surgeons were able to follow their patients from the firing line back to the rear; and, finally, to the perfection of the technic of immediate disinfection of wounds, primary suture—immediate or tardy—and to secondary suture after chemical disinfection according to the Carrel method.

### Recreation Centers for Soldiers

M. Painlevé, minister of war, has decided to establish about 1,300 "foyers du soldat" in the rest billets of the armies. He called on those who have already been doing so much to promote the moral and physical welfare of the soldiers both at the front and in the rear, and referred especially to those who organized the "Foyer du soldat," founded in 1914. The commander in chief has endorsed this appeal and approved of the immediate organization of 100 new "foyers."

The underlying idea is to enable the soldier during his rest periods to spend his time acceptably by contributing to his material comfort and also furnishing him with diversion. M. Sautter, who organized the "Foyer du soldat" in 1914, knew well the obstacles and difficulties to be surmounted. These have been overcome, thanks to the cooperation of the Americans, as shown by the assistance granted by the Y. M. C. A., which has agreed to aid in carrying on the same work in the French armies. This activity will be designated as "Les Foyers du Soldat. Union franco-américaine." Two figures suffice to emphasize the importance of the work done already. Up to the end of 1917, 4,300,000 francs had been spent. The central committee of the Y. M. C. A. in New York has decided to raise for the first six months of 1918, 17,500,000 francs, which will provide sufficient funds to defray the expenses of the 1,300 recreation centers which the minister of war has decided to establish.

### Conservation of Public Health

At its last meeting, the council of administration of the Union des syndicats médicaux de France passed a resolution in which it was stated that, being informed of the projects of the Assistance publique relative to the medical organization of the fight against syphilis, the council approves of the establishment of dispensaries for the treatment of this disease, demanding, however, that these dispensaries be placed in charge of physicians to be appointed on advice of the medical authorities and not at the behest of the prefects. The council protested against treating all classes of patients in these dispensaries, whatever their material situation may be, because the prophylactic work demands a most thorough examination by the chiefs of the service, and the individual treatment of all patients, without exception, which is impracticable under a system of open consultation without control.

# Association News

## THE CHICAGO SESSION

### Committee on Arrangements

The Local Committee on Arrangements for the Annual Session of 1918 to be held in Chicago, June 10-14, is actively engaged in perfecting plans for the comfort and entertainment of the Fellows of the Association and their guests.

All correspondence with the Local Committee on Arrangements or with any of its subcommittees should be addressed to 25 East Washington Street, Chicago.

### Clinics

The chairman of the subcommittee on clinics, Dr. Charles F. Humiston, announces that there will be a series of clinics for the Fellows of the Association on Thursday, Friday and Saturday, June 6, 7 and 8, and on Monday and Tuesday, June 10 and 11. Further announcements regarding the clinics will appear in these columns from time to time.

### Alumni and Section Dinners

Alumni and section dinners will be held on Wednesday evening from 6 to 8 o'clock so as not to conflict with other events which are being planned. The chairman of the subcommittee on alumni and section entertainment, Dr. J. H. Stowell, announces that his committee is cooperating with officers of alumni associations in arranging for reunions. The committee desires, also, to assist the officers of those sections which desire to arrange for section dinners.

# Marriages

Lieut. Milfert Weaver Meyers, M. R. C., U. S. Army, York, Pa., on duty at Camp Wadsworth, Spartanburg, S. C., to Miss Anna Neal of Lansford, Pa., at Camp Wadsworth, February 14.

Lieut. George Henry Crofton, M. R. C., U. S. Army, Worcester, Mass., on duty at Fort Sam Houston, Texas, to Miss Agnes J. Rogers of Hartford, Conn., February 6.

Robert Sproul Carroll, M.D., Asheville, N. C., to Miss Grace Stewart Potter of Chicago, February 28.

Wilbur C. Medill, M.D., Yonkers, N. Y., to Miss Fay Calderwood of Steubenville, Ohio, February 2.

William Alanson White, M.D., to Mrs. Lola P. Thurston, both of Washington, D. C., February 21.

Arthur Isidor Blau, M.D., to Miss Lillian Evelyn Klein, both of New York City, February 25.

# Deaths

**Howard J. Williams, M.D.,** Macon, Ga.; Jefferson Medical College, 1881; aged 59; a Fellow of the American Medical Association; president of the Medical Association of Georgia in 1907; formerly president of the state board of health; a member of the medical staff of the Macon Hospital since the institution was founded; for twenty years a member and for five years chairman of the city board of health; one of the noted surgeons of the South; surgeon of the Central Georgia Railroad since 1897, and of the Georgia Railroad since 1890; and chief surgeon of the Macon, Dublin, and Savannah Railroad; president of the Central of Georgia Surgeons' Association in 1895, and at the time of his death president of the Georgia Railway Surgeons' Association; died in his sanatorium in Macon, March 1, from carcinoma of the throat.

**Alfred Birch Huested, M.D.,** Delmar, N. Y.; Albany (N. Y.) Medical College, 1863; aged 77; a member of the Medical Society of the State of New York; hospital steward of the One Hundred and Thirteenth New York Volunteer Infantry, and later first lieutenant and assistant surgeon of the One Hundred and Thirty-First New York Volunteer Cavalry during the Civil War; for many years a druggist; president of the State Pharmaceutical Association from 1880 to 1884; professor of materia medica and botany in the Albany College of Pharmacy from 1893 to 1917, and for the last five years secretary of the college; president of the state board of pharmacy from its organization in 1884, for sixteen years, and a member of the board until the time of his death; died at his home, February 23.

**David Powell, M.D.,** Marysville, Calif.; Cooper Medical College, San Francisco, 1871; aged 69; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; one of the organizers of the Yuba-Sutter Medical Society, and its secretary for several terms; once president of the California Northern District Medical Society; at one time a member of the State Board of Medical Examiners; for many years district surgeon for the Southern Pacific, Western Pacific and Northern Electric railways; for several terms a member of the Marysville Board of Health and Board of Education; died at his home, February 28, from malignant diseases.

**Read Jennings McKay, M.D.,** Wilmington, Del.; Bellevue Hospital Medical College, 1867; aged 75; a member of the Delaware State Medical Society and its president in 1885; formerly a Fellow of the American Medical Association; a member of the American Ophthalmological Association, and American Otological Society; president of the Newcastle County Medical Society in 1904; assistant to the chair of ophthalmology in his alma mater from 1872 to 1877; oculist and aurist to the Delaware Hospital, Wilmington; died at his home, March 1.

**Frederick Dudley Tait, M.D.,** San Francisco; Bellevue Hospital Medical College, 1886; University of Paris, France, 1889; aged 55; a Fellow of the American Medical Association; formerly president of the California Academy of Medicine; a member of the State Board of Medical Examiners, and of the French Surgical Society; president of the San Francisco County Medical Society; a prolific contributor to the periodical literature of surgery; died in the Adler Sanatorium, San Francisco, February 26, from malignant endocarditis.

**Alfred Hamilton Levings, M.D.,** Milwaukee, Wis.; Northwestern University Medical School, Chicago, 1872; aged 70; a Fellow of the American Medical Association, and a member of the Western Surgical Association; one of the organizers and first president of the Wisconsin Surgical Association; professor of surgery and clinical surgeon in Marquette University, Milwaukee; one of the best known surgeons of the Northwest; died at his home, March 4.

**Frank Marshall Reade, M.D.,** Richmond, Va.; Medical College of Virginia, Richmond, 1899; aged 54; formerly a Fellow of the American Medical Association; professor of pharmacy, and later of meteria medica, therapeutics and obstetrics in his alma mater; chief of the obstetric staff of the Virginia Hospital, Richmond, and for several terms a member of the common council; died at his home, February 26, from chronic nephritis.

**Elisha P. Swift, M.D.,** Norway, Mich.; University of Pennsylvania, Philadelphia, 1889; aged 52; formerly a member of the Michigan State Medical Society, and a Fellow of the American Academy of Medicine; proprietor of the Pennsylvania and Aragon Hospital; surgeon to the Aragon Mine, and local surgeon to the Chicago and Northwestern, and Wisconsin and Michigan railways; died in Clearwater, Fla., February 22.

**Fred Phelps Stiles, M.D.,** Sparta, Wis.; Hahnemann Medical College, Chicago, 1880; aged 62; mayor of Sparta in 1900 and 1901, and from 1916 to 1918 a member of the Monroe County board; for twelve years director of the board of education; a member and president of the public library board; associate editor of the *Minneapolis Homeopathic Magazine;* died at his home, February 24, from angina pectoris.

Died in the Service

Capt. Frank Shumway Pratt, M.D., M. R. C., U. S. Army, 1866-1918

(*See The Journal, March 2, p. 641*)

**Charles Mason Frissell, M.D.,** Wheeling, W. Va.; College of Physicians and Surgeons in the City of New York, 1882; aged 58; a Fellow of the American Medical Association; founder of the Wheeling Hospital Training School for Nurses; died at his home, February 12, from heart disease. At a meeting of the Ohio County Medical Society, February 22, resolutions of respect were adopted.

**Julius Tillman Haney, M.D.,** Tuscumbia, Ala.; University of Alabama, Mobile, 1891; aged 59; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama, and secretary-treasurer of the Colbert County Medical Society; health officer of Colbert County; died in St. Vincent's Hospital, Tuscumbia, February 16.

**Lacy Bebee Darling, M.D.,** Palmyra, N. Y.; Long Island College Hospital, Brooklyn, 1893; aged 54; a member of the Medical Society of the State of New York, and the Rochester Academy of Medicine; died at his home, February 19, from chronic intestinal nephritis.

**William A. Kuhn, M.D.,** White Cloud, Mich.; Bennett Eclectic Medical College, Chicago, 1887; a member of the Michigan State Medical Society; for three terms president of the village of White Cloud, and for many years a member of the school board; died in Butterworth Hospital, Grand Rapids, Mich., February 19, from hypertrophy of the heart.

**David Ramsey Hindman, M.D.,** Marion, Iowa; Homeopathic Medical College of Pennsylvania, Philadelphia, 1857; aged 85; a veteran of the Civil War; and in 1916 medical director of the G. A. R. Department of Iowa; a member of the city council of Marion in 1874, and for more than ten years city health physician; died at his home, February 25.

**William James Greanelle, M.D.,** New York City; College of Physicians and Surgeons in the City of New York, 1893; aged 47; chief of staff of the Good Samaritan Dispensary, and assistant surgeon of the Twenty-Second Infantry, N. G., N. Y.; died at the Hitchcock Sanatorium, Crest View, Greenwich, N. Y., January 19, from cerebral hemorrhage.

**W. Homer Hoopes, M.D.,** Newport, Pa.; College of Physicians and Surgeons, Baltimore, 1887; aged 55; a Fellow of the American Medical Association; also a druggist; was thrown from a sleigh, February 25, and dragged a considerable distance, suffering a fracture of the skull, and died from his injuries at his home a few hours later.

**Raymond Alfred Clifford, M.D.,** Ypsilanti, Mich.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1898; Jefferson Medical College, 1899; aged 44; a Fellow of the American Medical Association; who was operated on a few months ago for the removal of the spleen; died in the Clifton Springs (N. Y.) Sanitarium, March 2, from heart disease.

**Clarence Samuel Allison, M.D.,** Pittsburgh; University of Pittsburgh, 1908; aged 32; a Fellow of the American Medical Association; bacteriologist at the William H. Singer Memorial Laboratories for Scientific Research, Northside, Pittsburgh; a member of the Society of American Bacteriologists; died in the Allegheny General Hospital, February 23.

**George Francis Morris, M.D.,** New York City; Albany (N. Y.) Medical College, 1878; aged 65; a member of the Medical Society of the State of New York; for more than thirty years a medical examiner in the Department of Health of New York City; while crossing Broadway and Eighteenth Street, February 25, died from heart disease.

**Edward Milton Richman, M.D.,** Newark, N. J.; University of Pennsylvania, Philadelphia, 1898; aged 45; a Fellow of the American Medical Association; founder of the Newark Private Hospital; at one time president of the visiting staff of St. James' Hospital, Newark; died in the Newark Private Hospital, March 2, from heart disease.

**James Emmett Conn, M.D.,** Ida Grove, Iowa; State University of Iowa, Iowa City, 1892; aged 50; a Fellow of the American Medical Association, and a well-known surgeon of Iowa; founder of the Conn Hospital; and president of the Ida County Telephone Company; died at his home, March 2.

**George Frederick Roehrig, M.D.,** Denver; Jefferson Medical College, 1890; aged 56; a Fellow of the American Medical Association; for twenty-five years local surgeon of the Burlington system, and a member of the staff of St. Luke's Hospital; died at his home, February 18, from angina pectoris.

**William H. Humphrey, M.D.,** Yellow Springs, Ohio; Medical College of Ohio, Cincinnati, 1877; aged 65; a Fellow of the American Medical Association; also a druggist; president of the Greene County Medical Association for several terms; died at his home, February 18, from heart disease.

**Augustus Selle Rose, M.D.,** Fayetteville, N. C.; University College of Medicine, Richmond, Va., 1901; aged 45; a Fellow of the American Medical Association; also a pharmacist; died in Highsmith Hospital, Fayetteville, February 15, two days after an operation for appendicitis.

**Oscar W. Edmonds, M.D.,** Frankfort, Ind.; Starling Medical College, Columbus, Ohio, 1886; aged 56; formerly a member of the Indiana State Medical Association, and mayor of Frankfort since 1910; died, February 17, from tuberculosis.

**John S. Booth, M.D.,** Montreal, Que.; McGill University, Montreal, 1889; was knocked down by a street-car and crushed beneath the wheels, while crossing the street in Montreal, February 19, and died soon after in the Western Hospital.

**Edward Arbo Trommald, M.D.,** Los Angeles and Long Beach, Calif.; Cooper Medical College, San Francisco, 1896; aged 52; a specialist on diseases of the eye, ear, nose and throat; died, February 17, after a surgical operation.

**William Allan MacFarlane, M.D.,** Chicago; University of Illinois, Chicago, 1890; aged 69; formerly a Fellow of the American Medical Association; died at his home, February 22, from acute parenchymatous nephritis.

**Alfred L. S. Morand, M.D.,** Boston; Philadelphia College of Medicine and Surgery, 1858; aged 80; formerly acting assistant surgeon in the United States Army; died in the Chelsea (Mass.) Hospital, January 30.

Died in the Service

Lieut. Henry Edward Hungerford, M.D., M. R. C., U. S. Army, 1872-1918

(*See The Journal, March 2, p. 641*)

**Loyd L. McKinney, M.D.,** Burnsville, W. Va.; Kentucky School of Medicine, Louisville, 1893; aged 50; a Fellow of the American Medical Association; local surgeon of the Baltimore and Ohio system; died at his home, February 18, from typhoid fever.

**Rachel B. Lain, M.D.,** Vallejo, Calif.; Hahnemann Medical College, Chicago, 1890; formerly a member of the Medical Society of the State of California; died at her home, February 18, from cerebral hemorrhage.

**Alexander Vaughan McDonald, M.D.,** Fond du Lac, Wis.; University of Pennsylvania, Philadelphia, 1904; aged 42; died at the home of his wife's parents in Philadelphia, February 20, from pneumonia.

**David M. Winton, M.D.,** Huntsville, Ala.; University of Alabama, Mobile, 1886; aged 56; a member of the Medical Association of the State of Alabama; died at his home, February 8, from pellagra.

**John Binnie, M.D.,** Poynette, Wis.; Rush Medical College, 1875; aged 73; a Fellow of the American Medical Association; died in a hospital in Madison, Wis., February 16, after a surgical operation.

**William Andrew McCornack, M.D.,** Oakland, Calif.; Cooper Medical College, San Francisco, 1873; New York University, New York City, 1880; aged 68; died at his home, February 9.

**Millard F. Bailey, M.D.,** Wheeling and Warwood, W. Va.; University of Tennessee, Nashville, 1894; aged 56; died at his home in South Warwood, February 19, from cirrhosis of the liver.

**Richard H. Moore, M.D.,** Groesbeck, Ohio; Medical College of Ohio, Cincinnati, 1862; aged 78; died at his old home in Mount Healthy, Ohio, February 17, from cerebral hemorrhage.

**James Edward Ashburn, M.D.,** Portsmouth, Va., Leonard Medical School, Raleigh, N. C., 1895; aged 54; a colored practitioner; died at his home, February 17, from asthma.

**Warren Hayes Smith, M.D.,** Nashville, Tenn.; Vanderbilt University, Nashville, 1915; aged 25; died at the home of his father in Nashville, February 12, from tuberculosis.

**Frederick William Dykes, M.D.,** La Riviere, Manit.; Manitoba Medical College, Winnipeg, 1902; was burned to death in a fire which destroyed his house, February 13.

**James Munday Mason,** Hawesville, Ky. (license, Kentucky, sixteen years practice, 1896); aged 57; died at his home, February 15, from tuberculosis.

**Andrew J. Simmonds, M.D.,** Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1877; aged 67; died in Mercy Hospital, Hamilton, February 16.

**John A. O'Brien, M.D.,** New York City; Texas Medical College, Galveston, 1876; aged 78; died at his home, February 17, from gastric ulcer.

**John W. McFarland, M.D.,** Lebanon, Tenn.; University of Nashville, Tenn., 1868; aged 74; died at his home, December 20, from chronic dysentery.

**John Henry Mullen, M.D.,** Lynn, Mass.; Harvard Medical School, 1900; aged 41; died in his office in Lynn, February 21, from heart disease.

**Pierre E. Dansereau, M.D.,** Nashua, N. H.; Ecole de Medecine et de Chirurgie, Montreal, 1897; aged 71; died at his home, February 3.

**William Henry, M.D.,** Harmon, Ill.; Rush Medical College, 1870; aged 78; died at his home, January 9, from cerebral hemorrhage.

**Chalmers McCall Dickson, M.D.,** Lansing, Mich.; University of Michigan, Ann Arbor, 1880; died at his home, about February 12.

# The Propaganda for Reform

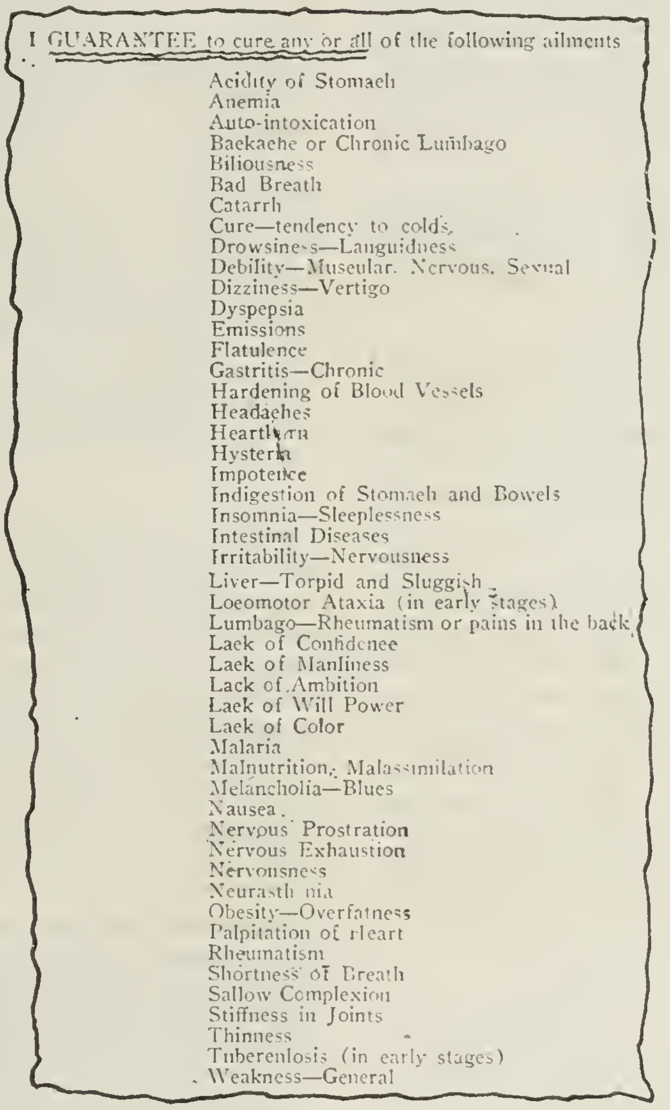
In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## SWOBODA'S "CONSCIOUS EVOLUTION"

### Quackery and Pseudo-Science of the Physical Culture Type

Quackery is always versatile. It seeks to turn to account the latest therapeutic fads or fashions. Especially noticeable has been the tendency in the past few years to capitalize the altogether admirable trend on the part of the public toward exercise. Numerous "systems" of exercise have been advertised under claims that seem to have been limited only by the vocabularies and imagination of those exploiting them. All of these "systems" being in their essentials both old and obvious, it has been necessary to create, as "selling points," elements either of mystery or of pseudo-science which are presented with all the plausibility known to the art of advertising.

For some years Alois P. Swoboda, once of Chicago and Washington, D. C., but now of New York City, has been selling a mail-order "course" in his "System of Physiological Exercise." Naturally, the cure and alleviation of disease is part and parcel of the "system," for this may always be counted on to widen the appeal and to provide the opportunity of using the ubiquitous testimonial whose commercial value is as large as its scientific value is small.



I GUARANTEE to cure any or all of the following ailments

Acidity of Stomach
Anemia
Auto-intoxication
Backache or Chronic Lumbago
Biliousness
Bad Breath
Catarrh
Cure—tendency to colds.
Drowsiness—Languidness
Debility—Muscular. Nervous. Sexual
Dizziness—Vertigo
Dyspepsia
Emissions
Flatulence
Gastritis—Chronic
Hardening of Blood Vessels
Headaches
Heartburn
Hysteria
Impotence
Indigestion of Stomach and Bowels
Insomnia—Sleeplessness
Intestinal Diseases
Irritability—Nervousness
Liver—Torpid and Sluggish
Locomotor Ataxia (in early stages)
Lumbago—Rheumatism or pains in the back
Lack of Confidence
Lack of Manliness
Lack of Ambition
Lack of Will Power
Lack of Color
Malaria
Malnutrition, Malassimilation
Melancholia—Blues
Nausea
Nervous Prostration
Nervous Exhaustion
Nervousness
Neurasthenia
Obesity—Overfatness
Palpitation of Heart
Rheumatism
Shortness of Breath
Sallow Complexion
Stiffness in Joints
Thinness
Tuberculosis (in early stages)
Weakness—General

Before Swoboda had developed his bump of caution his claims were of the "lie direct" type. Above is a photographic reproduction (reduced) from a booklet sent out some time ago as part of the "come-on" literature of the Swoboda "System." This long list of ailments which Swoboda "guaranteed" to "cure" no longer appears in the present advertising matter.

### CONSCIOUS EVOLUTION

"Conscious Evolution" is Swoboda's shibboleth. Not that it means anything, but it sounds rather scientific and can be counted on to impress both the thoughtless and that still larger class of individuals who merely think they think. Swoboda is not the first to appreciate that a meaningless phrase, if couched in pseudo-technical language, paraded frequently and solemnly with a lavish use of italics, capitals and blackfaced type, may be counted on effectually to take the place of thought or common sense.

"Conscious Evolution" seems to have been a bright afterthought, for Swoboda's present advertising booklets differ chiefly from the earlier editions in the substitution of the phrase "Conscious Evolution" for what was formerly "Swoboda's System." According to Swoboda:

> ". . . Conscious Evolution. . . . IS BASED UPON A DISCOVERY IN THE CELLS OF THE BODY WHICH I MADE, AND WHICH HAS REVOLUTIONIZED THE EFFECT OF EXERCISE."

The curative claims made for the Swoboda System have undergone those changes from the "lie direct" to the "lie with circumstance," which in the past few years have characterized advertising through the whole field of quackery. Take for example, these claims made some years ago by Swoboda:

> "It is the only natural, easy and speedy method for obtaining perfect health, physical development and elasticity of mind and body. ABSOLUTELY CURES CONSTIPATION, INDIGESTION, SLEEPLESSNESS, NERVOUS EXHAUSTION AND REVITALIZES THE WHOLE BODY." [Capitals in the original.—Ed.]

### THE LIE WITH CIRCUMSTANCE

No longer will you find these frank and open falsehoods in the Swoboda advertising; the method of today is less direct. Note for instance the latter day substitute for his older claim that his system "Absolutely Cures Constipation":

> "Regarding constipation, I wish to say that I have treated not less than 37,000 people by my System for this ailment alone, and I have yet to learn of the first failure."

No longer do Swoboda's exercises "absolutely cure indigestion," but

> ". . . my System has been the greatest success in correcting, permanently, all forms of functional digestive troubles."

Before leaving the past it seems worth while, even if only for purposes of perspective, to quote a few of the older claims:

> "*You can be physically just what you wish to be.* You can have reserve vitality for every emergency. *I guarantee it.*"—(*Literary Digest*, Jan. 31, 1914.)
>
> "My book [advertising booklet] will give you a better understanding of yourself than you could obtain from a college course. The information which it imparts cannot be obtained elsewhere at any price."—(*Harper's Weekly*, March 6, 1915).
>
> "The Swoboda System can make you tireless, improve your memory, intensify your will power, and make you physically just as you ought to be. I promise it."—(*Vanity Fair*, May, 1915).
>
> "Swoboda, the world's greatest builder of men, has discovered a remarkable system of rejuvenating the cells . . ."—(*Literary Digest*, May 6, 1916.)

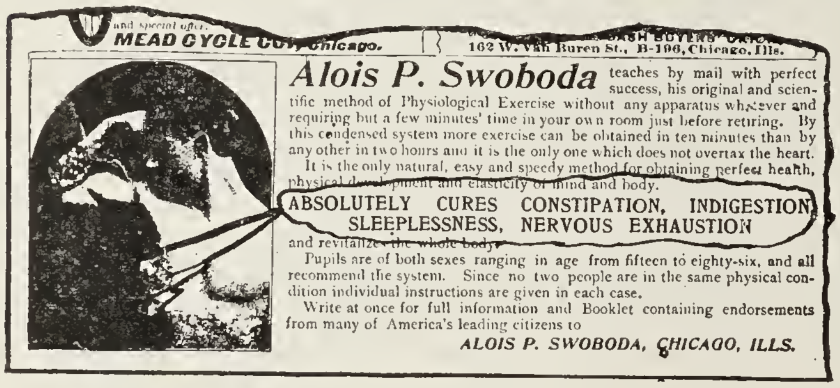
It is not to be inferred from the matter quoted that Swoboda's claims have become more truthful; they are merely more cautious. Take for example the following quotations, describing Swoboda's "System," that appeared in a half-page advertisement of *Collier's* as recently as March 2, 1918, under the screaming headlines: "How to be a Giant in Energy, Health and Mind":

> "A unique, new and wonderful discovery that furnishes the body and brain cells with a degree of energy that surpasses imagination."
>
> "This new system . . . has already resulted in the complete recovery of thousands upon thousands of 'extreme' cases . . ."
>
> ". . . it accomplishes seemingly impossible results entirely without the use of . . . exercises . . ."
>
> ". . . this system does its revolutionizing work without asking you to do anything you do not like and neither does it ask you to give up anything you do like."
>
> "When we lack energy and power, when we are listless, when we haven't smashing, driving power back of our thoughts and actions, when we must force ourselves to meet our daily business and social obligations, when we are sick or ailing . . . it is simply because certain cells are weak and inactive or totally dead. . . . These facts . . . were discovered by Alois P. Swoboda and resulted in his marvelous system of cell-culture."

### ANSWERING THE ADVERTISEMENT

Having read the very plausible advertisements—and Swoboda evidently spends a good deal of money not only for the space of his advertisements, but also for the "copy"—one writes to Swoboda and receives in return a form-letter so prepared as to simulate an individual communication. In this letter Swoboda says that he is enclosing his book "explaining the human body"—a mere bagatelle—and giving complete information regarding his "system." The book is entitled "Conscious Evolution," and is practically identical with a book sent out earlier by him entitled "Evolutionary Exercise." About one half of the book is devoted to testimonials. The letter explains further that Swoboda's "course" is given in six lessons with one week's interval between lessons. The charge "is always the same, namely, $20 for the complete course." Attention is also called to the enclosed diagnosis blank which the recipient is asked to fill out and send with the twenty dollars. Not that Swoboda calls it a diagnosis blank; "Health Statement" is the more cautious appellation.

If the first letter is not answered, a second comes in due time again urging that $20 be sent and enclosing another diagnosis blank. This letter, if ignored, is followed by a third and it by a fourth. Should the fourth letter bring no response, a period of a few months elapses and a fifth comes marked "personal." In the fifth letter, in spite of the statement reiterated in the first four letters that the charge is never less than $20, this letter offers for $10 the same course "for which I have asked $20 of you in my former letters." Should this letter also fail to bring grist to Swoboda's mill, another period elapses and the sixth letter—also marked "Personal"—arrives offering the regular $20 course "on the following terms: $5 in advance, and $1 per week for five weeks. . . ." Should this persuasive letter also be ignored, the seventh "personal" epistle comes, with this postscript:


and special offer.
MEAD CYCLE CO., Chicago.
ASH BUYERS' U
162 W. Van Buren St., B-190, Chicago, Ills.

**Alois P. Swoboda** teaches by mail with perfect success, his original and scientific method of Physiological Exercise without any apparatus whatever and requiring but a few minutes' time in your own room just before retiring. By this condensed system more exercise can be obtained in ten minutes than by any other in two hours and it is the only one which does not overtax the heart.

It is the only natural, easy and speedy method for obtaining perfect health, physical development and elasticity of mind and body.

ABSOLUTELY CURES CONSTIPATION, INDIGESTION, SLEEPLESSNESS, NERVOUS EXHAUSTION

and revitalizes the whole body.

Pupils are of both sexes ranging in age from fifteen to eighty-six, and all recommend the system. Since no two people are in the same physical condition individual instructions are given in each case.

Write at once for full information and Booklet containing endorsements from many of America's leading citizens to

ALOIS P. SWOBODA, CHICAGO, ILLS.

A reduced reproduction of one of Swoboda's old advertisements. No longer does Swoboda claim to "absolutely cure" constipation, indigestion, etc.; his claims in this direction are now of the indirect type in which, through testimonials, the same ideas are conveyed to the public.

> "P. S.—Just as a secret between ourselves, and because we have corresponded for such a long time, and to prove to you that I am more than willing to meet you half way, you may have my entire $20.00 course, complete, for only $5.00, provided you send your money and health statement by return mail. Borrow the money if you must."

### SOME SWOBODA QUESTIONS ARE ANSWERED

Two of Swoboda's "Health Statements" were filled in and sent to him with the required fee. They purported to come from two individuals, Mr. A and and Mr. B. In order to appraise Swoboda's diagnostic abilities, these blanks were so filled that wherever Mr. A answered a question in the affirmative Mr. B answered it in the negative. To give our readers a clear idea of the character of the questions, we reproduce a few of them and the replies sent in by the hypothetical Messrs. A and B:

| Questions | Mr. A | Mr. B |
|---|---|---|
| Is it necessary to drive yourself into performing your duties? | *No* | *Yes* |
| Are you inclined to be languid? | *Yes* | *No* |
| Are you inclined to be listless? | *Yes* | *No* |
| Are you inclined to be lazy? | *No* | *Yes* |
| Are you inclined to be weak? | *No* | *Yes* |
| Are you inclined to be tired? | *Yes* | *No* |
| Are you ambitious? | *Yes* | *No* |
| Are you full of vitality? | *Yes* | *No* |
| Do you desire greater mental and physical energy? | *Yes* | *No* |
| Do you fear to meet and talk to people? | *No* | *Yes* |
| Are you nervous when in a crowd? | *No* | *Yes* |
| Are you mentally sluggish? | *No* | *Yes* |
| Is your memory poor? | *No* | *Yes* |
| Are you too thin? | *No* | *Yes* |
| Are you drowsy after your meals? | *No* | *Yes* |
| Are you generally run down? | *No* | *Yes* |
| Do people tell you that you look the picture of health? | *Yes* | *No* |
| Are your lips red and full of blood? | *Yes* | *No* |
| Have you a desire for food on arising? | *Yes* | *No* |
| Do you have distress after eating? | *No* | *Yes* |
| Do you get dizzy? | *No* | *Yes* |
| Have you pimples on face and body? | *No* | *Yes* |
| Headaches? | *No* | *Yes* |
| Nauseated? | *No* | *Yes* |
| Is your tongue coated? | *No* | *Yes* |
| Breath bad? | *No* | *Yes* |
| Are you nervous? | *No* | *Yes* |
| Does your heart palpitate long after any excitement? | *No* | *Yes* |
| Do you feel weak and exhausted after excitement? | *No* | *Yes* |
| Are you impatient? | *No* | *Yes* |
| Do you feel refreshed upon arising? | *Yes* | *No* |
| Do you have catarrh of the nose and throat? | *No* | *Yes* |
| Do you urinate frequently? | *No* | *Yes* |
| Are you troubled with rheumatism? | *No* | *Yes* |
| Is there any tendency to tuberculosis in your family? | *No* | *Yes* |

### SWOBODA'S DIAGNOSIS

Mr. A and Mr. B each received a letter acknowledging the receipt of the money for the course and stating that before finishing the letter Swoboda would give his "opinion of your condition." According to Swoboda, here is what ailed Mr. A:

> "Your trouble is due to your inability to eliminate poisons from your system sufficiently rapid. This is due to inactivity of those nerve centers which preside over this function. Consequently there is an accumulation of waste and poison in your blood, which, in turn, weakens the tissues (both muscular and nervous) of your body, thus decreasing your nervous force, and deranging at times all the functions of the body."

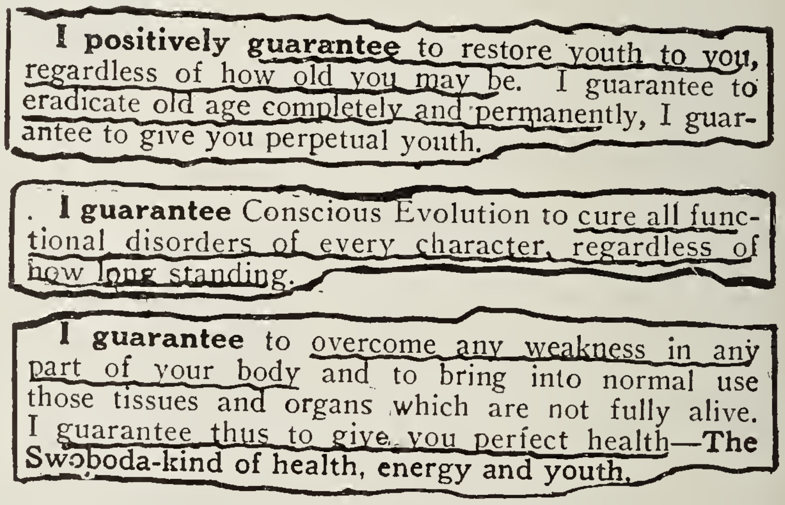
Needless to say, according to Swoboda, his "system" would correct these various conditions. Mr. B's condition was thus diagnosed:

> "Your difficulty is due to periodic congestions of the cells of your body and brain. By disciplining these cells and rendering the entire organism more alive, not only will you cease to be congested, but the cells will be able to develop more energy for you, and you will become thoroughly well. It will be impossible for you to feel depressed, melancholy, blue or discouraged. On the other hand you will feel hopeful, enthusiastic, full of life, and happy, and all the difficulties which you may have, in consequence of life being inferior within your body, will be overcome."

This happy condition was to be produced, of course, by Mr. Swoboda's "System."

### THE SWOBODA "COURSE"

The "Course" itself consists of six lessons. Each lesson comprises a single page of paper (letter size) on which are typewritten instructions for certain exercises. On the margins are somewhat crude cuts, obviously put in with a rubber stamp, illustrating the positions assumed in the respective exercises. As the lessons bear the copyright date of 1901, the presumption is that they are the same as those Swoboda was selling seventeen years ago. Lesson I comprises five exercises; Lessons II, III, IV, and V, three exercises each and Lesson VI, two exercises. The exercises themselves are elementary.

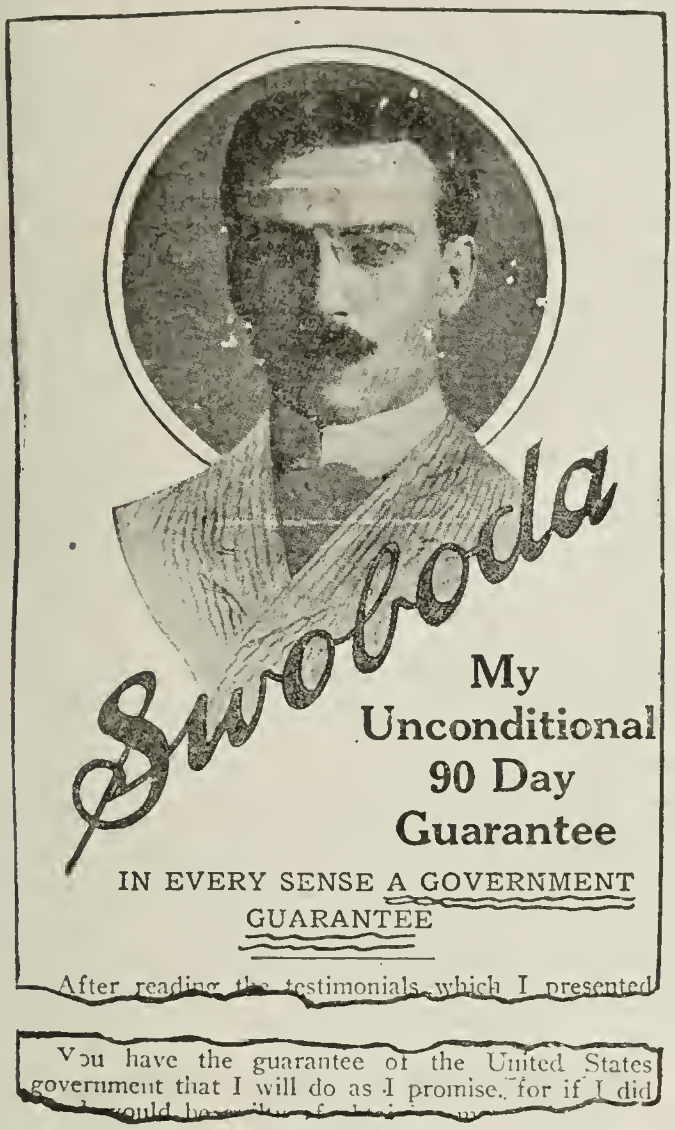

**I positively guarantee** to restore youth to you, regardless of how old you may be. I guarantee to eradicate old age completely and permanently, I guarantee to give you perpetual youth.

**I guarantee** Conscious Evolution to cure all functional disorders of every character, regardless of how long standing.

**I guarantee** to overcome any weakness in any part of your body and to bring into normal use those tissues and organs which are not fully alive. I guarantee thus to give you perfect health—**The Swoboda-kind of health, energy and youth.**

Photographic reproductions (reduced) from Swoboda's present-day advertising. Evidently Ponce de Leon looked in the wrong place for the fountain of youth!

The "Lessons" received by Mr. A and Mr. B *were identical!* The first exercise in Lesson I consists in standing with the arms held close to the body and then flexing the forearms alternately. Mr. A was instructed to do this sixteen times and Mr. B to do it twenty times. The second exercise of the same lesson is performed by holding out the arms horizontally and laterally, palms up, and then flexing the forearm. Mr. A. was to do this ten times; Mr. B, fifteen times. In the third exercise of the first lesson the arms are extended laterally, palms forward, then brought forward until the palms meet. Mr. A was told to do this fifteen times and Mr. B twenty times. The fourth and fifth exercises of the first lesson are equally simple, and Mr. A and Mr. B were each to perform them exactly the same number of times.


Swoboda
My
Unconditional
90 Day
Guarantee
IN EVERY SENSE A GOVERNMENT GUARANTEE

After reading the testimonials which I presented

You have the guarantee of the United States government that I will do as I promise. for if I did

For some years Swoboda has been conveying the impression that the United States Government stood back of his claims. Recently he seems to have dropped this false and misleading statement. Why?

Lesson II, as has already been said, consists of three exercises. In the first exercise the arms are held out horizontally and laterally with the palms down and the hands tightly shut, then the wrists are bent up and down, slowly and rigidly. In the second exercise the arms are held out laterally and horizontally with the palms down, then with the muscles of the shoulders and upper back rigid the shoulder blades are drawn close together and the arms down to the sides, keeping the muscles rigid on the downward motion. In the last exercise of this lesson the arms are extended laterally and horizontally, palms up, the muscles of the arms and shoulders made rigid and the arms then drawn up straight above the shoulders, keeping the muscles rigid on the upward motion only.

Each of the three exercises of Lesson II was to be performed twelve times by Mr. A and sixteen times by Mr. B. All of the rest of the exercises in Lessons III, IV, V and VI, respectively, were to be performed *exactly the same number of times* by Messrs. A and B!

An analysis shows, then, that if you are inclined to be languid, listless, tired and ambitious, as was Mr. A (*vide* "Health Statement") and wish to overcome this condition you should flex your arms sixteen times. Should you, however, be mentally sluggish, of poor memory, too thin, drowsy after your meals and generally rundown, as was Mr. B (also *vide* "Health Statement"), the arms should be flexed twenty times. Should you have a desire for food on arising; should you have lips that are red and full of blood and should people tell you that you look the picture of health, then flex the forearm ten times. But should you have distress after eating, get dizzy, have pimples on face and body, headaches, nausea, coated tongue and bad breath, then flex the forearm fifteen times. Should you suffer from catarrh of the nose and throat, urinate frequently, be troubled with rheumatism and have a family tendency to tuberculosis, then bend the wrists up and down sixteen times as against twelve times if you are not troubled in any such way.

If Mr. Swoboda is not too busy taking in the easy money obtained by imparting his secret of the "discovery in the cells"—should it be "sells"?—he must get a vast amount of amusement out of his diagnoses and the prescriptions he offers therefor. We surmise, however, that a sense of humor would long ago have unfitted Mr. Swoboda for his business.

### THE "DISCOVERY IN THE CELLS"

What, one may ask, constitutes the wonderful "discovery in the cells of the body" which Swoboda claims to have made and "which has revolutionized the effect of exercises"? What is the "principle" of the "Swoboda System"? Let the booklet answer:

> "This principle is the scientific antagonization of the energies and forces residing in the positive and negative cells of the brain, nervous system and muscles."

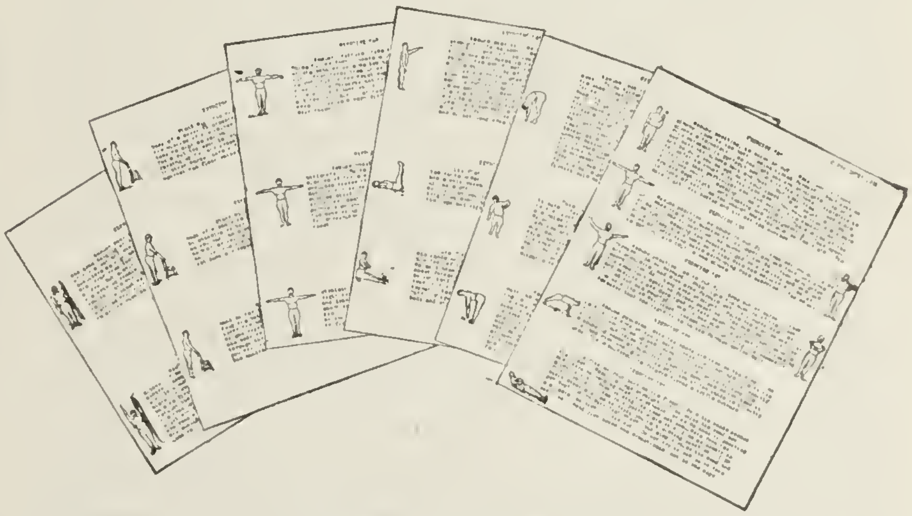
This is a little vague, but one must not expect clarity in "come-on" literature. After the money has been sent for the complete course the first "lesson" clears up the mystery. The sum and substance of Swoboda's "System" is that of "using one muscle to resist or antagonize another." For example, in the first exercise of the first lesson, which consists of nothing more unusual than flexing the forearm on the arm, he tells his "pupils"—or "patients"—to attempt to contract the triceps muscles at the same time that the biceps are contracted for the purpose of producing flexion. This in brief is what Swoboda has labeled "Conscious Evolution" or the "Swoboda System." As one of the letters puts it:

> ". . . the antagonism of the muscles is, in reality, more than 95 per cent. of the potential element of my system."

### SUMMARY

It is hardly necessary to tell physicians that there is nothing new in the principle of resistive exercises. Such "tension exercises" or "static exercises" have been used for years and more than a third of a century ago the Schotts of Nauheim were regularly employing "self-restraining gymnastics" (*Selb-hemmungs-gymnastik)* in their treatment of chronic diseases of the heart.

That the exercises may be of value in selected cases is readily admitted, but it is obvious that Swoboda is neither competent to determine, nor, even if he were competent, capable, under his mail-order plan, of deciding in what cases the exercises may be harmful. The claim that Swoboda has made that his "instruction is entirely individual" and "just as personal as if you were my only pupil," is pure buncombe.



Swoboda's "Course" consists of six "lessons" containing in all nineteen exercises. The "lessons" are typewritten and crudely illustrated by means of figures obviously put in with a rubber stamp. Above is a greatly reduced facsimile of the "Course"—price $20, $10 or $5, according to the ease with which you part with your money.

The objection to Swoboda's business lies, not in what he sells, but in the way he sells it. As a commercial undertaking, it would be impossible to sell the typewritten instructions for the simple exercises which constitute Swoboda's "course" if the public knew what it was going to get for its money. The reason Swoboda is able to purchase high-priced space in magazines to exploit his "System" is that he deceives the public into believing that he offers something not to be obtained elsewhere.

When Swoboda says that he will "positively guarantee to restore youth to you, regardless of how old you may be," he falsifies. When he says that he will "guarantee to eradicate old age completely and permanently" and "give you perpetual youth," he falsifies again. When Swoboda says that he will "guarantee Conscious Evolution to cure all functional disorders of every character, regardless of how long standing," he talks like a quack, and when he says that he will "guarantee to overcome any weakness in any part of your body" and "to give you perfect health," he is a quack.

In brief, the case against the so-called Swoboda System may be summed up by saying that "Conscious Evolution" is a meaningless phrase whose apparent use is to obtain money by misleading and deceiving the public; that the Swoboda exercises are neither new nor original; that the entire Swoboda scheme is quackery of the "physical culture" type.

## *Correspondence*

### THAT TAX ON OLEOMARGARIN

*To the Editor:*—Kindly permit me a brief space to say a word concerning "oleo." I have been a reader of The Journal for twenty-five years and have not seen anything in its pages which has so stirred my blood as your editorial, January 19. You say: "Without milk in the kitchen, the American housewife would be confronted with unanticipated difficulties in the technic of food preparation. For this reason the dairyman is urged to speed up the production of milk." The housewife you admonish to be conservative in the use of milk in order that our children may be properly nourished. The New York *Times,* from which you quote as against the tax of 10 cents per pound on colored oleomargarin is probably paid a good sum, as are many others, for espousing the cause of the butter substitute.

Again you say: "If the legitimate substitutes for butter were allowed to come into the general use for which they are qualified, not only would a reduction of living expenses become possible thereby, but also the price of milk and cream ought to be decreased."

Listen, Mr. Editor. Can you not see that you are striking a direct blow at the nutrition of the nation? Have you read and considered the experiments of Dr. McCollum at Johns Hopkins? Have you ever thought on the fact that milk is the cheapest article of diet on the market today? Indeed, you would remove the restrictions and allow oleo to be colored so closely that none but a connoisseur could detect the difference. You would assist these charlatans in displacing milk and butter by an inferior substitute, and thus starve the innocent child.

What do you know about the cost of milk production? Why select the farmer and dairyman from among all other classes and say you have no right to advance your prices for milk and butter, when every other food product has gone to almost a prohibitive price? Do you know that millions of our cows are milked and fed by women and children who are practically donating their services? Were these paid a fair wage, thousands of dairymen would go out of business.

We as physicians make a lively stir about ridding the country of medical quacks and patent nostrums, and rightly so. Then why should we open our American medical journal to fight against milk and butter? It looks to me as though there is "something rotten in Denmark." If a straw vote were taken among the physicians of America, oleo would stand a poor showing. Of all organizations the medical profession should be the last to abet the cause of so gigantic and fraudulent a substitute for our most essential food products.

While I am not in the dairy business, further than to supply our own wants, selling neither milk nor butter, as I never have and never expect to, yet I was raised on a farm, and am a subscriber to six or eight of the best farm and dairy papers. I am in a position to know something of which I am speaking.

Louis J. Belknap, M.D., San Jose, Calif.

[Comment.—If our correspondent has read the editorial columns of The Journal with care he cannot have failed to notice that The Journal has again and again referred to the important place which milk deserves in the dietary of man. It has pointed out that milk contains ingredients which are unique in that their physiologic value cannot be measured in terms of calories or grams of protein, fat and sugar. The added importance of milk is expressed in its content of lime salts and growth promoting substances, which children in particular are likely to fail to obtain in adequate abundance when milk is not supplied to them in sufficient amounts. The Journal cannot, however, agree with our correspondent in his implication that the use of oleo fats or other naturally occurring oils constitutes a crime or menace, or that these edible products are not to be classed as human foods. They need not, and obviously should not, exclude milk, butter and cream from the diet in the sense which has been intimated; yet they can be and are wholesome, digestible and nutritious fats. Milk and its products have this place in the dietary; the other edible fats and oils also have a defensible place in the ration. To deny this is to deny both experience and scientific observation.

The Journal never has advocated the coloring of any natural fat, whether it be butter or oleo. Indeed, it would welcome the exclusion of artificial colors from all foods, including butter, when deception is practiced thereby.

Perhaps there is "something rotten in Denmark" which The Journal has not detected. It may be in the nature of blind prejudice on the part of those who fail to distinguish between fact and fancy in food values; who fail to read fairly or intelligently and interpret the contributions of science and the dictates of experience accordingly; who, in the heat of unwarranted passion attempt to replace argument by innuendo.—Ed.]

## *Queries and Minor Notes*

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### METRIC SYSTEM FOR ARMY PRESCRIPTIONS

*To the Editor:*—Can you inform me whether the metric system is to be used exclusively in the Medical Reserve Corps as it is in the regular Medical Corps of the Army? If it is to be so used, it would appear advisable that the metric system should be introduced into the civil hospitals that have undertaken to train graduates for the service.

Torald Sollmann, M.D., Cleveland.

Answer.—According to the Manual for the Medical Department, Section 240: "All prescriptions will be written in the metric system." This is the form of the Army prescription blank:

*Station* .................................................... *191*....
*For* ..........................................................................
℞ Gms. or Cc.
|
..........................................
*No.* ............ *Surgeon, U. S. A.*

On the back of each pad of prescription blanks is a table for converting the apothecaries, to the metric system. When prescriptions are written according to the apothecaries' system, it is customary for sergeants in charge of the prescription department of the dispensary to transpose the figures to the metric system.

### ALLOWABLE DEDUCTIONS ON INCOME TAX RETURNS

*To the Editor:*—In The Journal, January 26, page 259, you answer a query concerning allowable deductions on income tax returns. The special question which I am interested in was the second clause of your answer and especially under sub-division "A" which reads: "If a physician has his office in his home, setting aside a separate room or rooms for that purpose: (A) If he or his wife owns the home, he may deduct as a necessary expense in his profession the reasonable rental value of such room or rooms occupied by him solely in connection with his profession." These conditions describe my own case. I myself own the house which I occupy, and my office room is exclusively for my business purposes. I have understood that the ruling had been up to this time that a physician could not make deduction for such conditions as we have just described; but after reading this ruling, I went to the local revenue office and asked if this were true, but the Deputy Collector asserted that it was not and stated most positively that no such deduction would be allowed.

May I ask, therefore, if you are sure that your statements in the printed reply are correct, and if so, would you mind giving, if possible, the source of the opinion, and the date of the ruling, in order that I may present such data to my local revenue collector? If you can give me this definite information I should appreciate it and will thank you for it in advance. The time is short as our final reports must be in before April 1.

Charles S. Bennett, M.D., Newark, N. J.

Answer.—The foregoing letter was submitted to the Collector of Internal Revenue in Chicago, who states that the decision quoted in our correspondent's letter is correct. This means that a part of our answer—that under "(*a*)" in paragraph 2—published in The Journal of January 26, was wrong. The complete paragraph in the answer was:

> 2. The department has ruled on this subject that expenses of an office of a physician maintained separately from his residence, including amounts paid to employees for care of the office, telephone service, etc., can be deducted as expense in his profession. If a physician has his office in his home, setting aside a separate room or rooms for that purpose: (*a*) If he or his wife owns the home, he may deduct as a necessary expense in his profession the reasonable rental value of such room or rooms occupied by him solely in connection with his profession. (*b*) If he rents his home, he may deduct such proportionate part of the entire rent paid as the space occupied by him exclusively in connection with his profession bears to the entire premises rented.

The logic of this decision is apparent after a little thought. The following paragraphs are of special interest to physicians at the present time. They are quoted from the Income Tax Primer, prepared by the Bureau of Internal Revenue of the Treasury Department.

> A physician may claim as deductions the cost of medicines and medical supplies used by him in the practice of his profession, expenses paid in the operation and repair of an automobile used in making professional calls, dues to medical societies and subscriptions to medical journals, the expenses of attending medical conventions, the rent paid for office rooms and the hire of office assistants, the cost of the fuel, light, water, telephone, etc., used in such office rooms. Amounts expended for books, medical supplies, and surgical instruments of a permanent character are not allowable as deductions.
>
> If a physician . . . rents a home and uses a portion of same for professional or business purposes, may any portion of the rent paid for that home be claimed as a business expense?
>
> Yes, the proportion of the rent paid which is properly chargeable to the number of rooms so used may be claimed as a deduction.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

Colorado: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigby.

Illinois: Chicago, March 25-26. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Minnesota: Minneapolis, April 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Mexico: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

Oklahoma: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

## Monterey, Mexico, Medical School

Physicians claiming graduation from a medical school at Monterey, Mexico, have applied for licenses before various state licensing boards. Inquiry in regard to this college brings the following reply from the consul general, P. C. Hanna, now at San Antonio, Texas, who states that he has resided eighteen years in Monterey:

> I have never heard of what might be properly called a medical school in Monterey. It is true, however, that some young men studied medicine under the direction of the State University, and the old Gonzales Hospital was the headquarters of the class studying medicine. I know of no institution having been organized recently that could properly be recognized as a medical college.

# Book Notices

The Conduction of the Nervous Impulse. By Keith Lucas, Sc.D., F.R.S., Fellow and Lecturer of Trinity College, Cambridge. Revised by E. D. Adrian, M.B., M.R.C.P. Cloth. Price, $1.50 net. Pp. 102, with 22 illustrations. New York: Longmans, Green & Co., 1917.

In the first chapter of "The Integrative Action of the Nervous System," Sherrington enumerated eleven salient "characteristic differences between conduction in nerve trunks and conduction in reflex arcs" (the central nervous system). In the present volume, Lucas has made an attempt to gain an insight into conduction in the central nervous system by an analysis of analogous phenomena in conduction along peripheral nerves with the hope that the remarkable and puzzling phenomena so characteristic of the activity in the complex central nervous system might find a ready explanation in terms of what can be learned from a study of the phenomena occurring during conduction along the nerve of a more simple nerve-muscle preparation. In Lucas' own words: "The question I wish to discuss is not why the nerve conducts, but how it conducts, and how far the phenomena of conduction in a peripheral nerve may be made the basis of the understanding of conduction in the central nervous system."

Having outlined the general problem, he indicates (Chapter II) the principle of the method used as a measure of the intensity of the nervous impulse. This is followed by a discussion, fortified by experimental proof, of the "all or non response" of nerve fiber—invariably the result of a minimal stimulus (Chapter III). Finding that the intensity of the nerve impulse after passing through a narcotized area ("region of decrement") recovers in full its original intensity when it emerges into a tract of normal nerve (Chapter IV), he discusses the nature of the nervous impulse, which, he decides, chiefly on the basis of Tashiro's work, depends for its progression on a local supply of energy from a source distributed along the nerve, and for its conduction; not on the intensity with which it is initiated, but on the conditions it encounters during its progression. Chapters VI to VIII deal with the alterations of nerve by the passage of a nervous impulse, namely, the "refractory period," during which the nerve loses its excitability and conductivity, and the "supernormal period," which follows the period of recovery from the "refractory period," characterized by an increased excitability and conductivity of the nerve.

Having established these fundamental phenomena of nerve fibers when thrown into activity, the author discusses "summation" of stimuli in central and peripheral tissues, develops the problem most interestingly, and ends by adducing experimental proof for the view that "summation" in peripheral tissue depends on the development of the supernormal period, though he is not satisfied that the question is absolutely settled (Chapters X and XI). In a similar manner he attempts, by analyzing the phenomenon of "apparent inhibition" as it occurs in peripheral tissues, to throw light on "inhibition as a characteristic phenomenon of the central nervous system (Chapter XII). He finds that this inhibition relates, among other things, to the refractory period and to the fact that the fatigued junctional tissues conduct with a decrement.

The last chapter (Chapter XIII), by Adrian, reviews the facts that the two "most important phenomena of reflex conduction, namely, summation and inhibition, can be reproduced in the isolated muscle nerve preparation, and that in this case they depend on a very simple mechanism." Based on the knowledge gained from a study of these phenomena, he discusses the probable explanation of irreversibility of direction of the nerve impulse, fatigue, after discharge, and expresses the hope that further work on the simple nerve muscle preparation will reveal the mechanism involved in these phenomena so characteristic of the central nervous system.

The lucid presentation of this difficult subject is most gratifying. The chapters are printed, on the whole, as delivered in the form of lectures in memory of Page May at University College, London, in the spring of 1914. The untimely death of Keith Lucas as the result of an aeroplane accident left the manuscript in the hands of his co-worker, Dr. Adrian, who revised the text, added the last chapter, and who, it is to be hoped, will continue the magnificent work of his associate and teacher.

Injuries of the Face and Jaw and Their Repair, and the Treatment of Fractured Jaws. By P. Martinier, Professor to the Dental School of Paris, and Dr. G. Lemerle, Professor to the Dental School of Paris. Translated by H. Lawson Whale, M.D., F.R.C.S., Captain R. A. M. C. T., The Oral Department No. 83 General Hospital, B. E. F. Cloth. Price, $1.75. Pp. 345, with 168 illustrations. New York: William Wood & Co., 1917.

In his foreword the translator says, "It may be justly claimed that during the war no branch of surgery has emerged from oblivion and neglect to a position of insistent importance to a greater extent than facial restoration." This statement is well recognized by the oral surgeon and by some general surgeons. This book is the most comprehensive single work on oral and facial prosthesis that has yet appeared. As the title indicates, it deals with immediate prosthesis for the prevention of disfigurement due to injuries, or following deliberate surgical procedures, such as resection of the mandible or maxilla; also to remote prosthesis for the purpose of overcoming disfigurements that have resulted from cicatricial contraction prior to the insertion of permanent prosthesis; nasal prosthesis to cure depressions due to injury or syphilis, and nasal prosthesis for complete restoration, when lost by disease or otherwise. Plastic prosthesis, such as paraffin, very rightly is not held in high favor by the author. Obturators for cleft palate receive due consideration, as does the artificial larynx. Fractures of the mandible and maxilla are quite fully discussed. The authors seem to have overlooked the fact that certain methods, given priority in their book, were fully described in American literature somewhat earlier than the dates they have recorded. The book is fully illustrated.

## Medicolegal

### When One's Former Physician Is His Medical Examiner—Evidence

*(McGinty vs. Brotherhood of Railway Trainmen (Wis.), 164 N. W. R. 249)*

The Supreme Court of Wisconsin says that this action was brought by the plaintiff, as beneficiary, on a policy of insurance, issued by the defendant, on the life of her son. It appeared that the examining physician, a Dr. O'Neill, had treated the insured as a patient in 1911 until July, but that he was not a patient in September, at the time of making the application for the insurance. Dr. O'Neill had also made out the certificate of the death of the father of the insured. If, as contended by the defendant, either the father died from cancer, or the insured had syphilis at the time of making the application, the warranties in the application were false, and avoided the contract. If made by the connivance of the medical examiner with the insured, the defendant was clearly entitled to show such a situation. Although the provisions of Section 4202s, Wisconsin Statutes, make any such report by the medical examiner binding on an insurance company, even if applicable to an insurer like the defendant, the situation would clearly come within the proviso of that section, that there shall be no such estoppel if the report was procured by or through the fraud or deceit of the insured.

It being an uncontradicted fact that at the time of the making of the application for the insurance the relationship of physician and patient no longer existed between Dr. O'Neill and the insured, and that the visit to the physician at that time was not for the purpose of treatment, the privilege of Section 4075, Wisconsin Statutes, making information obtained by a physician for the purpose of treating a patient confidential, did not apply. The insured, having of his own volition obtained, at a time when he was not a patient, the statement of a physician who then had, as the patient was bound to know, knowledge as to his former health and condition, and then having joined with such physician in making material representations to the defendant, on which the policy in suit was issued to him, must be held to have effectually waived any provision of the statute in question, if it were otherwise applicable. He was in effect requesting the physician to testify to such assertions, and could no more shut out legitimate and proper examination, made to determine whether or not the particular assertions were true, than if the physician were called on his behalf as a witness and asked on direct examination the same questions as to whether or not, at the time he made the certificate attached to the application, the statements therein contained, to the effect that the insured was in good health and had not had any venereal disease, were false. That the knowledge as to the existence of any such disease might have been obtained when the relationship of physician and patient did exist did not affect the situation at the time the insured obtained the certificate of the physician, any more than if the insured at such a time first informed the medical examiner of the existence of any disease so concealed by them both from the defendant. Moreover, the insured having voluntarily published by his application the fact that he had been to Dr. O'Neill for treatment and that such treatment had been for the disease called la grippe, this was a waiver of any privilege, and the doctor should have been permitted, therefore, to answer questions, if the effect thereof would tend to negative the statement that such treatment had been for la grippe. But correspondence passed between Dr. O'Neill and the defendant was properly excluded, on account of being the declarations of the physician to the insurance company, in no wise binding on the plaintiff beneficiary, which could not be received as independent evidence of any fact.

The certificate of death of the father of the insured, made by Dr. O'Neill, and stating that the cause of death was an injury to the head, was but prima facie evidence and subject to attack, and the maker should have been permitted to testify, if such was the fact, that the injury referred to was a cancer.

### Requirements of Physicians Issuing Prescriptions for Opium

*(United States vs. Reynolds (U. S.), 244 Fed. R. 991)*

The United States District Court in Montana says that the Harrison Narcotic Law (act of Dec. 17, 1914) requires nothing of physicians issuing prescriptions for opium save that the physicians be registered and that the prescriptions be signed by the physicians and dated as of the day of such signing. By giving a prescription, the physician does not "dispense" opium, in the sense of the word as used in this law. As therein used, "dispense" relates to actual delivery of the drug by the physician to the patient, from the former's office supply, generally, though not excluding other actual delivery. As the defendant was not charged with having failed so to register or so to sign the prescription, he was not accused of any offense or violation of this law. In this law there is nothing prescribing quantities or forbidding prescriptions for the drug in any quantity. Any attempt to find it therein by construction or implication does violence to the elementary principle that, when legislatures undertake to create offenses, it must be by language clear and definite, making it obvious to ordinary intelligence that by certain conduct an offense, and the offense denounced by statute, is committed. Hence such construction or implication is never permitted. The defendant, charged with giving a prescription for and so dispensing pounds of opium, was not charged with any offense known to the law. Demurrer to the indictment is sustained.

# *Society Proceedings*

## COMING MEETINGS

American Medical Association, Chicago, June 10-14.
Alabama State Medical Association, Birmingham, April 16.
Am. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
American Orthopedic Association, Washington, D. C., April 22-23.
Arizona Medical Association, Phoenix, April 25-26.
Arkansas Medical Society, Jonesboro, May 7-9.
Association of American Physicians, Atlantic City, May 7-8.
California State Medical Society, Del Monte, April 16-18.
Georgia State Medical Association, Savannah, April 17-19.
Iowa State Medical Society, Fort Dodge, May 8-10.
Kansas Medical Society, Kansas City, May 1-3.
Louisiana State Medical Society, New Orleans, April, 16-18.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25.
Michigan State Medical Society, Battle Creek, May 7-9.
Missouri State Medical Association, Jefferson City, May 6-8.
Nebraska State Medical Association, Omaha, May 7-9.
North Carolina State Medical Society, Pinehurst, April 16-18.
South Carolina Medical Association, Aiken, April 16-18.
Tennessee State Medical Association, Memphis, April 9-11.

## CHICAGO MEDICAL SOCIETY

*Meeting held March 6, 1918*

Dr. Charles E. Humiston in the Chair

### SYMPOSIUM ON MEDICAL PROBLEMS CONNECTED WITH THE DRAFT

#### 1. From the Standpoint of the Ophthalmologist

Major William H. Wilder, Camp Zachary Taylor, Louisville, Ky.: The newest manual of instruction for medical advisory boards, Form 64 of the Provost-Marshal-General, says, "Reject all registrants with the absence of one eye and when there is no doubt they are totally blind in both eyes." Be sure the registrant has two real eyes, for glass eyes are really deceiving and sometimes get by. Three such men appeared before the review board at Camp Zachary Taylor. In one case the local examiner had reported vision 20/20 in a glass eye. If good daylight is not available, be sure the Snellen chart is well illuminated by an electric lamp of at least 20 candle power, above or at the side of the chart, and hang the chart in such a background that there will be no disturbing factors, such as placing the chart with a window just behind it, or you will get a lower degree of vision than the applicant really has. Some men who desire to deceive have been coached not to read below the large letter at the top of the card. To avoid being misled by this, cut the card and paste it together with a cloth hinge, hanging it up so that the first line visible is 20/100. If he cannot see this until led up to 10 feet, he will have vision of 10/100 or 20/200. Many men have been sent to the board of review who could read the top line and would not read below that. They would read the first line after the chart was cut as described.

Be suspicious of all men who are uncertain that they see, peering around as though to locate the chart, trying to see a letter, especially if the sight of both eyes is poor and there is no sign of external trouble. Test them with type at the ordinary reading distance and they will show great variation. If feigning poor vision in either eye they may be caught in some other way. Have them remove the coat and hang it on some inconspicuous nail; or when stripped, watch to see if they avoid small blocks of wood on the floor.

Although, according to the latest regulations, local boards may accept registrants for special or limited military service without reference to the advisory board, unless the local board examiner is skilled in ophthalmology tests it would be wise to refer to the advisory board men that do not come up to 20/100 and 20/40 in either eye.

Formerly the regulations provided that men suffering from asthenopia should not be accepted; but the new regulations make no mention of this. Many men of nervous type may have better vision than 20/100 and 20/40, but with hyperopia and astigmatism which produce headache and eyestrain and other signs of asthenopia which are intensified without glasses. Some suffer even with glasses. They would be more poorly qualified for military life than would be one whose vision is no better than 20/100 but with no eyestrain. I have seen such men come who should not have been sent. They are not as good as men with congenital amblyopia in one eye. The congenitally blind may have poor central vision, 5/200 or 10/200, but a good peripheral visual field which still gives a good degree of sight. Indeed, the individual may never have known of the defect and may do the most intricate work without inconvenience, but must be rejected; but the one with the asthenopia and vision up to requirements may be accepted if the examiner is not careful.

There is a rule that those with trachoma are to be accepted pending the results of treatment. Most specialists on the eye are of the opinion that it is contagious in its active stages and is dangerous; that it is very obstinate to treat, and while it may seem to improve and there may be an apparent cure, it is very liable to recurrence on some slight irritation of the eyes and may become a menace to those around. For these reasons the regulations formerly prescribed trachoma as a cause of rejection. In Camp Taylor, with men from southern Indiana, Illinois and eastern Kentucky, we saw considerable trachoma, and the review board sent home 270 of such men in 65 per cent. of the first draft sent to that cantonment. Thirty or forty of these were doubtful cases, but the board dismissed the men rather than take the chance of spreading the disease. In the other cantonments not so many trachoma cases were seen, but many men with trachoma were sent to Camp Taylor on account of the failure of physicians to recognize it

The idea went around that trachoma would be rejected, and there were instances of deception. In one, phenol (carbolic acid) was rubbed into the eye, in another ordinary soap, and ordinary dirt from the camp in another. These men were arrested, court martialed, dishonorably discharged from the service, and imprisoned for three years.

The ophthalmologist in military service must cure inversion and eversion of the lids, ptosis, trachoma, chronic dacryocystitis, pterygium and strabismus. Some of these are simple enough, while others are not easily remediable.

#### 2. From the Standpoint of the Internist

Major Ernest F. Irons, Camp Custer, Battle Creek, Mich.: I doubt if many realize the enormousness and the manifold angles of the problem we have on hand in getting men into the service and caring for them after they are in. In most of the cantonments there are not above two Regular Army surgeons in the medical department. The entire examination of the soldiers is in the hands of the Medical Reserve officers who have only recently come from civil life and whose attitude need not be and should not be considered out of harmony with that of physicians still in civil life.

In discussing the causes of rejection at the present time I think we must carefully distinguish between the rejections made under the original regulations promulgated last August and adhered to by the Army surgeons in September, October and November, and the regulations published recently in Form 64 of the Provost-Marshal-General's office. Under the old regulations the attitude of the regimental surgeons and the special boards has been to follow orders as nearly exactly as possible. Under the new regulations a problem has been created by the acceptance of a large number of men who would previously have been rejected. This problem will have to be met and I have no doubt will be met by the authorities. It removes another difficulty, however, and that is one which made necessary the returning to civil life of soldiers we would prefer to keep in the Army in the place provided for them. Up to the present no place has been provided, and in order to keep the soldier in his regiment he must be able to march and drill and shoot; otherwise he is not much good. The quartermaster's corps has been regarded as a soft job where a man should be sent with something the matter with his heart or a stiff shoulder. Of course there is much physical work in the quartermaster's department, and the quartermaster should not carry all the wrecks of the camp.

The new regulations also remove another difficulty. Heretofore the Army surgeon and the reserve officer have been hesitant about operating on the soldier for hernia, because if that soldier should desire to leave the Army shortly after the operation, all he formerly had to do was to complain of pain in the scar. That was an excuse for continued shirking of his work. One loafer in a company who is continuously put on light duty spoils the morale of the whole company. With the new regulations under which everybody will be operated on, painful scars will not be deemed an excuse, and means will be found to cure them.

A point of peculiar medical interest is in relation to heart lesions. The textbooks and the Army recruiting statistics of previous years have attempted to show that mitral stenosis is a relatively rare lesion. Many of us have been skeptical about that statement in private life, and when we come to examine the statistics in regard to soldiers, mitral stenosis stands at the top, with mitral regurgitation and mitral regurgitation combined with stenosis next, and aortic lesions far below. I am aware of Cabot's statement that we should speak of mitral disease and it has a great deal of truth. Several things account for this predominance of mitral stenotic lesions. As the average physician encounters it, this lesion is not so often recognized as mitral regurgitation. Its recognition is more difficult than other lesions. In ordinary circumstances the fault is not a severe one; there is little or no enlargement and therefore little displacement of the apex. Many persons with these lesions go through life and die of something else, provided they live a quiet life. Many soldiers will tell you that some years prior they had occupations that required a considerable amount of physical effort, but in recent years they had more sedentary occupations—clerical positions and the like. They have gravitated into occupations suited to their physical ability. When they are taken out of their quiet lives and put into the Army where they must drill and go through regular physical exercise, they at once begin to show symptoms of heart lesion which they would not have shown, perhaps, for years in their accustomed occupation. Mitral regurgitation is more easily recognized, because of its frequently loud murmur. Care must be exercised that no diagnosis be made of cases with sharp first sound or presystolic murmur as mitral stenosis, as these patients may have hearts that have no stenosis. Such symptoms come very often in soldiers who have small hearts and who, when put to severe physical exertion, develop irritable hearts. We have seen practically no decompensated hearts. The soldiers are pretty well picked over and cardiac lesions eliminated at the beginning.

Another problem is how to protect the Army from the civil communities. Much is being done along venereal lines by the establishment of extracantonment zones and an efficient semisecret police. Another problem will confront us more acutely soon, and that is the protection of the Army from the ordinary contagious diseases which are allowed to go on in the civil communities—scarlet fever, measles and diphtheria. The Christmas vacation gave us almost as much trouble as the bad weather. The soldiers came back with diseases that we did not have before. I am firmly convinced that we could take 30,000 or 40,000 troops, put them in charge of a well organized medical department, keep them isolated a month or six weeks, and eliminate contagious disease. We could trace the reinfection of commands to returned soldiers. In the years after the war they will return to civil life trained in respect for law, and then only will the civil communities begin to put into force laws for the control of contagious and other diseases.

### 3. The Soldier's Foot

Major John Ridlon, Chicago: The new manual of instructions has eliminated for the examining boards practically all the problems concerning foot conditions, and has exemplified the first thing that a man learns in the Army, perhaps, to "pass the buck."

There are three things that are of prime importance to the soldier: first, his foot; second, his teeth, and third, his equipment. Unless the soldier has good feet he cannot get there, and unless he has good food he cannot stay there. If a man has the best of rifles and a thousand rounds of ammunition he is of no earthly use to the Army if he is five miles behind the rest of the Army. So the importance of good feet is a very vital one.

Early in my experience I found in one of the cantonments where the division surgeon was the final authority in regard to all medical matters that he wished to reject an enormous number of foot patients that I, an orthopedic surgeon of many years of experience, believed should be accepted. I went to the next cantonment and found that the division surgeon with the same authority wished to accept patients that I would reject. I wrote to my chief in the Surgeon-General's Office, "Get your division surgeons in line so that a man who is rejected at Camp Taylor cannot be accepted at Camp Sherman. There must be some standard." Nothing was done until the new manual of instructions was brought out, and now the decision is simply passed from the local examining boards to the camp. We were told in the orthopedic department to accept men with weak feet and properly modify their shoes and train them by proper foot exercises until their feet were made strong; that they should be taken from the active duty of drill and long hikes, etc.; but what can one orthopedic surgeon do in a camp of 30,000 men in a hospital of 10,000 beds, with a multitude of other duties and no proper equipment for carrying out the work, no cobbler to modify the shoes, and a delay of four months in filling a requisition for cobbler's equipment, which when it arrived lacked most of the essential articles? The work cannot be done.

We are told by the regulations to accept men with clawfoot. I have never seen a man with clawfoot, though treated by the most skilful orthopedic surgeons or any other kind, that was made by one, two, three or four operations one-tenth part good enough for a soldier.

A case of congenital clubfoot can never be made good; clawfoot, tuberculosis of the tarsus and ostearthritis cannot be made into good feet, but we have no option but to treat them.

As to the flatfoot, most practitioners think the high arch is the ideal foot and that the low arch should be rejected. The opposite is true. The high arch does not stand punishment as well as the foot that has an abnormally low arch.

### 4. From the Standpoint of the Appeal Board

Dr. M. L. Harris, Chicago: The appeal board is the court of last resort until the soldier gets into the camp. The board occupies a different position from the other boards. It does not determine, except indirectly, who shall go to war; its function is to determine who shall not go. It has put up to it all of the troubles that come to the other board, either real or imaginary. Most of them are imaginary. The appeal board today occupies a little different position from what it did two months ago; in other words, it occupies a different position in relation to the second draft as regards medical matters. This refers to the medical side of the appeal board and not to its other functions. Under the first draft it was up to the appeal board to reexamine all registrants who appealed from the local boards. You can imagine that that was some job, particularly as there was only one medical man on the appeal board. Under the new regulations there are several medical advisory boards in our own community, each composed of a number of experts—specialists in various lines. It is the function of these boards to do all the medical reexamining. It was hoped that these boards would relieve the appeal boards of a great deal of work. We still have hopes, although I am forced to say they are not as high as they were awhile ago. Notwithstanding the fact that the men go before these advisory boards for reexamination, they still have the right to appeal to the appeal board, and it is peculiar of the registrants of this community that they do not sleep on any of their rights.

I hope that no one connected with either the local boards or the advisory boards will think that I am trying to criticize the work of these boards. I am not and do not wish to have it so understood; but I must say that from the appeals that are coming to the appeal board there is considerable dissatisfaction with the work as it is being done. This dissatisfaction, or this unsatisfactory work, we will say, is not the fault of the members of the board. The advisory boards, particularly, went at the work without any knowledge of what they had to do. They had to make a great many examinations before they had any rules or regulations governing the work. The cases were dumped on the advisory boards by the hundreds, and the advisory boards attempted to examine from 120 to 300 men in an evening, which I must say from some considerable experience is absolutely impossible and an injustice to the men and to the board making the examination. These men are either sent up to the board by the local boards or come to them by request of the individual for the purpose of having a more thorough examination made than can be made by the local board, because the local boards are hampered for time, and they are not composed of specialists. There may be only one medical man on the local board. The advisory boards are supposed to have all the time necessary to make a thorough and complete examination. It is evident that a thorough and complete examination cannot be made of 300 men in an evening; in fact, it is impossible for the board even properly to fill out the three blanks which they are obliged to fill out in the evening's work. As a result much of the work coming up to the appeal board has not been thoroughly done. The appeal board is not supposed to reexamine any of these appealed cases. It is supposed to pass merely on the findings of the local and advisory boards; but if the advisory board does not put down any findings, I do not know how the appeal board is going to pass on them. Many of the papers that come to the appeal board after having passed through the advisory board are practically a blank.

What I wish to impress on the local board and the advisory board is that they must make some record or findings on which the appeal board can form an opinion. One great trouble has been the lack of cooperation between the advisory boards and the local boards. The advisory board started in late without opportunity to consult the rules and regulations. How could they familiarize themselves with the work they had to do without opportunity to come in contact with the local boards? Therefore, without cooperation between the boards they are not to be blamed for not knowing just what to do. In many instances they have acted contrary to the rules, which came out after they had started the work.

There are many rules in this manual of instruction for medical advisory boards, and I am free to admit that some of the rules, I think, are not right. Perhaps to the advisory boards the rules are not right, but that is not their business. The rules are here and it is up to all men to follow the rules. If the advisory boards fail to follow the rules by acting, perhaps, on their own judgment and the record comes to the appeal board, you will find that the appeal board will try to act according to the rules, and therefore they may be overruled. I would take great exception to the interpretation put on the rules read by Major Ridlon, and I will show you why some medical advisory boards make mistakes. Dr. Ridlon read, "Accept all foot and ankle lesions if they do not interfere with wearing an ordinary shoe." The rule says if they cannot wear an ordinary shoe do not accept them; and if it interferes with walking, do not accept them. And the same in regard to weight-bearing power. If they cannot carry pack, do not accept them. It tells the local boards to reject no foot cases. Send them to the advisory board. If they cannot carry weight, do not accept them. Then Major Ridlon read, "Accept for general military service all lesions of the foot and toes irrespective of present function." When? "If, after examination, it is found that they have a remediable defect." What does the rule say in regard to remedial defect? You do not accept them. That is a deferred classification. They do not go at all unless and until the Surgeon-General says so. If the man has hammertoe and cannot walk, or clawfoot, you do not take him, you classify him fit for general military service after being cured of his defect. If you cannot cure him you do not accept him at all.

DISCUSSION

William Allen Pusey, Chicago: Dr. Harris has made my speech. I have been impressed with the discussion that the point of view of many doctors is different from that of the men who wrote the manual. Their view has been rather this, How can we avoid sending to the camp men who should not be sent there? while the point of view of the authors of this manual has been, How can we avoid allowing men to escape who really ought to go? And this is a very different problem.

I can speak more particularly of skin and venereal diseases, which was the subject assigned to me. I was asked to draw up regulations for these fields for the local boards first. They were not allowed to exempt anybody who was not incapacitated permanently by skin diseases, and I presented practically this regulation, that nobody should be rejected for skin disease unless of long duration, so severe as permanently to incapacitate, or so disgusting as to make it impossible to have ordinary social intercourse. The same applied to ulcers, syphilis and gonorrhea. These men were not to be rejected except when the disease had already produced permanent incapacities to prevent them from doing their military duty. That does not require expert dermatologic knowledge or expert knowledge of venereal disease. A man with ordinary common sense should be able to act under these requirements.

When it came to the regulations for advisory boards and cantonment boards, I was asked this question: What diseases of the skin are there that should unquestionably incapacitate a man for military service? There are about 275 or 300 skin diseases, and I went through that list with care, time and again; and the only ones that I believed would in any cases unquestionably meet the requirements were actinomycosis, dermatitis herpetiformis of long duration, epidermolysis bullosa, universal dermatitis of long duration, glanders, multiple hemorrhagic sarcoma of the skin, mycosis fungoides, and pemphigus of various forms.

The regulations were drawn up by a group of specialists. They were finally brought together and edited by three members of the board and put into their present form. I agree with Dr. Harris that it is likely in most cases, if the regulations are studied carefully with a sympathetic desire to understand, and not with the capacity for finding defects, that the reader will find a basis of interpretation of the cases.

Dr. Wilder brought up trachoma, which is in Class B. Some oculists have failed to note that trachoma patients must be cured. Until they get well they stay at home. It was recognized that they were not men for mixing with soldiers while they had their trachoma. The question of remediable operation came up, and the question of painful scar; and if I followed the surgeons correctly, it was regarded as a myth that might be disregarded.

Dr. Ridlon brought up the question of failure of supplies. I have been impressed with the fact that if a man has a capacity for finding difficulties he can find them all the time. In one camp the genito-urinary specialist has a dark-field apparatus, a cystoscope, mercurial ointment, arsphenamin, etc., and in another place he literally has not a pair of scissors. My experience has been that when one cannot get anything or do anything, it is always the fault of some one on the ground. Most of the medical men are succeeding admirably in meeting many difficulties.

Major J. M. Dodson, Chicago: If I were to say anything it would be a word in favor of the advisory boards. I am not at all surprised at the difficulties of which Dr. Harris has spoken. I am not as pessimistic as he is concerning the future. The members are training themselves, and now that they have found themselves and are getting into touch with the local boards they are doing more efficient work. Most of the difficulties have grown out of the common fault into which our nation was forced, but which we as individuals fall into, and that is the common fault, "Haste makes waste." There was a rush to get things done. It is easy enough to see now that this whole matter would have moved more smoothly if the government had called a halt three weeks ago and said to the advisory boards, "We have made a manual of instructions in which we have made up our minds definitely as to certain things we want to do," and then proceeded on that basis.

The major burden of the whole draft falls on the medical profession. I think we are glad of it and agree that it is a great thing and we should be proud that the medical profession can render this magnificent service to our country at this time. There are some men who feel that we are always the "goats"; that we do more charity work and are expected to do more work with less appreciation than any other group of men. There is another group of men who are proud to render service, and may I say that the men in the medical profession who have made it a proud thing to belong to have not been men in the first group who were afraid of being imposed on?

Major John Ridlon, Chicago: I want to plead guilty to the charge that I have never studied the manual in its entirety and only read over the part of it relating to the orthopedist; also to Dr. Pusey's criticism that I have a capacity for finding difficulties. But let me assure Dr. Harris that if all the foot complaints that come to the base hospitals in those cantonments are rejected; if all the men who come to the exemption boards are placed in Class B, 60 per cent. of those complaining of their feet will stay at home, and it is a very easy thing to complain of your feet. If they are not to be sent until they are cured, who is to compel a man who does not want to go into the service, to be cured? I know of no one who can compel him to.

# *Current Medical Literature*

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Ophthalmology, Chicago

February, 1918, **1**, No. 2

1 Hole at Macula. C. A. Burkholder, Camp Sherman, Ohio.—p. 81.
2 Glaucoma from Absorption of Senile Cataract. H. Gifford, Omaha. —p. 83.
3 Injury to Eyes from Lightning Stroke. W. C. Posey, Philadelphia. —p. 88.
4 Membranous Conjunctivitis of Over Four Years' Duration. H. S. Stark, El Paso, Texas.—p. 91.
5 Corneoscleral Trephining. C. A. Clapp, Baltimore.—p. 94.
6 Melanoblastomas of Eye. J. Forman and C. C. Hugger, Columbus. —p. 97.
7 Rôle of Ductless Glands in Ophthalmology. F. R. Spencer, Boulder, Colo.—p. 100.
8 Relation of Retinitis Pigmentosa and Allied Conditions to Ductless Glands. E. L. Jones, Cumberland, Md.—p. 107.
9 Successful Removal of Bullet Imbedded in Orbit Ten Years. O. Orendorff, Canon City, Colo.—p. 114.
10 Importance of Temperature Curve for Early Recognition of Intra-Ocular Tuberculosis. H. A. Smith, Delta, Colo.—p. 116.
11 Case of Massive Retinal Exudate. M. Black, Denver.—p. 120.

### American Journal of Physiology, Baltimore

February, 1918, **45**, No. 3

12 Physiology of Ascidia Atra Leuseur. Blood System. S. Hecht.—p. 157.
13 *Evidence for Enzymatic Basis of Heart Beat. M. M. Moore, New Brunswick, N. J.—p. 188.
14 *Vasodilator Reactions. I and II. R. Hunt, Boston.—pp. 197, 231.
15 *Influence on Thyroid of Anastomosis of Phrenic and Cervical Sympathetic Nerves. D. Marine, J. M. Rogoff and G. N. Stewart, Cleveland.—p. 268.
16 *Postural Activity of Stomach. E. G. Grey, Baltimore.—p. 272.
17 *Rôle of Catalase in Shock. W. E. Burge and A. J. Neill, Urbana, Ill.—p. 286.
18 Secretin. Its Influence on Number of White Corpuscles in Circulating Blood. A. W. Downs and N. B. Eddy, Montreal, Canada. —p. 294.
19 *Effect of Epinephrin on Blood Flow in Muscles. C. M. Gruber. —p. 302.

13. **Enzymatic Basis of Heart Beat.**—Loeb long ago suggested that the heart owes its rhythmicity to the constant fermentative production of certain compounds in the automatically active cell. If this idea is correct, the curve of the rate of heart beat plotted against temperature should be a typical enzyme curve and the temperature coefficient of the rate of heart beat should show the same variations which that of enzyme reactions do; that is, become smaller with increasing temperature. Accordingly Moore carried out a series of experiments on Fundulus embryo hearts. She found that the changes in the rate of the heart beat of the Fundulus embryo at high temperatures are such as would be expected in case the rhythmical contractions of the heart depend on the velocity of an enzyme reaction. With high temperatures the length of time exposed is an important factor. The longer the time exposed, the lower the temperature necessary to bring about standstill of the heart, indicating a temperature coefficient of the destruction of the enzyme. Auriculoventricular block was observed as a result of high temperature. The ventricle is first affected by the high temperature, and finally the auricle and sinus.

14. **Vasodilator Reactions.**—I. The experiments described by Hunt resulted from an endeavor to discover the cause of the marked fall of blood pressure following the administration of certain drugs; they have led to the conclusion that there is present in mammals (and perhaps other animals) a vasodilator mechanism not recognized, or only vaguely recognized, capable of responding with more intense reactions than any of the mechanisms generally recognized and one which may be more perfectly controlled than the latter. Acetylcholin was the vasodilator used in these experiments. Acetylcholin has an intense vasodilator action on the vessels of the skin and of the ear; the action on the skeletal muscles is slight. It dilates the vessels of the penis, of the submaxillary gland and of the spleen; it seems also to dilate the vessels of the intestines and liver. Only slight evidence of a dilator action was found in the case of the kidney and none in that of the lung. The nasal mucosa seemed relatively less sensitive to the vasodilator action of acetylcholin than many other vascular areas. The vasodilatation in all of these cases was diminished or prevented by atropin. As little as 0.000,000,002,4 mg. acetylcholin per kilogram caused a pronounced fall of blood pressure. Acetylcholin injected into the trachea or applied to the surface of the lung, kidney, liver, suprarenal and various muscles was very active in causing a fall of blood pressure; similar doses applied to the surface of the stomach, spleen and small intestine had no effect on the blood pressure.

II. Further study showed that the mechanism involved in the vasodilator action of acetylcholin and related bodies is different from that involved in the action of any of the nerves (posterior root, parasympathetic and sympathetics) to which vasodilator functions have been attributed. It is also different from that involved in the depressor action of epinephrin. This mechanism, although capable of more energetic response than any hitherto described, is not involved in the action of the depressor or of other afferent nerves causing a fall of blood pressure. The only substances found having the same type of vasodilator action as acetylcholin were a limited number of compounds derived from, or closely related to cholin and pilocarpin and colchicin. Atropin and closely related substances were the only compounds found having a pronounced antagonistic action to the vasodilator action of acetylcholin. Pilocarpin diminished the action slightly. Physostigmin intensified all of the action of acetylcholin.

15. **Effect of Phrenic Sympathetic Union on Thyroid.**—The experiments reported on by the authors represent an attempt to repeat the observations of Cannon, Binger and Fitz (1) on the effects of fusion of the anterior root of the phrenic nerve with the cervical sympathetic on the thyroid function in cats. In none of the animals were any symptoms resembling those of exophthalmic goiter observed. In several it was proved by electrical stimulation that functional union had occurred between the phrenic and the cells of the superior cervical ganglion innervating the iris and the nictitating membrane. It was shown in several of the cats that a tonic dilator effect must have been exerted through the phrenic on the pupil of the operated side. This follows from the fact that in animals in which it was demonstrated by electrical stimulation that the phrenic caused dilatation of the pupil, while the sympathetic below the neuroma did not, the pupils on the two sides were equal. In the cat it was proved directly by nerve section that the phrenic was exerting a

tonic dilator effect, for when the anterior phrenic root central to the neuroma was divided the pupil on that side became smaller than the other and remained smaller. In several cats the effect of stimulation of sensory nerves (central end of cut sciatic) on the pupil was noted. Dilatation occurred on the operated side at the same time as on the normal side and in the same degree. In none of the animals was respiratory hippus seen although carefully and repeatedly looked for. If the dilator innervation is due to impulses from the respiratory center, there does not seem to be any obvious reason why a rhythmical change synchronous with the respiration should not be present. The authors state that it was not seen in any of their cats. Exophthalmos did not develop in any of the animals. The thyroids were always approximately equal on the two sides and of the same color on gross examination. Histologically no difference was observed between the thyroid on the operated and that on the normal side. Variations in the weight of the suprarenals were within the normal range.

16. **Postural Activity of Stomach.**—Experiments were carried out by Grey in order to study, in some detail, the postural activity (Sherrington) of the gastric musculature. The following points may be emphasized. The normal stomach possesses a striking capacity for adapting its size to the volume of its contents with only minimal changes in intragastric pressure. This capacity disappears only shortly before the viscus ruptures. Time is an essential factor in the expression of this form of muscular activity—as the rate of change in volume of contents increases, the extent of the postural activity decreases. The extrinsic nerves have nothing directly to do with the postural configuration of the viscus. The mechanism responsible for these changes concerns solely the musculature itself together with the intrinsic nervous mechanism. Pilocarpin, atropin and epinephrin likewise have only an indirect influence on postural activity. They neither increase nor decrease gastric tonus, but, like the extrinsic nerves, serve to regulate the tension of the stomach walls. Excision of the stomach leads to a marked dcrease in its postural activity, due in greater part probably to changes in the intrinsic nervous mechanism.

17. **Rôle of Catalase in Shock.**—According to Burge and Neill in the condition of shock, the catalase of the blood and probably of the tissues is decreased. The decrease in the catalase of the blood is brought about by a diminished output of catalase from the liver owing to the lowered blood pressure and probably by a dilution of the blood due to a diffusion of liquid, poor in catalase, from the tissues. The administration of alcohol in the condition of shock greatly increases the catalase of the blood and hence of the tissues by stimulating the liver to an increased output of this enzyme. Since catalase content is so inseparably connected with oxidation in the body, the assumption is made that the decrease in catalase is principally responsible for the decreased oxidation with resulting acidosis in the condition of shock, and that the beneficial effect of alcohol as a stimulant in shock and in conditions of general depression is due to the increase it causes in the catalase of the blood and tissues with resulting increase in oxidation and decrease in acidosis.

19. **Effect of Epinephrin on Blood Flow in Muscles.**—The research was carried out to determine whether or not epinephrin acted centrally or peripherally in producing vasodilatation in muscles. Gruber found that epinephrin in small doses (0.5 to 2 c.c. 1 : 100,000 solution) produces active dilatation of the vessels in cats' muscles when the nerves are intact. Epinephrin, in any strength, produced no active vasodilatation in muscles in which the nerves were recently cut. Small doses of epinephrin (1 : 100,000) slowly injected intravenously produce active vasodilatation in muscles in which the nerves were previously cut and allowed to degenerate from two to ten days. Small amounts of epinephrin (0.5 c.c. 1 : 100,000) injected intravenously did not produce vasodilatation in eleven experiments in the perfused limb intact with the central nervous system. A fall in blood pressure was obtained in every case showing dilatation somewhere in the vascular system. In perfused limbs large amounts of epinephrin (0.5 c.c. 1 : 10,000) produced active vasodilatation accompanied by a rapid increase in blood pressure followed by a fall. Gruber believes that the vasodilatation in muscles caused by small amounts of epinephrin is dependent on the tonicity of the vessel wall. Small doses of epinephrin (0.5 c.c. 1 : 100,000) bring about vasodilatation by their action on the peripheral vasodilator mechanism.

### American Journal of Public Health, Boston

February, 1918, **8**, No. 2

20 Venereal Diseases and War. W. C. Gorgas, Washington, D. C.—p. 107.
21 Ventilation of Army Barracks. W. J. Mauer, Chicago.—p. 112.
22 Control of Communicable Diseases in Camps. I. W. Brewer.—p. 121.
23 Prophylaxis of Industrial Poisoning in Munition Industries. A. Hamilton, Chicago.—p. 125.
24 What We Are Doing to Prevent Tuberculosis Among Children. L. I. Harris, New York.—p. 131.
25 State Health Departments and Municipal Refuse Disposal. E. D. Rich, Lansing, Mich.—p. 135.
26 Practical Uses of Vital Statistics. S. W. Wynne, New York.—p. 138.
27 Comparative Wassermann Tests with Two Antigens. A. I. Van Saun and M. K. Preston, New York.—p. 146.
28 Diphtheria in Court Bibles. H. N. Calver, Winston-Salem, N. C.—p. 148.
29 Theory vs. Practice in Vital Statistics. T. D. Tuttle, Seattle.—p. 150.
30 Bleaching Powder in Place of Permanganate in Fumigation. D. W. Horn.—p. 161.

### Archives of Pediatrics, New York

January, 1918, **35**, No. 1

31 *Bacteriology of Urine in Children with Gastro-Intestinal Diseases. A. B. Schwartz, Milwaukee, Wis.—p. 1.
32 Comparative Study of Therapeutic Effects of Various Forms of Tuberculins, Vaccines and Serums in Pulmonary Tuberculosis in Children. M. S. Cohen, Philadelphia.—p. 11.
33 *Comparison of Various Tuberculin Tests in Childhood. E. F. Warner, St. Paul.—p. 28.
34 Case of Idiopathic Dilatation of Colon. J. P. C. Griffith, Philadelphia.—p. 36.
35 Value of Wassermann Reaction in New-Born. H. H. Yerington, San Francisco.—p. 40.
36 Case of Congenital Atresia of Small Intestine. F. V. Bogert, Schenectady.—p. 45.

31. **Bacteriology of Urine in Children.**—The sixty-three patients studied by Schwartz represented various types of all the known forms of gastro-intestinal diseases and were generally of a very severe nature as exhibited by the extremely high mortality rate. With few exceptions these patients were under 2 years of age. Thirty-eight, or 60.3 per cent., showed the presence of gram-negative bacilli in their urine. Of those in which the first and second portions of the urine were separately cultured, 21.4 per cent. showed a sufficient number of gram-negative bacilli in the second specimens to constitute a bacilluria. Urethral contamination was almost three times as prevalent in girl babies as in boys, while actual bacilluria was twice as prevalent in girls as it was in boys.

33. **Tuberculin Tests in Childhood.**—In twenty exposed children recently tested by the subcutaneous tests by Warner, eight reacted with 1 degree of fever to 1 mg. of tuberculin. Four of these were discharged patients from the Ramsey County Preventorium and had received tuberculin previously. Excluding these, there were four reactors out of twenty tests, or 20 per cent. A thoroughly conducted subcutaneous test in children under the proper precautions of selection of cases and previous temperature control, together with the history of the case is considered by Warner one of the most valuable, tuberculin tests for the purpose of separating the active from the latent cases.

### Boston Medical and Surgical Journal

February 21, 1918, **178**, No. 8

37 *Acute Lobar Pneumonia. F. C. Shattuck and C. H. Lawrence, Boston.—p. 245.
38 Recent Treatment of Lobar Pneumonia. T. F. Leen, Boston.—p. 251.
39 Recruiting Notes. H. W. Dana, Boston.—p. 255.
40 Army Surgeon of Other Days. H. D. King, New Orleans.—p. 258.
41 Gonorrhea in Young Male Children; Its Treatment. W. D. Bieberbach, Worcester.—p. 259.

37. **Acute Lobar Pneumonia.**—This paper presents an analysis of 3,291 cases of lobar pneumonia treated at the Massachusetts General Hospital from 1889 to 1917, and a comparison of statistics with those obtained from a study of 1,000 cases treated from 1822 to 1889. The mortality has gradually increased from 10 per cent. in the first decade to 28 per cent. at the present time. Since 1881 there has been no significant change in the death rate; in fact, the mortality rate for pneumonia in the entire series has shown no permanent important change. Treatment has done nothing toward diminishing the mortality from pneumonia in the past ninety-five years. Bleeding, purging, fresh air—the result has been the same. Of particular interest is the evidence offered by the figures on the effect of alcohol. Its habitual use, during health, in more than moderate amounts, is shown to diminish the patient's chances of recovery. But the mortality rate among those patients who were given large amounts of alcohol during their illness, is no higher than among those given no alcohol and large amounts of fresh air. These figures do not indicate that alcohol is harmful to those sick with pneumonia. They suggest that the effect of the drug varies with the conditions under which it is given, and that it is not poisonous to those who have high temperatures and are taking insufficient nourishment. According to Coolidge and Townsend, no change is to be expected in the results of treatment until a specific is discovered which will neutralize the toxins of the pneumococcus. The results from the serum now in use are encouraging, but limited, and until its use becomes accepted, the treatment of pneumonia must be that best suited to the individual. No routine treatment has been justified by its results.

### Colorado Medicine, Denver

February, 1918, **15**, No. 2

42 Peptic Ulcer and Gallstones in Upper Abdominal Diagnosis. C. Graham, Rochester, Minn.—p. 34.
43 Rôle of Ductless Glands in Ophthalmology. F. R. Spencer, Boulder.—p. 411.
44 General Physiologic Relations of Internal Secretions. H. Sewall, Denver.—p. 45.

### Indiana State Medical Association Journal, Fort Wayne

February, 1918, **11**, No. 2

45 Prostatic Hypertrophy. W. N. Wishard and H. G. Hamer, Indianapolis.—p. 47.
46 Hypertrophy of the Prostate. C. M. Mix, Muncie.—p. 53.
47 Complement Fixation in Diagnosis and Prognosis of Tuberculosis. V. H. Moon, Indianapolis.—p. 61.

### Journal of Abnormal Psychology, Boston

December, 1917, **12**, No. 5

48 Coconscious Images. M. Prince.—p. 289.
49 Application of Psychanalytic Method. H. I. Gosline, Worcester.—p. 317.
50 Treatment of Dementia Praecox by Psychanalysis. I. H. Coriat, Boston—p. 326.
51 How Far Can Ideas Directly Influence or Affect Peripheral processes? M. Solomon, Chicago.—p. 331.
52 Eupathics—Program for Mental Hygiene. A. Myerson, Boston.—p. 343.

### Journal of Medical Research, Boston

January, 1918, **37**, No. 3

53 *Organization of Blood Clots After Autotransplantation, Homoiotransplantation and Heterotransplantation. L. Loeb, St. Louis.—p. 353.
54 *Is There Any Quantitative Relationship Between Antigen Dose and Antibody Production? E. T. H. Tsen, New York.—p. 381.
55 *Comparative Study of Infantile Paralysis, Animal Distemper and Its Related Diseases. L. D. Bristol, Boston.—p. 391.
56 *Etiology of Granuloma Inguinale. E. L. Walker, San Francisco.—p. 427.
57 Quantitative Study of Regeneration in Uterus of Guinea-Pigs. L. S. N. Walsh and L. Loeb, St. Louis.—p. 441.
58 *Method for Producing Rapid Immunity to Pneumococci. H. L. Alexander, Boston.—p. 471.
59 Immunity and Tissue Transplantation. Reactions Occurring About Tissue Transplanted into Heterologous Animals. M. S. Fleisher, St. Louis.—p. 483.
60 *Etiology and Pathology of Rocky Mountain Spotted Fever. S. B. Wolbach, Boston.—p. 499.

53. **Organization of Blood Clots.**—Loeb distinguished two kinds of organization of the blood clot: (*a*) the provisional and (*b*) the definite one. The provisional organization consists in the ingrowth of more or less isolated fibroblasts into the coagulum. This mixture of coagulum and fibroplasm becomes definitely organized. Different pieces are organized with different rapidity. Mitoses occur in both the fibroblasts in the capsule around the clot as well as in the fibroblasts entering the clot. They occur also in epithelioid cells which are formed in the clot. The fibroblasts not only move into the clot and organize it, but through their kinetic power they tear off superficial parts of striated muscle on which the clot rests and push these pieces further up toward the clot. Throughout the process of organization, cells which migrate into the clot now and then take up erythrocytes and transform them into pigment. At certain places in the clot Loeb observed, at various periods of the process of organization, epithelioid and giant cells.

54. **Antigen Dose and Antibody Production.**—From the results of Tsen's experiments, there seems to be no quantitative relationship between the antigen dose and antibody production. Individuals can produce as much antibody in response to the injection of small as to that of large doses of antigen. The rapid method of producing antibodies appears from the author's experiment to be just as efficient as, but not better than, the slow method.

55. **Comparative Study of Infantile Paralysis.**—The chief theoretical suggestion made by Bristol is that infantile paralysis may be nothing more than the manifestation of a common, widespread human pasteurellosis—the nonparalytic (a better term than abortive) cases, representing chiefly the digestive and respiratory types of the disease, while the paralytic cases may be included in the nervous type. Based on this assumption, the mode of spread may be considered analogous to that demonstrated for all forms of pasteurellosis in animals, namely: (1) directly, by contact with the fresh secretions or excretions of an infected individual (either diseased or a healthy carrier); (2) indirectly, by the carriage of the specific organisms by insects, or possibly in dust, uncooked food or drink. Considering the epidemiology of the disease in this light, the great variation in virulence which is characteristic of the various bipolar bacilli must be kept in mind. Thus, bipolar bacilli causing disease in one animal is most virulent for that particular species of animal, but (though somewhat less virulent) this same strain of organism may at times cause symptoms of similar disease in other species. Hence, it might be believed that sporadic cases, small outbreaks or local outcroppings in epidemics of a human pasteurellosis have their origin in lower animal reservoirs; but that severe, widespread epidemics, and the gradually increasing prevalence of the disease are due more to the passage of a human strain of the organisms (of a steadily increasing virulence) directly or indirectly from person to person.

56. **Etiology of Granuloma Inguinale.**—This investigation of granuloma inguinale by Walker is based on a study of material from a patient under his observation from April 29 to June 5, 1916. He found that the essential etiologic factor of granuloma inguinale is the intracellular organism discovered by Donovan (1905) and found constantly in the lesions. This intracellular organism is a capsule bacillus of the *B. mucosus capsulatus* Friedländer group. Granuloma inguinale is not itself a venereal disease, but it is probably a secondary infection with the capsule bacillus of lesions of other origin, which may be venereal sores.

58. **Producing Rapid Immunity to Pneumococci.**—In the experiments here described, pneumococci and leukocytes were mixed together and incubated for given lengths of time. The mixtures were then used as antigens and injected into rabbits, whose serums were tested at intervals for the presence of protective substances. Alexander found that protective substances to pneumococci may be demonstrated in considerable amounts in the blood serum of rabbits within six to eleven days after the first injection of the leukocyte reinforced antigen, which contains a larger number of living pneumococci than is possible to employ in methods of immunization ordinarily used. This protection is not obtained in so short a time with similar antigens containing killed

organisms, or in the absence of leukocytes. The protective bodies cannot be materially increased by three series of injections. Long incubations produce acute protein poisoning. Such production of protective substances within a short time simulates a condition found in pneumonia patients, at about the time of the crisis.

60. **Etiology of Rocky Mountain Spotted Fever.**—Wolbach says that the specific lesions of Rocky Mountain spotted fever are practically restricted to the blood vessels of the skin and genitalia. The reaction is a characteristic one, an endangeitis characterized by endothelial cell proliferation, local necrosis of endothelium and smooth muscle and thrombosis. Perivascular accumulations of large mononuclear cells (endothelial cells) are of common occurrence. Lesions of the large blood vessels of the body and of the vessels of organs other than the skin and genitalia are of rare occurrence and of insignificant moment. The general reactions to the toxic properties of the parasite are evidenced by a general increase in the intravascular content of large mononuclear cells (endothelial cells), often phagocytic, and by the accumulation of similar cells in the lymph nodes and spleen. The cause of the disease is the minute parasite previously described in guinea-pigs and monkeys, and now proved to be constantly present in the lesions of blood vessels in man, monkeys, rabbits and guinea-pigs, and in ticks capable of transmitting the disease.

### Journal of Nervous and Mental Diseases, Lancaster, Pa.

January, 1918, **47**, No. 1

61 *Key to Practical Grouping of Mental Diseases. E. E. Southard, Boston.—p. 1.
62 Prognosis in Manic-Depressive Insanity. J. B. Macdonald, Danvers, Mass.—p. 20.
63 Method of Recording Brain Weights; Error Due to Inclusion of Cerebral Fluid. L. G. Lowrey, Danvers, Mass.—p. 31.

61. **Grouping of Mental Diseases.**—The sequence of mental disease groups provisionally arranged by Southard is as follows: Mental disease groups (orders): (1) syphilitic, syphilopsychoses; (2) feebleminded hypophrenosis; (3) epileptic, epileptoses; (4) alcoholic, drug, poison, pharmacopsychoses; (5) focal brain ("organic," arteriosclerotic), encephalopsychoses; (6) bodily disease ("symptomatic"); somatopsychoses; (7) senescent, senile, geriopsychoses; (8) dementia praecox, paraphrenic, schizophrenosis; (9) manic-depressive, cyclothymic, cyclothymoses; (10) hysteria, psychoneuroses, neurasthenic, psychoneuroses; (11) psychopathic, paranoiac, and others, psychopathoses. The ending -osis was chosen for these groups to correspond exactly with the ending aceae for certain botanic groups, the so-called orders of plants. Whereas the ending -osis suitably expresses ordinal characters, the ending -ia (as in epilepsia, neurasthenia) suitably indicates generic characters of disease.

### Laryngoscope, St. Louis

February, 1918, **28**, No. 2

64 Results Obtained by Tonsillectomy in Treatment of Systemic Diseases. D. W. Layman, Indianapolis.—p. 65.
65 Implantation Cyst of Larynx. L. W. Dean and J. B. Gregg, Iowa City, Iowa.—p. 74.
66 Diagnosis of Speech Defects. M. K. Scripture, New York.—p. 78.
67 Copper Brad in Left Inferior Bronchus. Removal. R. McKinney, Memphis, Tenn.—p. 89.
68 Empyema of Ethmoid and Frontal Sinus with Perforation of Inner Wall of Orbit. E. R. Roberts, Bridgeport, Conn., and T. J. Harris, New York.—p. 93.
69 Macroglossia Lymphangioma; Report of Case. R. D. Sleight and W. Haughey, Battle Creek, Mich.—p. 99.
70 Nasopharyngeal Fibromyxoma, Undergoing Sarcomatous Changes. L. J. Goldbach, Baltimore.—p. 106.
71 Free Needle for Suturing Submucous Flaps. V. B. Fischer, Boulder, Colo.—p. 109.
72 Instrument for Making Drainage Incision on Floor of Nose, Obviating Use of Packing Following Resection of Septum. L. Gatewood, New York.—p. 111.

### Medical Record, New York

Feb. 23, 1918, **93**, No. 8

73 Malnutrition Among Schoolchildren. Report of Public Health Committee of New York Academy of Medicine.—p. 311.
74 Psychopathology of Selections of Vocations. A. A. Brill, New York.—p. 318.
75 *Use of Carrel-Dakin Solution on Service of Dr. J. B. Deaver, in Lankenau Hospital, Philadelphia. J. W. Bodley, W. H. Means and H. E. Knox, Philadelphia.—p. 323.
76 Teeth According to Rabelais. D. W. Montgomery, San Francisco.—p. 327.
77 Primitive Treatment of Disease. J. B. Percival, Paramaribo, Dutch Guiana.—p. 330.

75. **Report on Carrel-Dakin Solution.**—Contrary to many observers the authors believe that the Carrel technic is not a complicated one. It requires no more time, labor or material than the method of treating purulent collections with drainage tubes and irrigations of saline, mercuric bichlorid or phenol solutions. The deodorizing effect of this solution is very important. This has a psychologic effect in aiding the patients' convalescence. The irritating effect of the solution on skin surfaces has been very slight. The authors have abandoned the use of gauze strips saturated with petrolatum and use no protection at all, except when the skin appears hypersensitive, in which case a spray of liquid paraffin is used. The mucous surfaces appear to suffer no more than the skin, as instanced by the use of the solution as a vaginal douche.

Emphasis is laid on the contraindication to the use of the solution in cases in which there is much hemorrhage. This is controlled as well as possible at time of operation and the solution not used until twenty-four to forty-eight hours have elapsed. Other contraindications to the use of the solution are in infections due to the *Bacillus pyocyaneus*, on which it seems to have no effect, and in all classes of wounds after the infection has been controlled, when it is unnecessary and has a retarding influence on granulations. In fecal fistulas the solution is not used, because it has been noticed that patients with this condition suffer with a great deal of discomfort, and at times pain, for three to four hours after the dressing.

### Nebraska State Medical Journal, Norfolk

February, 1918, **3**, No. 2

78 Acidosis in Children. F. Clarke, Omaha.—p. 37.
79 Empyema in Children. H. B. Hamilton, Omaha.—p. 41.
80 Diagnostic Value of Cerebrospinal Fluid Examination. M. G. Wohl, Omaha.—p. 43.
81 Present Status of Streptococcus Differentiation. W. C. Becker, Papillion.—p. 47.
82 Presentations and Their Diagnosis. J. N. Campbell, Stamford.—p. 50.
83 Empyema of Nasal Accessory Sinuses. H. B. Lemere, Omaha.—p. 53.

### Neurological Bulletin, New York

January, 1918, **1**, No. 1

84 Recurrence of Extramedullary Endothelioma After an Interval of Eight Years. A. V. S. Lambert, New York.—p. 1.
85 *Poliomyelitis with Prolonged Somnolence. F. Tilney, New York.—p. 7.
86 Aphasia; Report of Three Cases. M. Osnato, New York.—p. 11.
87 Case Presenting Thalamic Syndrome. S. P. Goodhart, New York.—p. 22.
88 Description of Summary and Differential Diagnosis Blank. O. S. Strong, New York.—p. 25.
89 Case of Syringomyelia with Differential Diagnosis. O. S. Strong, New York.—p. 29.
90 Case of Acromegaly with Gigantism in Family. M. T. Craft, London, Ky.—p. 32.

85. **Poliomyelitis with Prolonged Somnolence.**—Tilney cites the case of a boy, 4 years of age, who left New York for Liverpool in good health, remaining so for the entire trip across the ocean; he was not even seasick. On arriving in Liverpool he did not feel well. He seemed weak, but had no pain and his body did not seem warm. That evening he was seen by a physician, who looked at his tongue, but made no further examination. On learning he had just arrived from New York, the physician said: "Probably infantile paralysis." Another physician was called the next day, who found the child sleeping, in which condition he remained, not even arousing to take food. There was apparently no elevation of temperature. On the fourth day he was still sleeping. The mother took the child to the hospital and laid him in bed on his right side. Each time she called to see him he still lay on his right side in the same posture, apparently unchanged, even when she called six days later to take him away. He had taken no food during all this time. After fourteen days, the boy made the first sound, calling his mother. The child was unable to hold up his head

without assistance for six months. He sat up alone for the first time after five months; two weeks later he was able to stand; and has since been gradually improving, the right leg remaining much thinner and softer than the left.

### New York Medical Journal

Feb. 23, 1918, **107**, No. 8

91 Demons of Heresy and Demons of Disease in Processes of Thought. J. Wright, Pleasantville.—p. 337.
92 Pericholecystic Adhesions Dyspepsia and Its Diagnosis. G. A. Friedman, New York.—p. 341.
93 Subconjunctival Injections. A. M. MacWhinnie, Seattle.—p. 343.
94 Case of Meningitis Caused by B. Influenza. R. Hills, New York. —p. 345.
95 Hydatid Pyopneumocyst of Liver. M. H. Vegas, Buenos Aires.—p. 346.
96 Treatment of Painful Dysphagia in Tuberculous Laryngitis. R. McD. Lukens, Philadelphia.—p. 353.
97 Thrombophlebitis of Inferior Vena Cava Complicating Varicella. S. A. Blauner, New York.—p. 355.
98 Syphilitic Blood on Surgeon's Fingers in Intravenous Administration of Arsenicals. N. B. Jenkins, New York.—p. 356.

### Northwest Medicine, Seattle

February, 1918, **17**, No. 2

99 Alkali Reserve and Hydrogen Ion Concentration of Blood. Methods and Results. H. D. Haskins, Portland, Ore.—p. 35.
100 Nonprotein Nitrogen in Blood in Nephritis. R. Cummings, Los Angeles.—p. 41.
101 Transfusion of Blood by Direct Method. W. C. Speidel, Seattle.—p. 44.
102 Obtaining Blood for Diagnostic Purposes in Infancy from Longitudinal Sinus and Transfusion by Same Route. E. M. Tarr, Portland, Ore.—p. 47.
103 Practical Considerations in Blood Pressure. W. T. Woolley, Seattle.—p. 49.
104 Acne Vulgaris. W. Brown, Tacoma.—p. 51.
105 Clinical Interpretation of Labyrinthine Phenomena in Presence of Suppurative Inflammation of Middle Ear. O. M. Rott, Spokane. —p. 56.
106 Water, Its Scientific Use in Relief and Prevention of Disease. M. E. J. Donaldson, Boise, Idaho.—p. 57.

### Pennsylvania Medical Journal, Athens

February, 1918, **21**, No. 5

107 Dysentery and Its Relation to Camp Life. E. R. Whitmore, Washington, D. C.—p. 273.
108 Minor Eye Injuries and Workmen's Compensation Law. L. E. Schoch, Shamokin.—p. 278.
109 Pituitary Tumor—Operation by Transphenoidal Route. F. O. Lewis, Philadelphia.—p. 282.
110 Nonoperative Treatment of Nasal Sinusitis. E. L. Vansant, Philadelphia.—p. 284.
111 Indications for Operation in Glaucoma. W. C. Posey, Philadelphia.—p. 290.
112 Syphilis as Factor in Diseases of Thyroid. T. G. Simonton, Pittsburgh.—p. 293.
113 Corneal Ulcers. A. R. Renninger, Philadelphia.—p. 296.
114 Hyperthyroidism and Mental Disorders. W. K. Walker, Pittsburgh.—p. 300.

### Public Health Journal, Toronto

February, 1918, **9**, No. 2

115 Advisory Committee on Venereal Diseases for Military District. No. 2. J. G. Fitzgerald.—p. 49.
116 Military Aspect. G. Bates.—p. 53.
117 Subcommittee on Women's Activities. L. A. Hamilton.—p. 58.
118 Subcommittee on Quack Advertising. F. Paul.—p. 63.
119 Subcommittee on Education. A. E. S. Smythe.—p. 68.
120 Subcommittee on Legislation. C. J. O. Hastings.—p. 73.

### Southwest Journal of Medicine and Surgery, El Reno, Okla.

February, 1918, **27**, No. 2

121 Chronic Colitis with Especial Attention to Types and Causes. C. J. Fishman, Oklahoma City.—p. 25.
122 Consequences of Gastric Hyperacidity. E. D. Holland, Hot Springs, Ark.—p. 32.
123 Gastric and Duodenal Ulcer. C. E. Bowers and W. P. Callahan, Wichita, Kan.—p. 38.

### Wisconsin Medical Journal, Milwaukee

February, 1918, **16**, No. 9

124 Plea for More Thorough Operations on Biliary Tract. D. N. Eisendrath, Chicago.—p. 335.
125 Septic Sore Throat: Galesville, Illinois, Epidemic. I. F. Thompson, Eau Claire.—p. 342.
126 Chemical Mechanism of Atrophy, Involution and Hypertrophy. H. C. Bradley, Madison.—p. 349.
127 Compulsory Health Insurance. A. E. Forrest, Chicago.—p. 354.
128 Indications for Davis Cesarean. R. W. Roethke, Milwaukee.—p. 359.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Surgery, Bristol

January, 1918, **5**, No. 19

1 Gunshot Wounds of Chest. P. T. Crymble.—p. 363.
2 Two Cases of Keratodermia Blennorrhagica. C. Lundie.—p. 389.
3 *Septicemia as Complication of Gunshot Wounds; Thirteen Cases. H. M. Anderson and G. Richardson.—p. 393.
4 *Two Cases of Squamous Epithelial Tumor of Breast. R. Johnson and T. W. P. Lawrence.—p. 417.
5 Removal of Rifle Bullet from Right Lobe of Cerebellum. G. Jefferson.—p. 422.
6 *Some Aspects of Treatment of Infected War Wounds. O. G. Morgan, F. D. Saner and E. G. Schlesinger.—p. 425.
7 *Gunshot Wounds of Knee-Joint; Report of One Hundred Cases. E. T. Tatlow.—p. 462.
8 Case of Fascial Grafting for Repair of Traumatic Stricture of Urethra. R. J. Willan.—p. 494.
9 *New Operation for Substitution of Thumb. J. L. Joyce.—p. 499.
10 Case of Traumatic Aneurysm of Radial Artery. C. P. G. Wakely. —p. 505.
11 Case of Partial Separation of Calcaneal Epiphysis. C. H. Whiteford.—p. 507.
12 *Case of Gunshot Wound of Liver, Missile Entering Hepatic Vein, and Lodging in Right Ventricle of Heart. J. E. McCartney and H. Drummond.—p. 508.
13 *Unusual Case of Renal Calculus. F. C. Pybus.—p. 510.
14 Hematemesis and Melana Caused by Piece of Metal from Esophagus Perforating Aorta. N. H. Beal.—p. 512.
15 Case of Two Aneurysms Resulting from Penetration by Small Shell Fragment, One of First Part of Right Subclavian, Other of Aorta. G. Barling.—p. 514.

3. **Septicemia in Gunshot Wounds.**—A study of thirteen cases of septicemia has convinced Anderson and Richardson that blood infection occurs more frequently in patients suffering with gunshot wounds than is usually supposed, and that this infection may be due to a diversity of organisms. The clinical manifestations of such a complication may be few and trivial; the tendency to natural cure is strong. The following types of cases would appear, from their experience, to be those worth investigating: 1. Cases presenting wounds grossly infected with the bacillus of gas gangrene, and exhibiting the symptom complex associated with the third type of septicemia known to be produced by this organism. 2. Cases exhibiting anemia and emaciation with wounds of the cadaveric type. 3. All cases in which delirium is present, apart from those in which the position of the wound is such that the condition is intelligible. 4. Cases with temperature disturbance not accountable for by the state of the wound.

4. **Squamous Epithelial Tumor of Breast.**—In the two cases recorded by Johnson and Lawrence, the growth presented itself as a definite tumor of the breast, and in each the outstanding histologic feature was the presence of squamous epithelium with well-developed prickle cells. One patient was 53 years of age. The tumor had been present three weeks. It was as large as a walnut, was present in the upper and outer quadrant of the breast. The nipple was normal, and the tumor, although intimately connected with the breast tissue, was not attached to the skin or deeper structures. There were no palpable glands in the axilla. The tumor appeared to be slightly elastic, and was thought to be a cyst. Three of the patient's sisters had had cysts of the breast. In one, a cyst had been excised; in another, two cysts had been punctured; and in the third, two operations had been performed for multiple cystic disease. The whole breast, with the pectoral muscles and axillary contents, was removed. A year later there was no evidence of recurrence. Among the reasons that lead the authors to believe that the tumor is not a carcinoma are: (1) the association of gland-like spaces with the epithelial masses; (2) the abrupt change from the small cubical epithelium of the spaces into the squamous epithelium of the cell masses; and (3) the regularity of the cells of the squamous epithelial masses. In the second of these two cases there is no doubt that it is a squamous celled carcinoma originating in the skin overlying the breast, and with the naked eye it was possible to trace fine lines of opaque growth between the surface of the tumor and the skin itself. The structure of the tumor is in one respect peculiar, in that the epithelial masses, instead

presenting the usual alveolar structure, have retained an exaggerated papillary arrangement, so that these masses are seen to enclose a core of cellular connective tissue.

6. **Treatment of Infected War Wounds.**—The authors discuss the treatment of wounds under two headings: (1) the part wounded; (2) the wound itself. In wounds of the extremities, whether complicated by fracture or not, aimed to secure immobilization of the limb involved, and at the same time to preserve to the patient as complete a mobility of the rest of the body as possible. This has been secured by carefully splinting the limb and then suspending the whole splint from overhead pulleys with accurately balanced counter weights. Any movement of the patient in bed is then followed by the splint, without any disturbance of the injured part, as is shown by the absence of pain. To secure extension, except in certain particular cases they have used almost entirely Sinclair's glue. In dealing with fractures and wounds of the lower limb, the authors have used almost entirely the Thomas splint, either straight or bent, and suspended in extension on the Hodgen principle; the end of the bed being raised to secure counter extension. For fractures of the femur, excepting those very high up, and for extensive thigh wounds, they have used a bent Thomas splint, with a metal archway fixed to the splint in the required position by Mead's strapping and from which the foot is suspended by gauze glued to the sole of the foot. Extension is obtained by gauze glued to the leg and fixed to the end of the splint, while the whole splint is extended either by a running weight attached to its sides or by a forward position of the suspension pulleys. In the intensely comminuted fracture of the tibia the authors have used a Thomas splint, with Sinclair's wooden foot piece.

Fractures of the tarsus and metatarsus have been dealt with by suspension from an archway by the toes, and, if in a Thomas splint, the leg has been kept in position relative to the point of suspension by gauze running from the leg to the bottom of the splint. Fractures of the humerus have been treated, as a general rule, with the elbow flexed to a right angle, and by methods varying with the position of the fracture and the wounds. Fractures of the forearm have been treated either on a right-angled Thomas splint, with the upper fragment fixed to the splint and a weight acting on the lower, or by a form of suspension extension tray. In wounds of the carpus and lower third of the forearm this splint has also been used, usually with a wedge attachment at the end to secure dorsiflexion of the wrist. In cases of fractured scapula they have been in the habit of suspending the arm at shoulder level in counterbalanced slings. In the mechanical treatment of joint injuries, the main object has been to arrange the limb in such a position as to obtain as speedily as possible a penetration of the irrigating fluid into all parts of the joint involved. Extension is here the prime need, and where extension is really efficient, immobilization of the injured parts, that is, the joint surfaces relative to each other, will follow automatically. In infected wounds of the knee joint, where a natural arthrotomy was in existence or where a surgical arthrotomy was performed, the authors have used the metal extension stirrup of Finochietto.

Elbow joints have been treated on the suspension extension tray. Wrist joint wounds have been treated in the same way, extension being obtained from the fingers. Ankle joints have proved difficult, since they are so frequently complicated by compound fractures of the tarsus; but in those cases in which the skin of the sole is uninjured, a very good separation can be obtained by using the metal sole piece used in dealing with oblique fractures of the tibia. A point of great importance in these cases is to obtain a very considerable degree of inversion of the foot, both from the point of view of after-results and of immediate treatment. In the treatment of the wound itself the object has been to destroy as rapidly as possible all dead tissues in the wound. This has been achieved by intermittent irrigation through Carrel's tubes with the hypochlorite solution of Dakin and Daufresne. In addition to the lines of treatment sketched above, ordinary surgical principles as they apply to infected wounds must be observed.

7. **Gunshot Wounds of Knee-Joint.**—These 100 patients have been under Tatlow's treatment at a base hospital. He says that early operation, if the procedure be radical, and especially if the entire capsule can be sutured, results, in 94 per cent. of the cases, in a sterile joint, and therefore in a successful issue. Where a pack or drain is used down to a tear in a capsule or to a cavity in bone, the results can never be depended on. The removal of missiles from the joint within the first week, even in the presence of sepsis (other than that due to the streptococcus), can be followed by immediate suture, bismuth iodoform petrolatum paste being used to aid sterilization. Tatlow regards the Carrel-Dakin method as being the most useful for the treatment of bone lesions or septic periarticular conditions. It is almost impossible to sterilize a severely infected joint by this method. In the presence of a general infection of the joint by the streptococcus, resection gives good results, even when performed in the second or third week. Cases of severe bone injury should be treated more often than they are by an immediate primary resection of the joint at the clearing station.

Aspiration has given bad results in Tatlow's hands. If the effusion is sterile, it must be regarded as a protective effusion and left alone; if it is infected, it must be evacuated. Aspiration should not be used as a curative measure. Every effusion is needled for diagnostic purposes, and if sterile, is left alone to be absorbed, being considered a protective effort on the part of the joint. Nonabsorption does not occur. Absolute immobility is necessary. The fewer the dressings the better. Any operative procedure, short of resection, should be carried out without removing the limb from the splint. Every case of wound in the joint is best treated, for a time at any rate, on a Thomas splint with a fixed extension, using pulleys or not for the splint itself, as may seem advisable. Starting pains at night are an indication for tightening the extension. At first, if the joint appears quiescent and no pain is complained of, the limb is placed on the splint, and the extension bands are applied, but not tightened; as soon as the knee jumps, the bands must be tightened. Small plates of perforated zinc laid on cross ribbons of aluminum are the best supports, as they can be easily changed and the skin attended to by the ward sister with the minimum of movement.

9. **Operation for Substitution of Thumb.**—An operation has been devised by Joyce to substitute a ring finger of the opposite hand for a thumb lost as a result of injury or disease. The well known method of employing a pedunculated flap is used in this operation. The patient on whom this operation was practiced lost the whole of his right thumb, including its metacarpal bone, as the result of a gunshot wound. The operation is described under the following headings: 1. Preparation of the bed for the reception of the new metacarpal bone, and exposure of the proximal end of the divided tendons of the old thumb. 2. Dislocation of the ring finger of the opposite hand at the metacarpophalangeal joint, involving division of the soft tissues at the base of the radial side of the proximal phalanx, division of the extensor and flexor tendons, and the preservation of a nutritive flap on the ulnar side of the finger. 3. Fixation of the new metacarpal bone (proximal phalanx of ring finger) in its bed, union of tendons and nerve, suture of incisions, and fixation of the hands in apposition. 4. Division of nutritive flap—two months later than 1, 2 and 3.

12. **Gunshot Wound of Liver and Right Ventricle.**—In this case a triangular piece of shell about 1 inch in length entered the thorax between the seventh and eighth ribs on the right side, in the midaxillary line. It then opened the right pleural cavity without touching the lung, pierced the diaphragm, and entered the liver. The fragment traversed the right lobe, and passed into a large branch of the right hepatic vein, in this way gaining access to the inferior vena cava. The missile was subsequently found at necropsy lying between the columnae carneae of the right ventricle of the heart, its apex being surrounded by firm white clot which was not of recent origin. The patient had, in addition, other serious wounds, and survived his injuries for thirty-six hours. The presence of the missile in the heart was not suspected during life.

13. **Case of Renal Calculus.**—The renal calculus described by Pybus formed a perfect cast of the interior of the pelvis and calices of the kidney and the upper portion of the ureter.

### Medical Journal of Australia, Sydney

Jan. 12, 1918, **1**, No. 2

16 Surgical Notes from Western Front During Summer Fighting of 1917. E. H. Burkitt.—p. 21.

January 19, No. 3

17 Working of Roentgen Ray Departments in Hospitals. H. Harris.—p. 41.
18 Hypochlorites. R. C. Cowley.—p. 41.

### Medical Journal of Australia, Sydney

Jan. 26, 1918, **1**, No. 4

19 Military Orthopedics. V. Hurley and H. R. G. Poate.—p. 61.
20 *Subtertian Malaria; Report of Thirty-five Cases. A. W. Holmes à Court.—p. 63.
21 Perforating Injuries of Eyeball by Magnetizable Bodies. G. A. Pockley.—p. 66.

20. **Subtertian Malaria.**—Malarial parasites were found in thirty-three of Court's thirty-five cases. In the remaining two patients quinin had been administered before the blood was examined. In these cases the periodicity of the fever and rapid response to quinin allowed the diagnosis to be established. Morphologically, the parasites corresponded to *Laverania malariae,* the infective agent in subtertian or malignant malaria. Multiple infection of red corpuscles was frequently noted, sometimes three parasites being observed in a single cell. The severity of symptoms in general seemed to correspond fairly closely to the relative number of corpuscles invaded, although the height of the fever did not appear to have so close a relationship to the number of parasites seen in the peripheral blood. The characteristic crescent gametocytes were found in the peripheral blood on the tenth day of the disease in one patient who recovered, and in the spleen and liver in one case which terminated fatally. Albuminuria was present in 48.5 per cent. Hemoglobinuria was not observed. Intramuscular injections of quinin hydrobromid (0.6 gm. dissolved in 8 c.c. sterile water with addition of a few drops of acid hydrobrom. dil) produced rapid amelioration of symptoms. Two injections were given into the gluteal muscles at an interval of eighteen hours. Diarrhea and vomiting then ceased, and rectal or oral administration of quinin sulphate was employed. After two intramuscular injections had been given, not only did the young parasites, merozooites and young trophozooites disappear from the peripheral blood, but the gametocytes could not longer be found, although these forms are usually unaffected by quinin. Two patients died in spite of energetic treatment. Both were already cachectic from other diseases (diabetes and phthisis). The malarial infection was merely a terminal event. A postmortem examination was made in one of these cases, and parasites were found in spleen and liver. Hemozoin granules were noted in the parenchyma cells of these organs. The bone marrow was unusually dark in color, soft and diffluent; no parasites were observed therein. These cases emphasize the importance of early blood examination in doubtful cases of pyrexia, with or without rigors.

### Archives des Maladies de l'Appareil Digestif, etc., Paris

March, 1918, **9**, No. 8

22 *Resection of Right Colon. V. Pauchet.—p. 421.
23 *Tropical Dysentery in Spain. F. F. Martinez.—p. 431.
24 Efficacy of Bardane (Burdock) in Treatment of Liver Colic. E. Savini (Jassy).—p. 444.
25 *Duodenal Ulcer with Fistula Later. A. Mathieu and A. S. Alivisatos.—p. 448.
26 *Chronic Diarrhea. A. Mathieu and M. Delort.—p. 454.

22. **Resection of the Right Colon.**—Pauchet includes in this term the cecum, ascending colon and half of the transverse colon. He discusses the indications for resection as afforded by constipation, tuberculosis or cancer, and gives an illustrated description of the technic for shelling out the whole in one piece. The side-to-side anastomosis between ileum and transverse colon is done with a button, the drawn up end of each projecting in a blind pouch beyond. The suture thread of the colon pouch is left projecting through the wound as a kind of safety valve. The vertical incision for the operation is a little to the right of the median line.

23. **Differential Diagnosis of Tropical Dysentery.**—Martinez is chief of the Institute for Tropical Medicine at Grenada, and he has published numerous reports showing the comparatively frequent prevalence in Spain of the so-called tropical diseases, in persons who have never been outside of Spain. He here describes a case of typical dysentery in which he found Schaudinn's *Endameba histolytica.* He emphasizes that the differential diagnosis of tropical dysentery is a simple matter when 1 c.c. of fresh stool can be introduced into the rectum of a new-born kitten. In two or three days the kitten develops dysentery, generally fatal, sometimes with liver abscesses. Emetin cured the acute cases of tropical dysentery, but it also cured in some cases of dysentery of other origin, hence the recovery under emetin cannot be regarded as a sure sign of the amebic origin.

25. **Duodenal Ulcer.**—The symptoms subsided after gastroenterostomy but at necropsy, seven years later, a fistula between the jejunum and colon was found. It was evidently of long standing and had caused no symptoms.

26. **Nonamebic Diarrhea Cured by Emetin.**—There were no symptoms of dysentery, but the recurring severe diarrhea was completely cured with emetin. It was given because dysentery was prevailing at the time. The case is interesting further because the diarrhea returned in an acute form later under the influence of a minor operation. This time it yielded to dietetic measures without drugs, such as previously had had no effect.

### Archives de Médecine des Enfants, Paris

January, 1918, **21**, No. 1

27 *Leukocyte Count in Cerebrospinal Fluid. Condat.—p. 1.
28 *Physical Measurements and Tuberculin Reaction. A. Reis.—p. 26.
29 Saccharose in Albumin Milk. G. Rheingantz.—p. 27.
30 Mouth Reaction in Infants on Different Diets. A. Rongel.—p. 27.
31 *Hexamethylenamin in Bronchitis. A. Neves.—p. 29.
32 Infantilism of Malarial Origin. A. A. S. Moreira.—p. 30.
33 Phocomelus Deformity. J. Comby.—p. 33.

27. **The Leukocyte Count in the Cerebrospinal Fluid in Children.**—Condat summarizes eighty-eight cases of pneumonia, meningitis, chorea or other diseases in which the leukocyte count in the cerebrospinal fluid was repeatedly recorded. By simply counting the leukocytes we are able to distinguish between mere meningeal reactions and actual meningitis. Chemical examination of the fluid gives less exact and less sensitive findings. She insists that the number of leukocytes should be specified as a routine element in the clinical record of the case. In some cases of pneumonia the symptoms on the part of the meninges were so severe that meningitis was suspected, until the number of lymphocytes in the fluid was found within normal range or only slightly above this. This also was the finding in a case of otitis, and the outcome justified the favorable prognosis based on the low lymphocyte count in the spinal fluid. They ranged from 1.2 to 3.2 per cubic millimeter, in one case reaching the figure of 26, but even this is far below the figure found in actual meningitis. It reached 202 in one case of syphilitic meningitis, and in tuberculous meningitis ranged from 44 to 112 and 125, or higher, reaching 320 and 400 in two little girls. In the incipient cases, 47 and 50 up to 100 was the rule. There does not seem to be any close connection between the evolution of the meningitis and the lymphocytosis. With acute purulent meningitis the figures were far above this, the leukocytes numbering 1,080 in one case of pneumococcus meningitis, with 97 per cent. polynuclears. In one case there was dissociation, the fluid showing excessive amounts of albumin but only one lymphocyte to the field. This was in a boy of 10 with tuberculous hip and knee disease but no meningitis. Syphilitic meningitis is the only clinical picture in this class of cases liable to prove misleading, and a tentative course of treatment clears up this.

28. **Chest Measure and Height in Relation to the Skin Tuberculin Test.**—Reis obtained a positive skin tuberculin reaction in nearly 35 per cent. of 125 children between 3 and 10 tested at Rio de Janeiro. Among the 36 giving a positive reaction, 21 were smaller than the average for their years, and in 14 the chest measure was abnormally small.

31. **Hexamethylenamin in Bronchitis.**—Neves gave this drug to 92 children with bronchitis and found that appreciable

benefit was derived only in 5 of the 18 with acute bronchitis; in 8 of the 46 with subacute and in 2 of the 28 with chronic bronchitis. The children bore it well when the dose was not over 1 gm. for the age of 6 months to 2 years; 2 gm. for from 2 to 5 years, and 3 gm. from 5 to 10 years, giving the hexamethylenamin always in a 1 per cent. solution in distilled or boiled water. The drug is decomposed so promptly by the gastric juice that within fifteen minutes ammonia and formaldehyd can be detected in the urine; the elimination keeps up for at least two hours. His conclusions are that this drug cannot be depended on in bronchitis in children, but that the hematuria and other by-effects sometimes noted by others after giving the drug are the result of excessive dosage.

### Archives de Médecine et de Pharmacie Militaires, Paris

October, 1917, **68.** No. 4

34 *Albuminuria after Acute Nephritis. Péhu and Daguet.—p. 513.
35 *Emetin in Amebic Liver Disease. Cros and de Teyssier.—p. 531.
36 Healing of Skull Wounds. Villandre.—p. 546.
37 Classification of Deafness. J. Molinié.—p. 554.
38 *Burials after a Battle. Bosredon.—p. 561.
39 Wheeled Litter. J. de Fourmestraux.—p. 582.
40 Spirilla Dysentery. Abbatucci.—p. 620.
41 Care of the Wounded at Battle of Gravelotte, 1870. Marit.—p. 652.

34. **Albuminuria after Acute Nephritis.**—Péhu and Daguet refer only to acute nephritis in the troops on active service. Eighty of the men in their service were left with albuminuria, and some presented manifest or occult blood in the urine. Only twenty-five threw off the albuminuria. If this does not occur in three or four months of hospital supervision of the diet, there is no use in keeping the men longer in the hospital. There does not seem to be any tendency to date for chronic kidney disease to develop later. But these men must be regarded for a time as having weak kidneys. They know of only three with recurrence of the nephritis, but they advise a rather long convalescence furlough for men whose residual albuminuria has disappeared. Those with persisting albuminuria in a somewhat stable proportion are not fit even for light duty, and they should be temporarily discharged from the army. When meat was given, albuminuria became increased, although this effect at times was not noted till from five to six or even ten days after meat had been resumed. This intolerance for meat may be only transient. As a rule it subsided in a few weeks so that the ordinary diet could be resumed. In some of the men alcohol invariably increased the proportion of albumin, but the most pronounced effect was from intercurrent febrile infections. An ordinary sore throat, bronchitis, even a rheumatismal condition, brought on a recrudescence of the albuminuria and the output of urine became less. Attempts at organotherapy proved futile, and no benefit was derived from any medication except the symptomatic, including of course theobromin, the excellent influence of which requires no demonstration.

35. **Emetin in Amebic Liver Disease.**—In most of Cros and de Teyssier's cases the dysentery phase of the amebic infection had passed unnoticed. The men complained merely of pain in the liver, sometimes involving the epigastrium, hypochondrium and the base of the chest (in front up to the mamma, not so high in the back). The liver was enlarged and there were tender points in some cases. The fever curve was variable; sometimes after the pus had collected there was no further fever. Six cases of hepatic amebiasis are described in detail. They confirm the prompt efficacy of emetin in many cases of the liver complications of amebiasis. They gave the emetin by a daily subcutaneous injection of 4 cg. for four or six days, then at longer intervals, reducing the dose to 2 cg. If this fails, the emetin can be injected directly into the abscess cavity after it has been emptied by puncture. They advise giving it in every case of persisting pain in the liver in regions where amebiasis is endemic, regardless of whether there have been symptoms suggesting dysentery. Every tendency to diarrhea is suspicious of amebic infection in these regions.

38. **Burial of the Dead after Battles.**—Bosredon comments that the burial of the dead has been left too much to private initiative. In the Belgian army it is obligatory to carry the dead back of the lines for burial. This has a number of advantages, especially for identification purposes. He relates that no isolated graves are found in territory that has been occupied by the Germans. The graves are always arranged in well organized cemeteries, far back from the lines. Even in their retreat they took back with them nearly all their dead. Bosredon suggests that a wire passed around the neck and brought up to the surface of the grave might be used to attach a metal plate or something of the kind on which the identification numbers might be cut.

### Bulletin de l'Académie de Médecine, Paris

Jan. 15, 1918, **79.** No. 2

42 *Sulphuration Treatment of Scabies. Railliet.—p. 48.
43 The Liver in Malaria. M. Labbé.—p. 54.
44 Fifth Cusp on Prehistoric Teeth. E. Jeanselme.—p. 55.
45 Intranasal Correction of the Nose. J. Bourguet.—p. 59.

Jan. 22, 1918, **79.** No. 3

46 Kidney Lithiasis and Cancer. P. Menetrier and Martinez.—p. 65.

42. **Sulphuration in Treatment of Scabies.**—Railliet traces the history of the use of sulphur gas back to 1813 and before, and describes Osborn's work in this line in 1884. Railliet's research has convinced him that the effectual agent is the sulphuretted hydrogen alone, heated to 30 C. This is undoubtedly the best treatment known to date for scabies in horses. But he adds that there is no need for apparatus to generate the sulphuretted hydrogen, as the latter can be used in fluid form. It merely requires means to heat it.

### Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 16, 1917, **41**, No. 31

47 *The Gonococcus Count. L. Ramond and L. Charlet.—p. 1099.
48 *Gastric Crisis in Tabes. P. Carnot and I. Bruyère.—p. 1103.
49 War Wound of the Thalamus. G. Guillain.—p. 1110.
50 *The Sphincters with Shell Shock. G. Guillain and Barré.—p. 1114.
51 *Potassium Iodid Intravenously. C. Simon.—p. 1118.
52 *Seltzer Water to Clear the Throat. J. Comby.—p. 1120.
53 *Chronic Lead Parotitis. J. Comby.—p. 1122.
54 Foreign Body Pseudotuberculosis. D. Denéchau.—p. 1123.
55 *Jacksonian Paresis. H. Meige and A. Bénisty.—p. 1128.
56 *Addison's Disease plus Exophthalmic Goiter. F. Ramond and A. François.—p. 1131.
57 *Subdulness at Apex. F. Ramond and A. François.—p. 1134.
58 *The Fifth Cusp. G. Railliet.—p. 1138 and p. 1141.
59 *Color Reaction in Blood Cultures. P. P. Lévy.—p. 1143.
60 *Microsphygmia with War Contracture. M. d'Oelsnitz and J. Boisseau.—p. 1147.

47. **Systematic Gonococcus Count.**—Ramond and Charlet took the blood count and the gonococcus count systematically in nine cases of acute gonorrhea, examining 127 specimens of the gonorrheal pus. They could not detect any regularity or any bearing on the prognosis from either the blood or gonococcus count. One finding however was suggestive, namely, the constancy of the acme of the curve of the total gonococci in the course of the third week. This suggests a partial immunization of the organism to the gonorrheal infection localized in the urethra. This vaccination is far from absolute, but it aids in promoting the action of the balsamics, and thus supplies a basis for the empiric custom of waiting till the end of the third week before giving these drugs.

48. **Tabetic Gastric Crisis without Pain.**—The man of 45 had had occasional morning vomiting during the last two years but seemed otherwise well. Then came a period of vomiting and hiccup which kept up almost incessantly for ten days, with occasional slight hematemesis, but no pains at any time. The whole stopped at once the tenth day. Signs of latent tabes explained this motor gastric crisis.

50. **Transient Sphincter Disturbance from Shell Shock.**—Guillain and Barré report twelve cases of complete retention of urine or incontinence of urine after shell concussion without direct contact. Such sphincter disturbances are rare as they have encountered only these twelve cases among several hundred men with shell shock.

51. **Intravenous Injections of Potassium Iodid.**—Simon found that a patient was not taking the potassium iodid ordered by the mouth, and he then gave the drug by the vein, and reports excellent results, from every point of view, in six cases. There were no signs of iodism, and by waiting until all traces of iodin had disappeared from the urine, there

were no appreciable by-effects. He began with 0.05 c.c. of potassium iodid in 1 c.c. water but gradually increased the dose to 0.9 gm. in solution of 0.25 gm. to the cubic centimeter water. He tested the urine by adding 5 c.c. of chloroform to 10 c.c. urine and pouring in 2 c.c. of nitric acid rendered nitrous by addition of sodium nitrite in the proportion of 10 cg. to 100 c.c. The mixture is agitated and set aside. The positive response is a violet tint in the chloroform. This simple test is sufficiently accurate to show the beginning, maximum and end of the elimination of iodin by the same patient.

52. **Seltzer Water Siphon for Clearing Out the Throat.**—Comby reports that ulcerating, necrotic sore throat can be effectually cleared out by spraying with the jet from a seltzer water siphon. He lengthens the nozzle with a rubber tube 10 or 15 cm. long, which is laid on the tongue depressor held by the left hand. The carbonated water jet washes out the throat, to the great relief of the patient, child or adult. In a recent case of a scarlatinal ulceronecrotic angina, the final recovery of the patient, a young solder, is attributed to this siphonage of the throat repeated several times a day. He clamored for it after the first trial. Labruhe introduced this seltzer water spray method and others have used it in severe anginas with constant satisfaction.

53. **Chronic Parotitis from Lead Poisoning.**—Comby says that the aspect is like that of mumps, but the men presented other signs of lead poisoning in the twelve cases he has encountered. The enlarged glands were not tender, and did not seem to incommode the men.

55. **Jacksonian Paresis.**—Meige and Bénisty state that five men wounded in the skull presented jacksonian phenomena, but instead of spasms they took the form of paresis, lasting for a longer or shorter time, in one member or symmetrical members. The skull wounds had all been in the rolandic area. The disturbances were bilateral in three cases, and in all there were concomitant vasomotor disturbances. These jacksonian phenomena did not develop until three years after the skull wound in one case.

56. **Combined Addison's Disease and Exophthalmic Goiter.**—Ramond and François believe that when the suprarenal glands are insufficient, the thyroid may come to their aid, by increasing its own functioning. In twenty-six cases of Addison's disease they obtained a thyroid reaction in four. In one of these in this group, the thyroid enlarged about six months after the visible onset of Addison's disease. Tachycardia, tremor and other symptoms of exophthalmic goiter became superposed; as they developed, the symptoms of Addison's disease became attenuated. This sequence of clinical phenomena was so striking, they accepted it as a suggestion for organotherapy, and since then have been giving patients with Addison's disease 0.5 gm. of pulverized suprarenal tissue and 0.01 gm. of thyroid powder in the morning, fasting for six days. Then they drop the thyroid, keeping on with the suprarenal treatment for ten days and then continuing with ten days of the two combined, and so on. The outcome was not very clear in some of the cases, but in three the improvement was marked.

57. **Subdulness of the Right Apex.**—Ramond and François have noticed that the apex of the right lung gives a slight subdulness response to percussion, compared with percussion of the left lung, even with normal conditions in both. The distinction is slight but unmistakable. The left forefinger should be placed parallel to the clavicle along the first interspace, not perpendicular to the clavicle. At the back, the finger should be placed symmetrically in examining both apices; they prefer to point it toward the seventh cervical vertebra. Percussion should be compared on both sides during inspiration and also during expiration. In detecting apical tuberculosis, the functional and general signs are most important but they require long and scrutinizing study of the case. Suspects should be sent to a special service equipped for the purpose.

58. **The Fifth Cusp.**—Railliet is inclined to regard the fifth cusp on the molars as a sign of defective development from any one of several causes, not exclusively from syphilis.

59. **The Color Diagnosis of Blood Cultures.**—Lévy has noticed that the bright red and brownish red tints of bouillon blood cultures are observed only when the fluid is sterile. With a purplish tint the cultures will prove positive. This change of tint comes from the hemoglobin of the red corpuscles having become reduced by the action of the microbes present. All the current micro-organisms display this reducing action.

60. **Vasoconstriction with Traumatic Contracture.**—D'Oelsnitz and Boisseau state that the oscillometer applied in 223 cases of contracture in the wounded and in healthy controls showed that the circulation was always weaker in the contracted hand or foot. They found moreover that the circulation even on the sound side was less than normal, although much stronger than on the side of the contracture. They noticed that when these pithiatic contractures were suddenly conquered, the pulse on that side at once became as strong as on the sound side. But it was not as strong as in normal controls, and it seems evident that a constitutional or acquired weakness of the pulse, a microsphygmia, is a more or less important element in the development of the contractures, the physiopathic disturbances.

### Journal de Médecine de Bordeaux

January, 1918, **89**, No. 1

61 *Treatment of Malaria. J. Carles.—p. 3.
62 *War Wounds of the Chest. Creyx.—p. 9.
63 *Laparotomies at an Advanced Post. Drouin.—p. 12.
64 Aneurysmal Periosteoma. Charbonnel.—p. 15.

61. **Treatment of Malaria.**—Carles insists that malaria belongs in the same class with syphilis and amebic dysentery as a disease eminently chronic, with frequent revivals of manifestations, and requiring treatment over years, as with syphilis and amebiasis. The different types of the malaria germs respond differently to treatment. Quinin is usually ineffectual against the encysted forms of the falciparum type and vaccine therapy seems the only hope here. To date it has proved impossible to grow these hematozoa in the laboratory on the scale required for prolonged vaccine therapy. This is a problem still to be solved. But if the organism could be thus stimulated to manufacture a constant supply of antibodies, the young germs would be killed off and the chronic infection would thus in time become extinct. Every man with grave malarial infection is disqualified for duty for six months, a year or more. Every return to fatiguing occupations brings back the attacks, and the general health declines. Some of his patients were cured with quinin, 1 gm. morning and night three days a week, given by the mouth, vein or intramuscularly; others did not throw off their attacks until sodium cacodylate was given with the quinin, and thirty of the 100 men thus treated proved absolutely refractory. These all had the falciparum alone or associated with the vivax .

62. **Wounds of the Chest.**—Creyx describes the differences in the physical findings when there is much hemorrhage. With an open thorax the stethoscope findings are unreliable, but when the thorax is closed, the stethoscope will reveal the hour when effusion from being mechanical becomes inflammatory. This change in the stethoscopic findings coincides with the appearance of the polynucleosis index of the effusion.

63. **Laparotomies at an Advanced Post.**—Drouin relates that of twelve men brought in with multiple wounds of the abdominal viscera, five died at once and three recovered of the seven others given prompt operative treatment. Some of the others might have recovered if it had not been for pulmonary complications. Radioscopy is a valuable aid in ascertaining conditions but it has so many drawbacks, the delay, the chilling of the man, the handling, etc., that it is by no means indispensable. The anatomic exploration and the resection of the path of the projectile are the first steps when practicable. A little morphin in two doses seems to aid in raising the blood pressure when the suffering predominates in the shock. If after an hour there is no recuperation, any intervention is hopeless, but if the pulse is the least bit better, then he operates at once. The resection of the path of the projectile is done with instruments, gloves, etc., which

are then discarded and others taken for the laparotomy proper. He does not begin the work of repair until the whole abdomen has been examined and the path reconstituted.

### Journal de Radiologie et d'Electrologie, Paris

September-October, 1917, **2**. No. 11

65 *Interpretation of Roentgen Findings of the Sphenomaxillary-Temporal Region and the Face. C. Villandre.—p. 641.
66 *Roentgen Treatment of Tinea. M. J. Gouin.—p. 648.
67 Echinococcus Cyst of the Tibia Revealed by Roentgenography. A. Mignon.—p. 655.
68 *Roentgen Ulcer of the Scalp. J. Belot and Chavasse.—p. 657.
69 *Equipment to Produce Radio-active Water. A. Laborde.—p. 662
70 Control of Spark Regulator from a Distance. L. Delherm and A. Laborde.—p. 666.
71 Forceps for Extraction of Projectiles under Roentgen Screen Control. Ducellier.—p. 667.

65. **Radioscopy of the Face.**—Villandre gives a number of typical radiographs of the side of the face, temple and jaw, interpreting the findings by his extensive experience with projectiles lodged in these regions. The aim is to locate the foreign body by its relation to the skull and the brain, by its relation to the spheno-maxillo-temporal region, and also to the cavities of the face.

66. **Roentgen Treatment of Tinea.**—Gouin has been applying the rays to a circle and then covering the exposed circle with a disk of lead, and so on. This is the technic used at the Lallier school for children with ringworm, but the length of the treatment can be advantageously shortened, he says, by exposing the whole of the scalp to a dose of 5 units each at five sittings. Each sitting takes about an hour for this superficial crossed-fire method of application. It has proved extremely satisfactory in 300 cases of tinea and ten of favus. He gives illustrations showing the position for each of the five fields of exposure. The ear is protected with a sheet of lead.

68. **Radiodermatitis after Roentgen Examination of the Skull.**—In order to locate a projectile, three exposures of fifteen and twenty-two minutes were made of the skull above the ear, the patient a man of 37. This was followed within a few days by a severe dermatitis in the region, edema and ulceration. Now, nineteen months later, the whole region, about 8 cm. in diameter, is bald.

69. **Pump to Supply Radio-Active Water.**—Laborde gives an illustrated description of an apparatus which supplies radioactivated air or water for research on the biologic and clinical effects.

### Paris Médical

Jan. 5, 1918, **8**. No. 1

72 *Incipient Tuberculosis. P. Merklen.—p. 3.
73 The Provisions in the Different Provinces for Tuberculous Soldiers. L. Bernard.—p. 8.
74 Phthisiophobia and Phthisiomania. C. Sabourin.—p. 12.
75 *Tuberculosis and War Gases. Gimbert.—p. 17.
76 *Pleurisy in Tillers of the Soil. Braillon.—p. 23.
77 Abbreviations for Breathing Signs. G. Railliet.—p. 25.
78 *Sign of the Sou. P. Lereboullet.—p. 26.

72. **Incipient Tuberculosis.**—Merklen reviews the various conditions which should be excluded before accepting a tuberculous origin for the symptoms observed: mouth breathing, nasopharyngeal lesions, anomalies in the thorax, etc. There is nothing characteristic about the objective symptoms or the functional findings with either a progressing or an arrested affection or pleuritis at the apex, and the decision must be based on the general signs, and the persistence of the shadow after coughing.

75. **Tuberculosis Developing after Gassing.**—The injury from the war gases may rouse a slumbering tuberculous lesion, but this does not seem to be of frequent occurrence. When it develops there may be scarcely any general signs although the pulmonary lesions are progressing rapidly. Prophylaxis consists in intensifying the measures to aid in throwing off the intoxication, and prolonged supervision, combating the low blood pressure, vasodilatation, etc.

76. **Pleurisy in Farm Workers.**—This entire number of the *Paris Médical* is devoted to disease of the lungs and pleura. Braillon calls attention to the characteristic location of a pleural effusion in the front upper part of the pleura in men who bend over at their work, such as tillers of the soil.

78. **The Penny Sign of Pleurisy.**—Lereboullet remarks that time has confirmed the instructive findings when a pleural effusion is auscultated from the rear while two pennies are struck together in front. This *Signe du sou* is one of the best means to detect an effusion in the pleura. One of the pennies is held flat on the chest and it is struck rhythmically with the edge of the other penny.

### Presse Médicale, Paris

Jan. 10, 1918, **26**. No. 3

79 Mitral Stenosis in the Army. J. Denis.—p. 21.
80 Suture of War Wounds. R. Grégoire and H. Mondor.—p. 22.
81 Simplified Intratracheal Injections. M. Mignon.—p. 23.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

January 19, **48**. No. 3

82 *Etiology and Prophylaxis of Goiter. O. Bernhard.—p. 65.
83 *Pyelitis in Children. E. Wieland.—p. 68. Conclusion.

82. **Lack of Light as Factor in Goiter.**—Bernhard argues that as endemic goiter seems most prevalent in deep valleys shut off by the mountains from the sunlight, the lack of light may be a cooperating factor. He cites other evidence to sustain this view.

83. **Pyelitis in Young Children.**—Wieland says that four died of the forty-five children with pyelitis at the Basel children's clinic, including one from pneumonia after it had been taken home. In only one case could the death be ascribed to the pyelitis alone. The death rate in his service therefore for pyelitis in young children was only 5 per cent., approximately the same figure as in adults. In his series the sexes were about evenly divided in the infants, but the older children were girls. This and other reasons confirm the assumption that the disease is blood borne or lymph borne in infants. The colon bacillus is generally found but he has encountered also the staphylococcus, streptococcus and proteus. Predisposing factors are some slight infection of the respiratory passages, rhinopharyngitis, angina or grip, occasionally pneumonia, chilling or bowel trouble, but constipation does not seem to have anything to do with it nor retention of urine. The acute sudden onset, high fever, usually following close on some slight infection and without symptoms of cystitis, and the primary localization of the pain in one or both kidney regions, all point to an infectious process in the kidney pelvis probably secondary to some injury of the interstitial tissue of the kidney. The diagnosis cannot be definitely made without microscopic examination of the urine, leukocytes in the hanging drop of the urine (in the female) obtained with a catheter. The usual boiling test does not reveal the pus in the urine. Fever without apparent cause, pallor, general muscular rigidity with persisting loss of appetite should suggest pyelitis and call for microscopic examination. The prognosis for the single attack is favorable but infants are liable to succumb to complications, and the pyelitis is liable to recurrence; possibly the pyelitis of pregnant women may be traced to pyelitis in infancy. Treatment should aim to stimulate diuresis, sterilize the urine and keep it persistently alkaline. The acid pyelitis urine should be rendered alkaline. The best results were realized with hexamethylenamin at first, from 0.2 to 0.5 gm. three times a day—this acts best in an acid medium—with restriction to milk and copious intake of fluids, weak gruels, tea, sweetened water, Ems water. After eight or ten days, when the acute symptoms, fever, prostration, pains in the pelvis and disinclination to eat or drink, have subsided, then he turns to alkaline treatment, giving salol with it, 0.3 gm. each of salol and of sodium bicarbonate three times a day, even to infants. For older children he gives 0.5 gm. salol with 2 or 3 gm. sodium bicarbonate three times a day. Fruit juices and vichy or other mineral water are given the infants; the older children get a mixed diet mostly of vegetables and cooked fruit.

### Annali d'Igiene, Rome

November, 1917, **27**. No. 11

84 *The Meningococcus. P. Caldarola.—p. 665.
85 *The Bacillus Murisepticus in Rodents. N. Mori.—p. 685.
86 Hemotrichomonas in Pigeons' Blood. A. Lanfranchi.—p. 697.
87 Hygiene in Cultivation of Rice. L. Verney.—p. 700.

84. **Conservation of Strains of Meningococci.**—Caldarola had forty-two strains of meningococci that had been sent to the laboratory from different parts of Italy for the production of polyvalent antiserums. In studying them he found that none of the strains of living meningococci injected into the rabbit peritoneum displayed toxic action, while an intravenous injection at the same time killed the animals. An ether extract of the germs, injected intravenously, reduced the defensive powers so that the otherwise harmless intraperitoneal injection then killed the animal. Extracts of typhoid bacilli had the same effect.

85. **Infectious Disease in Field Rodents.**—Mori describes a natural infection of the *Pitymys savii* which seems to be the work of the *Bacillus murisepticus.* Large numbers of these rodents were infected with it. When it was prevalent the swine showed a high mortality, and he thinks that the swine plague, called locally russa, is probably the same thing as this disease in the arvicola.

### Rivista Critica di Clinica Medica, Florence

Dec. 22, 1917, **18**, No. 51

88 Conservation of Rabies Virus in Dry Form. A. Martiri.—p. 513.
89 *Staining Technic for Urine Sediment. C. Minerbi.—p. 518.

89. **Urine Staining Technic.**—Minerbi heats the isolated urine sediment with human blood serum or egg albumin, both of which coagulate under the action of fixation measures. Then when the May-Grünwald-Giemsa stain is applied, the background is homogeneous and colorless, and the preparation is exceptionally instructive in every respect. After centrifugating the urine, all the fluid is decanted except one or two drops. Then a droplet of egg albumin is taken up on a platinum loop and the loop is plunged into the sediment and agitated to mix it, with care not to cause production of bubbles. Then the mouth of the tube is held slanting on an object glass and with the platinum loop a droplet is spread all over the object glass, and two other slides are prepared in the same way. Before drawing out the sediment, the loop is singed to be sure that no undissolved albumin is sticking to it. He regards the method as extremely practical and instructive. His first publication on the advantages of impregnation of the sediment with human serum date from 1914.

### Boletin de la Asociacion Medica de Puerto Rico

December, 1917, **13**, No. 116

90 *Military Medical Service in History. Editorial.—p. 131.
91 *Analysis of Diabetic Foods. R. del V. Sarraca.—p. 135.

90. **The Military Medical Service Through the Ages.**—Homer referred in the Iliad to the great value of the services rendered by the sons of Esculapius in the Grecian army, and the kings of Persia and Macedonia had Greek physicians to look after the health of their armies in their various campaigns. In all ancient states the duty of bearing arms was incumbent on all the citizens, including the medical men, so there were always some with the armies. Even in the days of Alexander we find records that the physician had to suffer from the transgression of the laws of hygiene by his patients. Alexander condemned the physician, Claucus, to death because a certain friend of his, who had been kept on a restricted diet, feasted on chicken and wine while the physician was at the theater, and died therefrom. Not until the nineteenth century was there any organized medical department of the army, but since then the importance of this branch of the service has been recognized more and more. The editional concludes: "We physicians of Puerto Rico have many and favorable opportunities for serving in our professional capacity, but it will be necessary for this to join some of the medical training camps which have been founded at different points in the United States. We are going to give the nation a contingent of men who will need physicians, and physicians trained for the task, as is now recognized to be necessary for efficient service. Puerto Rico physicians who are qualified and who would like to go will not lose this opportunity for serving their country and humanity, lending their valuable aid to the cause of democracy and civilization."

91. **Diabetic Foods.**—This report was prepared at the request of the Porto Rico Medical Association and was read at the annual meeting. The laboratory of the national public health service analyzed samples of the diabetic foods sold in Porto Rico and the results are tabulated in full detail. The findings in United States laboratories and experiment stations are tabulated likewise for comparison. The five foods bought in the local markets represent only from 337 to 701 calories, an average of 562 calories to the pound, so that it would be necessary to eat 7 pounds a day to make up 3,500 calories. The conclusions of the writer are to the effect that the best presentation of the matter of diabetic foods is that of Dr. F. Nicholson in the *British Medical Journal,* 1917, **1,** 82. He discards all the diabetic foods of commerce and has prepared from peanuts, in the patient's own home, a nutritious and palatable bread that can be sliced and keeps well. The peanuts are dried, shelled, and the nuts ground. To 8 ounces are added 2 ounces of casein, obtained by coagulating milk with lemon juice or rennet; salt to season, and 12 ounces of well beaten whites of eggs. The whole is thoroughly mixed and baked in a pan. This produces an inexpensive preparation that his patients have eaten with relish for two years to date of writing.

### Prensa Medica Argentina, Buenos Aires

Dec. 10, 1917, **4,** No. 19

92 *Cultivation of Sarcoma Cells. A. H. Roffo.—p. 251.
93 *Abscess of Occipital Lobe. T. Martini and J. I. Berterini.—p. 254.
94 Dangers of Optochin in Pneumonia. E. P. Camou.—p. 257.

92. **Cultivation of Sarcoma Tissue in the Test Tube.**—Roffo gives fifteen microphotographs of tissue from white rats' spindle-cell sarcoma cultivated in blood plasma from the same animal or a hen. The cells grew well for six or seven days but then died off unless transplanted. Renovation of the nutrient medium intensified the proliferation of the cells. The cells may undergo morphologic differentiation until they show the spindle shape.

93. **Abscess in the Occipital Lobe.**—The man had complained of intense headache for two months, vertigo and other symptoms suggesting a cerebellar tumor. There was a history of a suppurative process in the ear two months before. The man was delirious or unconscious when first seen and it proved impossible to determine the site of the lesion. Death soon followed and necropsy revealed two abscesses in the occipital lobe, evidently from blood-borne infection, as the abscesses were in the center of the lobe, not communicating with the surface. One seemed to be old and encysted. The other was recent and had evidently just perforated into the lateral ventricle, but the symptoms had all pointed to the cerebellum.

### Revista de Ciencias Medicas de Barcelona

December, 1917, **43,** No. 12

95 *Lumbar Puncture in Children. R. Raventos.—p. 509.

95. **Lumbar Puncture in Children.**—Raventos declares that pediatrics has benefited by lumbar puncture more than any other branch of medicine. The neglect to determine the germs in the cerebrospinal fluid has been responsible for many deaths, he is convinced, as this alone permits proper treatment. He reiterates the facility and harmlessness of lumbar puncture in children, showing in numerous illustrations the exact anatomic conditions in the region as determined on fifty-five cadavers including some prematurely born infants; all but six were less than 1 years old, the oldest was 5. He emphasizes that lumbar puncture is much easier in children than on adults. The distance from the skin to the dura is less, and the meningeal sac reaches lower down proportionately than in adults; the tissues are less resistant; the spine is more elastic, and the vertebrae can be spread farther apart than in adults, while the spinous processes are shorter and horizontal. He gives some illustrations of the trunk cut across horizontally at the point where lumbar puncture is made, and tabulates the various measurements in the fifty-five cadavers as also the weight in comparison to the thickness of the subcutaneous tissue. He always makes a point of taking up a fold in the skin to measure the thickness of the soft parts. One half the thickness of the fold represents

the approximate distance the needle has to travel before it reaches the bone. To determine the size of the spinal cavity, he compared it with the circumference of the cornea in the fifty-five cadavers, and found the figure representing the corneal limbus identical with that representing the anteroposterior diameter of the spinal canal or smaller; it was never a larger figure. Hence it may be assumed that the needle can be introduced to a depth equivalent to the figure representing the thickness of the soft parts, plus a figure less than the limbus of the cornea. He estimated the capacity of the spinal canal in the cadavers, seated, after evacuation of all the spinal fluid, injecting a stained fluid until it appeared at an opening in the occipital region. This capacity was found to be 3 or 4 c.c. in a girl infant weighing 2,070 gm.; 12 c.c. in a girl of 16 months weighing 4,900 gm.; 11 c.c. in boy 1 year weighing 5,030 gm; 6.5 c.c. in boy infant of 13 months weighing 4,700 gm., and 30 c.c. in boy of 3 years and also in a girl of 5. Among the minor points mentioned is that when the head is bent forward the fluid will flow downward into the frontal region, and thus be shut off from the spinal canal completely. One of his illustrations shows the transverse section of the trunk of a child of 20 months with the lumbar puncture needle in place. The distance through the soft parts is 12 mm., the diameter of the spinal canal, 14 mm. With a needle just 13 mm. long, the tip enters the spinal canal while there is no possibility of injuring any organ. Another illustration shows the instrument, something like a monkey wrench, with which he takes up the longitudinal fold in the soft parts to measure the depth down to the bone.

### Revista del Instituto Bacteriologico, Buenos Aires

November, 1917, **1**, No. 1

96 *Specific Precipitating Properties of Antivenom Serums. B. A. Houssay and J. Negrete.—p. 15.
97 The Typhoid Epidemic at Lomas. M. V. Carbonell and H. Riganti.—p. 33.
98 *Experimental Poliomyelitis. R. Kraus and L. Kantor.—p.43.
99 *Miostagmin Reaction with Cancer. A. H. Roffo.—p. 53.
100 *Plants Poisonous for Cattle. C. Flores and B. A. Houssay.—p. 59.
101 Para-Ozena Microbes. C. Zanolli.—p. 101.
102 Present Status of our Knowledge of the Coccobacillus Acridiorum of d'Herelle. B. Barbara.—p. 107.

**The Revista.**—This is the first issue of this official organ of the Bacteriologic Institute of the National Public Health Service of Argentina. In this number the conclusions of all but the last articles are repeated in Spanish, in German, in French and in English. This number also contains a five-page list of the communications from this institute which have been published since 1913 in various scientific journals. Many of them have been summarized in these columns, among them Roffo's work on cancer and Kraus and Penna's work on treatment of anthrax with normal beef serum.

96. **Antivenom Serum.**—Houssay and Negrete conclude their study of the precipitins in antiserums for snake poison with the statement that the antitoxic power of the antiserum cannot be gaged by the precipitating power, as there seems to be no parallelism between them. As a rule, however, the strongest antiserums display the greatest precipitating power.

98. **Experimental Poliomyelitis.**—Kraus and Kantor obtained virus from the Rockefeller Institute of New York but found it impossible to reproduce the disease in the four Paraguayan monkeys inoculated with the virus. Two imported macacus monkeys inoculated speedily developed and died from the disease, presenting every evidence of poliomyelitis. These experiences confirm Flexner's statements in regard to the nonsusceptibility of the monkeys of the New World to experimental poliomyelitis. Experiments on rabbits and guinea-pigs were likewise negative, but they believe that it may yet be possible to reproduce the disease in rabbits after passage of the virus through sheep or some other animals.

99. **The Miostagmin Reaction with Cancer.** — Roffo announces that a more dependable antigen than lecithin for the miostagmin reaction can be prepared from the spindle cell sarcoma of white rats. Positive results were obtained with it in 110 specimens of serum from clinical cases of cancer or from rats with cancer. The findings were positive in all except in 3.64 per cent. of the human cases.

100. **South American Plants Poisonous for Cattle.**—The plant studied was the *Baccharis coridifolia* D. C. There are about 300 species of baccharis in South America, many of them known to be poisonous. If it were not that cattle instinctively avoid them, stock raising would be impossible in many regions. The accidents from eating the plants generally occur in animals from regions where the plants are not found, or when the cattle are driven to them by drought killing off their usual food. When cattle are received from regions free from this baccharis, they are driven into a corral and a smudge of the plant is made to induce coughing and lacrimation, and their gums are rubbed with the plant, after which they never touch it. The research on the toxicity tested on numerous species of animals, poultry, pigeons, frogs, and invertebrates showed that the blossom and leaf contain most of the poison. As the animals refused to eat it, the plant was administered in pills or solution. It does not seem to have a caustic action in the human mouth or in the dog conjunctiva, not even with concentrated extracts. The poison acts mostly on the nervous system, with also toxic vasomotor, secretory and motor disturbances in the digestive apparatus of most of the animals tested. The local names of the plant are mio-mio, nio and romerillo. The North American species are mostly of the aster family.

### Revista de Medicina y Cirugia, Havana

January 25, 1918, **23**, No. 2

103 *Vital Statistics in Cuba. R. J. Fosalba.—p. 31.
104 *Rectal Exploration in Diagnosis of Pregnancy and in Labor. J. F. Arteaga.—p. 41.
105 Dietetic Laboratories. D. F. Ramos and J. A. Simpson.—p. 45.
106 History of Medical Press of Cuba. M. R. Casabo.—p. 50.

103. **Vital Statistics.**—In discussing ways and means to ensure accuracy in the vital statistics of Cuba, Fosalba mentions a special form of occupational morbidity, namely, the tendency to abortion of women employed in tobacco factories. He cites reports published in Italy, Spain and elsewhere, on the relations between chronic tobacco poisoning and the reproductive organs in women. Zuccardelli and Valdagni called attention long ago to the sterility of women working with tobacco, and Fosalba's five years of investigations in the tobacco factories of Santiago, Havana and elsewhere, and the tobacco plantations of Vuelta Abajo have confirmed this phenomenon.

104. **Rectal versus Vaginal Examination.**—Arteaga cites recent writers who advocate rectal exploration in labor, and describes experiences of his own with it. His conclusions are unfavorable as to its convenience and reliability.

### Semana Medica, Buenos Aires

Oct. 25, 1917, **24**, No. 43

107 Vaccine Treatment of Diphtheria. II. (Haptinogenina.) J. Mendez and L. A. Garcia.—p. 463.
108 *Interlobar Pleurisy. J. Destefano.—p. 482.
109 Care of the Sick and Poor at Buenos Aires. E. R. Coni.—p. 485. Continuation.

Nov. 8, 1917, **24**, No. 45

110 *Hygiene of the Eyes. P. B. Ferro.—p. 517.
111 History of Medicine. L. Bard.—p. 522.
112 *Tests with Fluorene. L. Guglialmelli and A. Delmon.—p. 526.

108. **Masked Interlobar Pleurisy.**—In the case described the symptoms at the base seemed to indicate purulent pleurisy of the general cavity but resection of the ninth and then of the eighth rib failed to show pus. Resection of the sixth rib opened up the pus collection. The symptoms were the result of merely a secondary cortical pleuritis at the base, of a pneumonic type, the primary trouble being a subacute purulent interlobar pleurisy. The case is a good example of what Chauffard calls the pseudopleuritic syndrome of the base. In this case there was no walling off of the process, as usually occurs. The symptoms at the base did not develop until about four weeks after the first symptoms which had been intermittent pain in the left side, with a slight dry cough but no fever. Puncture in the sixth interspace showed pus and the operation followed six days later.

110. **Hygiene of the Eyes.**—Ferro expatiates on the necessity for restricting the prescribing of eyeglasses to scientifically trained physicians, and the making of the glasses to

opticians certified by the National Public Health Service as known to be competent and equipped for the work. Any firm can apply for the certificate. No others should be allowed to sell eyeglasses, except those of plain glass. A physician's prescription should always be required except to replace broken glasses. Financial association of physician and optician is on the same plane, he thinks, as association of physician and druggist. The measures advocated above he has proposed to the National Public Health Service, hoping that it may prove the basis for legislation on the subject.

112. **Fluorene Color Reactions.**—These reactions have been found useful in differentiating the furfurols produced in distilling various carbohydrates, etc.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Dec. 8, 1917, **2**, No. 23

113 *Potato Flour Biscuits. E. C. Van Leersum.—p. 2025.
114 *Constitutional Eosinophilia.. H. D. Klinkert.—p. 2039.
115 The State of Nourishment of Amsterdam Schoolchildren. M. R. H. Van Den Berg.—p. 2048.
116 *Perforation of Gallbladder in Pregnant Woman. W. H. A. Van Os.—p. 2052.

113. **Potato Flour Biscuits.**—Van Leersum has been experimenting with potato flour mixed with substitutes for gluten, and reports encouraging results. The bread and biscuits rise and bake porous and crisp. He does not mention the substitutes for gluten he used, as his experiments in this line are not concluded. The German government gave prizes to stimulate production of potato flour, and he relates that 900 drying establishments have been founded there during the war.

114. **Constitutional Eosinophilia in Connection with Gout.**—Klinkert asserts that study of familial eosinophilia has cleared up the conception of the gouty and the neuroarthritic diatheses, asthma, urticaria, etc. These are all the result of a constitutional abnormal condition of the vegetative nervous system. This disturbance in the innervation is manifested usually by a constitutional and familial eosinophilia. It may be further manifested by asthma, hay-fever, urticaria, epilepsy or gout, these being all clinical equivalents in adults; children are liable to present the exudative diathesis. Klinkert shows how this conception of deranged innervations throws light on these various disturbances and links them, and the various affections in the families with constitutional eosinophilia confirm these causal relations and the influence of the vicious circle. Asthma and hay-fever, as well as gouty joints, are thus explained as a nervous-gouty catarrhal state. The acute attack of gout is an acute trophoneurosis. The most serious localization of the gouty tendency, however, is in the kidneys, and this adds, secondarily, a new element to the pathology of gout, namely, retention of uric acid. The mistake has been made that this uricacidemia is assumed to be the cause of gout, when in fact it is secondary to the neuro-arthritic diathesis. The retention of uric acid sets up a vicious circle between the attacks of gout; urticaria may result as an equivalent of the acute attack of gout. In the intervals between the attacks of gout, if the elimination of uric acid is below normal, we can assume that the kidneys are already more or less pathologic. As Lecorche says: *Quand la gravelle cesse, la goute articulaire commence.* Asthma, hay-fever and gout are more common in men than in women, possibly because the thyroid seems to function less in the male. In women the gouty tendency becomes more manifest at or after the menopause, when the thyroid may be supposed to become less active. Falta's report that the elimination of uric acid is usually low in exophthalmic goiter fits into the argument, as also Trousseau's observation that asthma, enuresis nocturna and similar neuroses disappear under the influence of an acute febrile infectious disease. This whips up the sympathetic nervous system, and it overcomes the hitherto prevailing abnormal influence of the autonomic nervous system. The pathologic hyperfunctioning of the autonomic nervous system is responsible for the sluggish metabolism, the sluggish nutrition, Landouzy's *diathèse bradytrophique,* the eosinophilic neuro-arthritic diathesis—all these are various terms for the gouty constitution.

116. **Perforation of Gallbladder in Pregnant Woman.**—The woman had typhoid just before her ninth pregnancy and five months later developed gallbladder empyema. Cholecystectomy followed twenty-four hours after perforation with extensive peritonitis, but the pregnancy proceeded undisturbed to normal delivery four months later.

### Hospitalstidende, Copenhagen

Jan. 2, 1918, **61**, No. 1

117 *Carbon Monoxid Poisoning. J. Bock.—p. 1.

117. **Carbon Monoxid Poisoning.**—Bock reports a case of poisoning from a defective stove. The body of the husband was found on the floor near the stove, and two-thirds of the hemoglobin in his blood had been transformed to carbon monoxid hemoglobin. The baby near him showed no signs of poisoning. The body of the wife was in the closed adjoining room and only one-fifth of her hemoglobin had been thus transformed, and she had evidently survived the man for several hours. Bock assumes that originally her blood had been as deeply poisoned as her husband's, but that she sought the bed room when she felt sick, and her blood gradually threw off the carbon monoxid gas. It would in another half hour or two have thrown it off altogether, and nothing would have been found to explain her death. Bock experimented on animals in connection with this case, and found that the animals died even although all the carbon monoxid had been thrown off. Evidently the central nervous system becomes irreparably injured from the after-effect of the protracted asphyxia. In the medicolegal case described, the baby must have been kept in the adjoining room, as was known to be the custom, and was not brought out into the room with the stove until late, and was then placed near a window. Bock remarks that if the woman's body had not been found till all the hemoglobin had been thrown off, and if she had been living alone with her baby, the cause of her death might never have been cleared up.

### Hygiea, Stockholm

Dec. 15, 1917, **79**, No. 23

118 *War Fractures of Jaw and Nose. J. A. Hedlund.—p. 1281.

118. **War Fractures of Jaw and Nose.**—Hedlund relates that he has made three trips to Germany to study the measures being applied there in treatment of war wounds of jaws and nose. He tabulates the data from forty cases at Düsseldorf and twelve from another hospital, both of which make a specialty of jaw and nose work. He says that treatment applied on the general principles of surgery, especially when a dentist and surgeon work together, gives very good results. Bone transplants are taken from the tibia or the crest of the ilium. For the nose, a skin, periosteum and bone flap from the ulnar region was used sometimes. Silver, ivory, etc., are cast off later, as a rule. The Indian or Italian method of flaps of soft parts were sometimes used. He gives a few illustrations, among them one of a device for fixation and extension of the jaw, with thumbscrew, which is applied from without.

### Ugeskrift for Læger, Copenhagen

Dec. 27, 1917, **79**, No. 52

119 *Lymphogranulomatosis in Syphilitic. L. Melchior.—p. 2143.

119. **Lymphogranulomatosis in Syphilitics.**—Melchior reports two cases both in apparently robust men of 29 and 46 who died in a few weeks or months after beginning of vague symptoms suggesting pulmonary disease in one case and cardiovascular disease in the other. The general condition rapidly declined, with emaciation and collapse. Both had a positive Wassermann reaction, and necropsy revealed tumor-like hyperplasia in lymph glands and spleen and also in liver, lungs, peritoneum and bladder in one case, but no signs of tuberculosis. Analysis of these cases and of the literature seems to confirm the idea that if we do not accept lymphogranulomatosis as a disease *sui generis,* then there seems to be no reason why syphilis may not be one of the causes to induce it. At present therefore it is best to record the cases merely as lymphogranulomatosis in syphilitics.

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# THE FUNDAMENTAL REQUIREMENTS OF ENERGY FOR PROPER NUTRITION

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From time to time, inquiries have come to this laboratory as to the fundamental requirements of energy for the proper nutrition of different individuals. It must be understood at the outset that portions of the data here presented are matters of established fact, repeatedly confirmed; others are based on unconfirmed observations of individual authorities, but probably correct; while still others are based on estimates as close to the actual state of affairs as one can now attain.

The data may thus be classified:

1. *Absolutely accurate.* Basal metabolism of all ages and sexes, and the increase in metabolism due to (*a*) standing; (*b*) walking; (*c*) carrying a load.
2. *Approximately accurate.* Metabolism in industrial pursuits.
3. *Hypothetic.* Metabolism of children during exercise.

The four charts which accompany this paper show the food requirements (1) of boys from birth to 16 years of age; (2) of soldiers at hard work; (3) of men in industrial pursuits, and (4) of women in industrial pursuits.

The weights of all the individuals here given include the weights of the clothes worn except in the case of children under 5 years of age. The metabolism, however, is calculated on the assumption that the weight with clothes was the naked body weight. Hence, the height of the metabolism as given represents that of individuals somewhat above the average nutritive standard.

### METABOLISM OF BOYS FROM BIRTH TO 16 YEARS OF AGE

The weights and heights given in Chart 1 are the average for boys of the same age, as given by Boas.[1] The basal metabolism as calculated is that for well nourished boys who are a little above the average weight of the average boy. The following data were used in making the calculations:

*Child at Birth.*—The basal metabolism is 48 calories per kilogram of body weight per day.[2]

*Boy of from 6 to 12 Months.*—The basal metabolism is 60 calories per kilogram.[3] Severe crying increases the basal metabolism 40 per cent. per hour. If the mechanical work done by the baby of 6 months were the equivalent of four hours of crying, the heat production would be increased 29 calories. Since 15 per cent. of the calories ingested are retained for growth, 70 more calories must be added to the basal of 428 calories, making a required total of 537.

*Boy of 2 Years.*—Consult the report on the metabolism of a boy of 2½ years weighing 11.5 kg.[4]

*Boys of from 6 to 16 Years.*—Based on curves given in the work of Du Bois,[5] and on the data showing that boys of 12 have a basal metabolism of 50 calories per square meter per hour, and on unpublished work of the same author which gives 44 calories for the same unit of measure when the boys are 14 years old.

*Effect of Exercise.*—There are few data on which to base the heat production due to the muscular activity of boys. It is probable that an active boy produces twice the number of calories measured by his basal metabolism, whereas for one taking little exercise, a 50 per cent. additional amount undoubtedly suffices. The study of Gephart[6] has shown that boys between 13½ and 16 years of age who actively indulge in athletic sports ingest 5,000 calories daily in their food, or threefold their basal requirement of energy. It should be remembered that an active boy is usually very active.

The metabolism of girls has never been investigated.

### METABOLISM OF SOLDIERS

In a paper prepared by the author at the request of Major Murlin, in charge of the Food Division of the Sanitary Corps of the United States Army,[7] the following facts were brought out. It appears that the calories representative of the level of the basal metabolism of a man at the age of 35 years and of a given height are approximately the basal requirement of energy during the active adult years between 20 and 50. A man of a given height and of the average weight at 35 years of age may gain or lose 10 per cent. of his weight without altering the basal metabolism more than 5 per cent. The statistical data for the weight of men of given height and 35 years old were taken from the statistics of the medico-actuarial investigation of 1912.

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[1] Boas: The Growth of Toronto Children, Report of United States Commissioner of Education, 1896-1897, **2**, 1541.

[2] Bailey and Murlin: Am. Jour. Obst., 1915, **71**, 526. Benedict and Talbot: The Physiology of the Newborn Infant, Carnegie Institution of Washington, 1915, Pub. 233.

[3] Murlin, J. R., and Hoobler, B. R.: The Energy Metabolism of Ten Hospital Children Between the Ages of Two Months and One Year, Am. Jour. Dis. Child., February, 1915, p. 81.

[4] Magnus-Levy and Falk: Arch. f. Physiol., 1899-1900, Supplement, p. 368.

[5] Du Bois, E. F.: The Metabolism of Boys 12 and 13 Years Old Compared with the Metabolism at Other Ages, Arch. Int. Med., June, 1916, p. 887.

[6] Gephart, F. C.: Report of a Dietary Study of St. Paul's School, Boston Med. and Surg. Jour., 1917, **176**, 17.

[7] Consult also Lusk, Graham: Food in War Time, W. B. Saunders Company, Philadelphia, 1918.

From the height-weight chart of Du Bois, the surface area in meters of the individual was calculated, and this was multiplied by 40 to give the basal metabolism per hour. The *basal metabolism* is the amount of heat, as measured in calories, which is produced by an individual lying in bed completely relaxed, at which time the oxidative activities are at their lowest ebb.

When a man stands upright or sits in a chair, his basal metabolism is increased 10 per cent. If he should be awake in the hospital ward sixteen hours and asleep during eight hours, his heat production would be:

$$(100 + [10 \times 2/3]) \times \text{calories of basal metabolism}$$

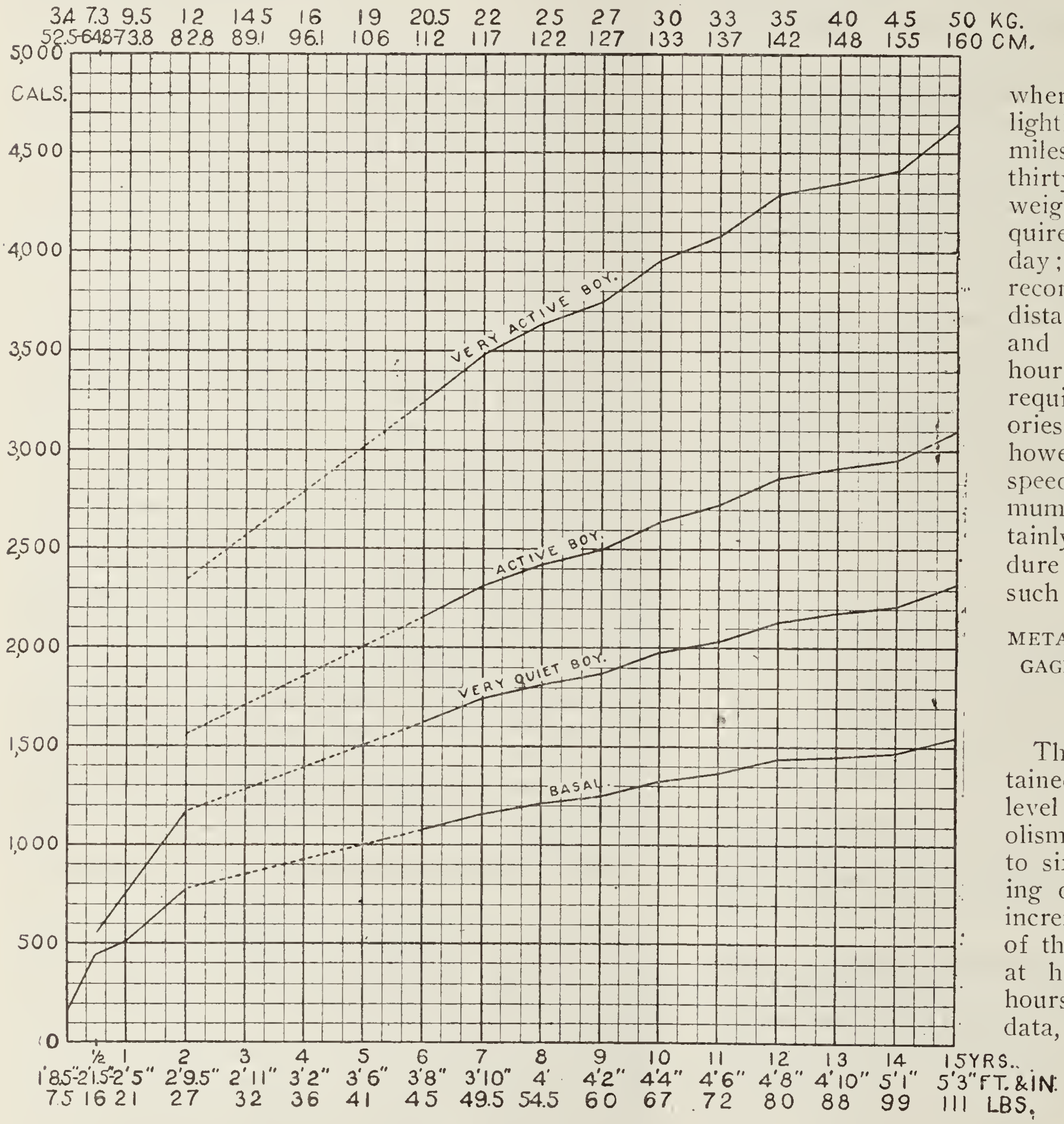

Chart 1.—Metabolism in calories per day of boys from birth to 15 years of age.

If a soldier walks at the rate of 3 miles an hour, it requires an additional amount of energy equivalent to 1.1 calories to move a pound of his body through this distance each hour.

Since a soldier carries equipment weighing 44 pounds, and this is moved at the same expense of energy as the body weight when a speed of 3 miles an hour is attained, it is evident that 44 × 1.1 = 48.4 calories will be required each hour for this amount of additional work. A walk at this rate is accomplished at a minimum expenditure of energy, and hence 3 miles per hour is known as the *maximum economic velocity*.

From this analysis it appears that the average soldier, or one of 5 feet 8 inches in height, requires 4,100 calories for this long day of exceptionally hard work. This is more than the 3,700 calories actually taken by a soldier in the average routine.

The 30 mile hike has been chosen as a type requirement because it may well be taken to represent the equivalent of the maximum of mechanical accomplishment in the day-to-day routine of a man doing the hardest labor, be he of the military or the civilian population. I have elsewhere estimated that to run lightly clad a distance of 40 miles in seven hours and thirty-three minutes, a man weighing 155 pounds requires 5,500 calories per day; whereas to make a record run of 80 miles, the distance between Chicago and Milwaukee, in fifteen hours, calls for an energy requirement of 9,200 calories. Human machines, however, are seldom speeded up to this maximum of capacity, and certainly could not long endure frequent repetition of such strain.

### METABOLISM OF MEN ENGAGED FOR EIGHT HOURS IN INDUSTRIAL PURSUITS

These results were obtained by adding to the level of the basal metabolism plus the increase due to sixteen hours of standing or sitting, the further increment due to the work of the individual employed at his task during eight hours. The last named data, both for men and for women, were obtained by Becker and Hämäläinen,[8] with the exception of those concerning typewriting, which are based on the careful work of Carpenter.[9]

TABLE 1.—EXTRA CALORIES PER HOUR ATTRIBUTABLE TO OCCUPATIONS OF MEN

| Occupation of Men | Extra Calories of Metabolism per Hour Due to Occupation |
|---|---|
| Tailor | 44 |
| Bookbinder | 81 |
| Shoemaker | 90 |
| Metal worker, filing and hammering | 141 |
| Painter of furniture | 145 |
| Carpenter making a table | 164 |
| Stonemason chiseling tombstone | 300 |
| Man sawing wood | 378 |

The extra calories per hour attributable to occupation may be given as in Table 1.

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[8] Becker and Hämäläinen: Skandin. Arch. f. Physiol., 1914, **31**, 198.

[9] Carpenter: Jour. Biol. Chem., 1911, **9**, 231.

minutes instead of the standard thirty minutes, in order not to delay the beginning of the treatment. Our experience would not indicate that variations in the time of injection between fifteen minutes and one hour affect the results.

The second dog, weighing 12.16 kg., received the same dose of mercuric chlorid per kilogram, followed by enough of the phosphite-acetate solution described above to introduce 35 parts by weight of the sodium phosphite to 1 of mercuric chlorid given. This was injected slowly over a period of three hours. The dog continued to excrete urine, but died at the end of four days.

Hall[11] has suggested the use of potassium iodid and quinin hydrochlorid as an antidote for mercuric chlorid poisoning, giving the formula in the accompanying tabulation:

HALL'S ANTIDOTE FOR MERCURIC CHLORID POISONING

| | Gm. |
|---|---|
| Potassium iodid | 3.00 |
| Quinin hydrochlorid | 1.60 |
| Hydrochloric acid, dilute (10 per cent.) | 2.00 |
| Distilled water | to 100.00 |

Such a solution will remove all of the mercury from an equal volume of a 1 per cent. mercuric chlorid solution. Barbour[12] gave intravenously to rabbits a solution similar to the foregoing in sufficient quantity to precipitate all of the mercury from one-half to one hour after having given intravenously from 2.5 to 5 mg. of mercuric chlorid per kilogram; but the animals died sooner than the controls, so that it would appear from Barbour's work that Hall's solution is no more effective in counteracting the effects of mercuric chlorid that has entered the general circulation than those which we have tested.

Another series of animal experiments was undertaken to determine whether the best known forms of alimentary medication afforded any protection following the intravenous poisoning with mercuric chlorid.

The first dog, weighing 8.64 kg., received 4 mg. of mercuric chlorid per kilogram of body weight as before. Carter's[10] antidote was then given my mouth in the proportions and amounts recommended by him, that is, 10 parts of sodium phosphite to 6.6 parts of sodium acetate, and 10 times as much sodium phosphite as mercuric chlorid given. Three such doses were given per day. This dog continued to excrete urine, but died in four days. A second dog, weighing 19.55 kg., was treated in the same way with similar results, continuing to pass urine and living four days. Toward the end of these experiments, both animals vomited parts of the phosphite solution, and to eliminate this possible source of error two rabbits were poisoned and given the same treatment. The first lived seven, and the second, six days. Neither became anuric.

Two dogs poisoned as before were given by mouth the sodium hypophosphite-hydrogen peroxid mixture recommended by Fantus.[5] Three doses were given per day, each dose consisting of 40 mg. of sodium hypophosphite and 2 c.c. hydrogen peroxid per kilogram of body weight. The first dog lived five days, and the second. six days. Both continued to excrete urine.

Two dogs were poisoned as before and given the Lambert and Patterson[13] treatment, with the sweating necessarily omitted. The reader is referred to their article for the details of this treatment. The essential points are repeated gastric and colonic lavage, diuretic potassium bitartrate sugar solutions by mouth, a continuous rectal drip of 0.8 sodium acetate solution, daily sweats, and albumin in the form of milk. One dog lived three, and the other, two days.

### SUMMARY

The minimum uniformly lethal intravenous dose of mercuric chlorid in dogs was found to be 4 mg. per kilogram of body weight (1:1,000 solution injected uniformly during from fifteen to sixty minutes). It would appear that this dose has not heretofore been sharply defined; but it corresponds approximately to the smallest doses of mercuric chlorid which, according to standard textbooks, have been known to cause death in man. The dose of 4 mg. per kilogram uniformly failed to cause anuria. A larger dose, namely, 5 mg. per kilogram, was found necessary to produce the latter result.

In cases of anuria from experimental mercuric chlorid poisoning, all attempts to reestablish the flow of urine by intravenous administrations of strongly diuretic solutions failed.

In animals that had received the minimum uniformly lethal dose of mercuric chlorid, but in which the kidneys were still capable of functioning actively, no success was attained in efforts to save the dogs by copious systemic lavage by means of intravenous injections of highly diuretic sugar or salt and alkali solutions. In fact, it usually shortened life. Lambert and Patterson[13] used diuretics both orally and by rectum, supplemented by diaphoretic measures in the treatment of clinical cases of mercuric chlorid poisoning. They attached considerable importance to the diuresis and sweating. However, they combined with these the administration of albumin in the form of milk, frequent washings of the stomach, and colonic flushing, so that it would be impossible to judge from their data how much, if at all, the sweating and diuresis in themselves contributed to the success of their treatments. Moreover, none of the ten cases reported became anuric, which, in the light of the present experiments, would indicate that the quantity of mercuric chlorid that actually gained access to the tissues at large never in their cases greatly exceeded the minimum surely fatal dose, and might never have equaled it. The symptoms were those of a relatively mild grade of tissue poisoning, compatible with recovery without accelerated diuresis. It would appear as though the success of the treatment may have been due chiefly to the factors of delayed absorption and hastened elimination from the alimentary tract rather than the diuresis and sweating, although on the basis of the present experiments on dogs, no conclusion could be drawn as to the value of the sweating. Similar comments might be made concerning the method of treatment described by Weiss.[14]

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[11] Hall, W. A.: Jour. Am. Pharm. Assn., 1915, **4**, 183.

[12] Barbour, H. G.: Mercuric Chlorid Poisoning in Animals Treated Unsuccessfully by Parenteral Administration of Hall's New Antidote, The Journal A. M. A., Feb. 27, 1915, p. 736.

[13] Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

[14] Solutions which are diuretic are not infrequently cathartic as well. This applies to sodium or potassium acetate, lactose, and to a very marked degree to the sodium chlorid-sodium carbonate solutions used by Weiss, even when the latter are given intravenously. The chief channel of elimination of mercury, as with the salts of heavy metals in general, is by way of the bowel, and a priori reasoning would lead to the conclusion that relatively little of these substances can be made to pass out by way of the urine under any circumstances.

Dogs that had received by vein the minimum uniformly lethal doses of mercuric chlorid died in spite of intravenous injections of sodium acetate-sodium phosphite solutions, even when the latter were given immediately after the poison had been given, and when the weights of sodium phosphite were from twenty to thirty-five times as great as the weights of the mercuric chlorid administered. The sodium phosphite-sodium acetate therapy has proved of no value in counteracting or preventing the deleterious effects of intravenously administered mercuric chlorid. Dogs and rabbits that had received by vein the minimum uniformly lethal dose of mercuric chlorid died in spite of the use of the best known forms of alimentary medication.

### CONCLUSIONS

1. There is no sound experimental basis for the belief that the promotion of free diuresis contributes materially to the chances of recovery in mercuric chlorid poisoning, and this phase of treatment should not be permitted to obscure that which is more essential.

2. Combined treatments which involve sweating, diuresis and increased elimination from the bowel probably owe their value chiefly to the latter effort.

3. It would appear in the light of the present study that when 4 mg. or more of mercuric chlorid per kilogram of body weight has entered the tissues at large, death regularly occurs, and that we have no adequate grounds for believing that death is preventable by any known form of treatment. Whereas, subsequent studies may add to our knowledge, it would appear that persons who have recovered from mercuric chlorid poisoning owe their lives to the fact that a lethal dose has never gained access to the extraportal circulation. Practical therapeutic efforts should be directed frankly toward the accomplishment of two things: (1) Mechanical removal of the poison from the lumen of the alimentary tract. (2) Antidoting the poison before it leaves the portal circuit, that is, particularly before absorption.[15]

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[15] Before the completion of the work described above a patient who had entered the Presbyterian Hospital on account of mercuric chlorid poisoning was treated at the request of Dr. Frank Billings, by means of intravenous injections of glucose and of hypertonic salt and alkali solutions (1.4 per cent. sodium chlorid in 0.3 per cent. sodium carbonate-Fischer), and also by renal decapsulation. The negative results of treatment paralleled those observed in animals. None of the methods restored a flow of urine, and the patient died on the seventh day.

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**Milk.**—The commission appointed by the food administrator to study the cost of milk delivered in Chicago, and to fix the price to be paid to producers has made its report on a basis that makes the price of milk delivered to consumers at 12 cents a quart. By the arrangement of the health commissioner, a number of depots have been established where milk can be purchased without delivery at 10 cents a quart. After taking testimony at numerous hearings extending over several weeks, the commission fixed the price to be paid to producers. From October 1 to November 1, the milk producers arbitrarily fixed the price to the distributors at $3.42 and milk delivered retailed at 14 cents a quart. From November 1 to February, the price to distributors was $3.22. The price as fixed by the commission allowed the contention of the distributors as to the cost of delivering the milk and the reduction fell entirely on the producers. As a protest against being obliged to shoulder all the reduction, the producers in many instances refused to ship their milk and Chicago has been on a short supply for a week or more. A new commission is to be appointed by the local food administrator to consider the question of waste in delivery of milk, on account of the fact that many distributors cover the same territory.

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# SYSTEMATIC THERAPEUTIC EXERCISES IN THE MANAGEMENT OF THE PARALYSES IN HEMIPLEGIA

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In considering the treatment of cerebral hemiplegia, Thomas[1] states that "the paralyzed limbs should be rubbed, moved passively," and "when voluntary power begins to return, this should be encouraged by practice, and the patient should have regular gymnastic exercises." Church[2] says that "as soon as the apoplectic coma has passed away, gentle massage of the paralyzed side and exercise of all the paralyzed muscles by mild faradism should be instituted. . . As soon as there is any reappearance of voluntary motion the patient should be encouraged to exercise it. These measures are usually postponed to the end of ten days or a fortnight in fear that, by instituting them early, the brain lesion may in some way be increased." Then he suggests that the fear of greater injury is without reason, if the measures are properly carried out. These two statements from standard medical works illustrate the mode of treatment that has been advocated, and perhaps used, in most countries. Further statements would lead to the belief that some of the treatment is to be directed to the prevention of the deformity of contracture, and that the method of treatment does not insure a betterment in all cases. It has, in fact, been stated and is commonly assumed that in some cases there may be a persistent paralysis, and that if there is no return of voluntary movement within a period of two years, there is little or no chance that there will be improvement.

Much more hope is held out for the patient, and much greater detail of methods of treatment is given, by those who have developed and followed the Swedish system of therapeutic exercises. When these exercises are given in a proper, including systematic, manner the results are so encouraging that it seems probable they are not so well known as they should be, and that the advantages of gymnastics (with massage) are not fully recognized in the treatment of hemiplegic cases.[3] It is because of these two considerations that it appears well to describe some of the methods of dealing with hemiplegics, as taught and practiced by the leading masseurs and recommended by the foremost physicians in Sweden, and to give some indications of their value by the citation of some experimental work with artificially produced hemiplegia in monkeys, and of some brief case records.

## KINDS AND USES OF MOVEMENTS

In order to make matters plain, it will be well to define the terms that are used and to describe the methods named. Movements may be divided into the two general classes of "active" and "passive." The active movements are those that are brought about by the volition or the effort of the patient. These movements are called "free" when they are made without any resistance or without the performance of work beyond that of moving the part; but when the movements are resisted by an operator or masseur, they are called "duplicated" or "resistive." The passive movements, to which the term "massage" is more often applied in English speaking countries, are applied by the masseur or by the physician to the patient, the latter remaining inert, or in as relaxed a condition as is possible. These passive movements may be applied on the part (the muscles, for example) or with the part (by moving it). There are four different kinds of passive movements applied on or to the part: effleurage, petrissage, friction and tapotement.

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[1] Osler and McCrea: Modern Medicine, 1915, 5, 469.

[2] Church and Peterson: Nervous and Mental Diseases, 1914, p. 223.

[3] Attention has recently been called to this matter by Franz, S. I.; Scheetz, Mildred E., and Wilson, Anita A.: The Possibility of Recovery of Motor Function in Long Standing Hemiplegia, The Journal A. M. A., Dec. 18, 1915, p. 2150; also by Elliott, G. R., and Boorstein, S. W.: Orthopedic Treatment in Hemiplegics of Long Standing, ibid., July 1, 1916, p. 31.

Effleurage, or stroking, is performed by laying the palmar surface of the hand, or the thumb or the fingers, on the part that is to be treated, and making strokes centripetally with an amount of pressure that can be determined only by the amount of muscular contraction of the part or by venous stasis, or by any other condition that is to be dealt with. This process is believed to stimulate the venous and lymphatic flow, and to bring about relaxation of contracted muscles. In petrissage, the tip of the thumb, or the tips of the first three fingers, are employed to make circular and loosening movements. This kind of passive movement is used to loosen adhesions, to disperse infiltrations, and to promote the circulation in the part that is manipulated. When applied in a light way, it is thought that this procedure stimulates the part. Friction consists in grasping a muscle, for example, the biceps, and thoroughly kneading it between the fingers. This gives a great mechanical stimulus to the muscle, and stimulates the part similar to the process of petrissage; but a much larger area is taken care of, and the stimulation is more intense. A special form of friction is given to nerve trunks, by drawing the fingers sharply across the long axis of the nerve and at right angles to it. It has been demonstrated that this nerve friction can at times cause contractions of muscles, which will not react to electrical stimulation, and the application of the stimulus to the nerve, rather than to the muscle, brings about a greater contraction of the muscle when one is obtained. Apart from the immediate motor effects, this nerve stimulation also starts afferent processes, perhaps somewhat similar to those that are produced by muscular contraction, and in this way by reflex conduction the motor apparatus is also stimulated indirectly. In tapotement, the part that is to be treated is struck sharply again and again. The striking is usually done with the ulnar surface of both hands, the blows being made in quick succession, the motion coming from the carpal joints as in ordinary percussion, and the whole hand being held in slight ulnar flexion. The effect of tapotement is chiefly that of stimulating the muscles mechanically. It increases their irritability, and when slight nerve impulses come to them they are thrown into marked states of contraction. Nerve friction after tapotement of the muscles may bring about a clonic kind of muscular activity, which persists during the time the nerve is being stimulated.

Each of these types of passive movements has its use in the treatment of the paralyzed state. Effleurage is chiefly, but not exclusively, valuable in loosening the tight contraction of the muscles in the condition known as contracture, and in keeping certain muscles, such as the flexors, from getting into a state of contracture. The value of petrissage has already been mentioned. The use of friction is to increase the nutrition of muscles which, on account of disuse, are apt to atrophy, and to prevent or to overcome the atrophic tendency. When applied to the nerve it tends to increase its conductivity and to increase the mechanical irritability of the muscle. Tapotement also increases the irritability of the muscles, so that in cases in which only slight nerve impulses are being received these may have more motor effect than under ordinary circumstances. Friction in newly produced cases of paralysis should be applied to the extensor muscles of the arm and to those muscles of the leg which in old cases show the most lack of power or control, such as the peroneus. In those cases in which there are residual paralytic symptoms the friction should be directed against those muscles which cannot be moved, or which are not in a state of contracture, and those muscles, control of which is most important for the individual to acquire, for example, the extensors of the forearm, the peroneus, etc. In no case should friction be applied to the muscles that are in a state of contracture, and this, it should be remarked, is not distinctly specified in many neurologic textbooks that deal with the treatment of paralytic cases. In fact, if the statements quoted at the beginning of this article are read literally, they seem to indicate that massage should be used for *all* of the muscles of the paralyzed segments.[4]

When, however, we consider in detail the paralyses of apoplectic origin, we find that certain muscles are more involved than others; or, to put the matter in strict form, we may say that certain muscles are apt to get into a state of tonic or forceful contraction, and that others remain in a state of flaccid paralysis. Thus, in the upper extremity, the muscles which usually cannot be moved and which are flaccid are the lateral retractors of the arm, the supinators and extensors of the forearm, and the extensors of the fingers. In the lower extremity, the muscles chiefly affected are the adductors of the thigh, the flexors of the leg, and the dorsiflexors of the foot. In the upper extremity, contractures are found; some come early and some only after a considerable period according to the site of the lesion (cortical or subcortical). The contractures of the arm produce an adduction of the arm on the body, flexion at the elbow, wrist and fingers, and some pronation of the hand. In the leg, the knee is usually extended, the angle is dorsiflexed, and these two conditions with the accompanying inability to overcome them with the appropriate muscles bring about the outward swinging and dragging of the foot that characterizes the hemiplegic gait.

While these are the usual conditions to be found in hemiplegia, each case should be dealt with individually, for there are considerable differences in degree and distribution of the paralyzed muscles. At the same time, each muscle or muscle group should be considered in relation to its condition, for example, its tonicity. When these points are worked out, it will be simple to determine which muscles should be stimulated and which should have the treatment to bring about a relaxation. Thus, when there is a contraction, the muscles should be treated by effleurage of a very light form, and the corresponding antagonists should be exercised by friction and tapotement. The nerves to the relaxed muscles also should be stimulated by friction; but it must be kept in mind that too strong stimulation may be of no value, or it may even be harmful (in this respect there being a condition like that of Pflüger's law), since strong stimuli may not only decrease but also temporarily abolish nerve irritability. In the clinical cases that are described, the patients have been referred to me from time to time, usually by neurologists who have appreciated the necessity for the methods employed.

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[4] Mention will be made of this matter in one of the case reports.

### REPORT OF CASES

Case 1.—A man, aged 59, German, owner of a sanatorium with complete hydrotherapeutic outfit and with the facilities for massage and gymnastic exercises, referred to me while I was at Bad Oehenhausen, had an apoplectic stroke nine months previous to his visit to Bad Oehenhausen, and his physician had advised "general" massage and Swedish movements seven weeks after the cerebral accident. There treatments were carefully carried out for about seven months with no apparent good effect, and finally, in conformity with advice, he came to Bad Oehenhausen for treatment. Two days after his arrival, the patient was sent to me by the physician whom he had consulted. At that time there was a right-sided hemiplegia which was evidenced by the following symptoms: There were facial paralysis, drooling of saliva, poor speech, and atrophy of the outer part of the trapezius muscle at the shoulder; the biceps was strongly contracted, and likewise the flexors of the forearm; there was marked atrophy of the extensors of the forearm, and the leg was equally involved, there being a marked peroneal dragging of the foot. The voluntary motor ability of the patient was greatly restricted by the flaccid paralysis and by the contractures and atrophies.

The patient was treated in the manner that has been described above instead of by general massage, the effort being made toward getting the muscles that were atrophied into better condition, and toward loosening the contracted muscles that prevented the use of the arm and hand. The systematic exercises were given in such a manner as to prevent stimulation of the contracted muscles, but to bring about as much power as possible in the flaccid and atrophied muscles. The exercises were given daily, including Sunday, for three and one-half months, and during that time there resulted a great improvement. The facial muscles had improved in tone, the patient was able to control them to such an extent that saliva no longer drooled from his mouth, he could talk very well, although his speech was slow, and it was only on close observation that it could be determined that the muscles on the right side of the face did not have as good tone as those on the left, and that the right side could not be used with the same accuracy and rapidity as the left. The trapezius paralysis had apparently been entirely overcome and that muscle could be very well used for all the operations that it is normally used for. The contracture of the arm had largely disappeared, and the extent of the improvement in this respect was evidenced by the ability of the patient to make a complete extension of the forearm. While the hand had not completely recovered, it also had improved to such an extent that casual observation did not disclose a difference from the left. It should, however, be stated that the movements of the right hand and arm were much slower than those of the left, but this was not so obvious as to cause a visitor to remark it. The leg was so much improved that the patient could both flex and extend it, and the movements of abduction and adduction were performed perfectly, or almost perfectly. The peroneal lameness persisted to a slight extent, but it gave the impression of a peculiarity of walk rather than an actual paralysis.

This patient is a good example of the apparently poor effects of general massage, and the good effects that may be obtained when attention is directed to increasing the tone and the strength of those muscles that are flaccid and atrophied, and to reducing the contracture state in the muscles that are tightly contracted.

Case 2.—A German merchant had had an apoplectic stroke five years previous to the treatments that were given by me. For three years after the apoplexy he had received daily general massage for eight months of each year, and during the succeeding two years he had been given general massage three times a week. He took the treatments not in the hope of getting over the paralysis but solely because they gave him a general feeling of well-being. When first seen by me there was an evident left-sided paralysis, which involved the face as well as the arm and the leg. The patient's speech was poor, owing to the facial paralysis, the left arm was very much contracted, the forearm was bent on the upper arm, the arm was adducted, the fingers were flexed into the palm, the left side of the second layer of the scapula was atrophied, and the adductors of the leg were contracted. The patient could not abduct the arm or extend the forearm, nor could he flex the leg or extend it to full extent. Walking was impossible, and the patient was taken around in a wheel chair.

The patient was treated daily, excepting Sundays, with the special exercises that have been described, the flexors being stroked to bring about relaxation, but the extensors of the forearm and the other flaccid muscles being stimulated by friction and by tapotement, and the nerves of the flaccid muscles being stimulated with friction. At the end of three months, the arm segment had improved to such an extent that the patient was able to adduct it horizontally with the shoulder and to draw it forward so that he could touch the right shoulder with the knuckles of the left hand; but no improvement of the flexors of the forearm and the fingers had taken place up to that time. The leg improved to such an extent that he could flex and extend it almost to the limit, and the adductors of the thigh became considerably relaxed. Because of the improvement in both legs and in the left arm, the patient was at this time able to walk with the aid of a specially constructed pair of crutches.

Case 3.—A man, aged 56, was visiting a friend who was taking the "cure" at the spa. Five days after his arrival he had an apoplectic stroke while talking with friends. The stroke produced a right-sided hemiplegia which involved the face as well as the arm and leg. The patient was almost immediately referred to me because of the paralysis, and I began the systematic exercises at once. The patient did not talk and did not appear to understand what was said to him. His right arm was slightly flexed, and there was little tone in the muscles of the arm and the leg. The treatments were directed to those parts which in older cases of hemiplegia exhibit the "residual" paralysis. After daily exercises and massage for ten weeks the patient was apparently perfectly normal in voluntary control of the movements of the arm and leg. He could use both of these members as well as the corresponding ones on the unparalyzed side, and the movements in strength and in rapidity were as well executed as by a normal person. The only defect that could be determined was a slowing of motor speech. This may have been partly due to some sensory aphasia, an inability to take things in readily, or it may have been a real motor defect due to a slowness in coordination of the muscles used in phonation.

This case, it may be stated, is not a clear-cut example of the value of the systematic exercises, for there is the possibility that the paralysis would have disappeared without treatment. On the other hand, it should be said that seldom does the paralysis disappear so quickly, and it is reasonably certain that even though the paralytic condition might have passed away, the inactivity would have left a weakness of some duration. If it be assumed that the paralysis would have disappeared without treatment, the treatments may then be said to be helpful in the prevention of the weakness; if we assume that probably not all of the paralysis would have disappeared, then we should conclude that the treatments have prevented the long-continued paralysis. An interesting feature of the case

Chart 3 makes no allowance for the muscular activities involved in dressing and undressing, with other minor activities uncertain in quantity. Perhaps 200 calories should be added for these. If the man walks to and from his business, 1.1 calories for each pound of body weight moved 3 miles should be added.

### METABOLISM OF WOMEN ENGAGED FOR EIGHT HOURS IN INDUSTRIAL PURSUITS

The basal metabolism of women is 37 calories per hour per square meter of body surface, or 93 per cent. of that of men, measured by the same standard. To the basal metabolism of a day was added 10 per cent. during a period of sixteen hours, representing the extra metabolism due to standing or sitting; and to this, again, was added the increment of energy necessary for the accomplishment of the mechanical work at hand.

The extra calories attributable to occupations may be given as in Table 2.

TABLE 2.—EXTRA CALORIES PER HOUR ATTRIBUTABLE TO OCCUPATIONS OF WOMEN

| Occupation of Women | Extra Calories of Metabolism per Hour Due to Occupation |
|---|---|
| Seamstress, needle work | 6 |
| Typist, 50 words per minute | 24 |
| Seamstress, using sewing machine | 57 |
| Bookbinder | 63 |
| Housemaid (moderate work*) | 81 |
| Laundress (moderate work) | 124 |
| Housemaid (hard work*) | 157 |
| Laundress (hard work) | 214 |

* Cleaning windows and floors, scouring knives, forks and spoons, scouring copper and iron pots.

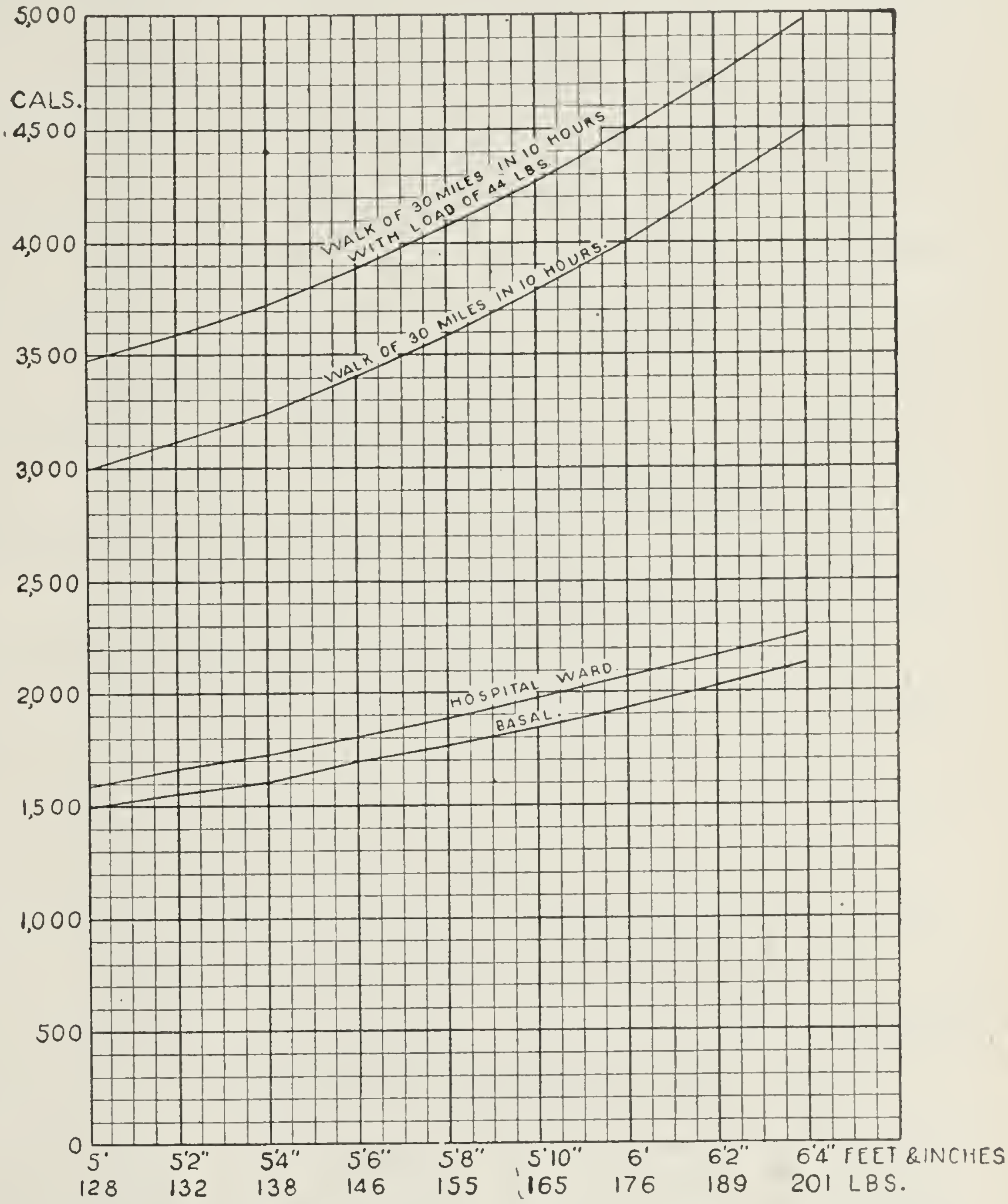

Chart 2.—Metabolism in calories per day of a soldier making a forced march of 30 miles at the rate of 3 miles per hour.

To the values given in the curve in Chart 4 (see page 825) may be added 150 calories for such movements as are involved in dressing and undressing, and other extra motions not definitely measurable. If the person walks to and from her place of employment, 1.1 calories should be added for each pound of body weight moved 3 miles.

It may be further remarked that the work of a hard working laundress could scarcely be accomplished by a woman 4 feet, 8 inches in height.

### GENERAL APPLICATION OF THE RESULTS

The average height of an American woman is 5 feet, 4¼ inches, and of an American man is 5 feet, 8½ inches, according to the medico-acturial investigations of 1912. The corresponding figures may therefore be employed in calculating the food requirements of American communities. It is evident that the data given for boys, women and men do not cover the industrial or home economic situation; but, meager though they are, they afford the best available information.

### REDUCTION IN THE FOOD REQUIREMENT

It must be remembered that the values given here are maximal values based on individuals in better than the average nutritive condition. It has been pointed out by Allen and Du Bois[10] that the basal requirement of energy in men may be largely reduced through emaciation. It has furthermore been shown for the dog by Anderson and Lusk[11] that when a given amount of work is to be done it is always accomplished at the expense of exactly the same amount of extra calories, no matter what the nutritive condition of the animal may be; it is the same on the thirteenth day of starvation as when the dog is fully nourished. Undoubtedly, the same principle applies to man. Thus, Taylor and Kellogg[12] write:

> The industrial classes of Germany who have received not to exceed 2,000 calories per capita per day for nonworking individuals have lost weight; they are trained down hard like athletes. There was no evidence in Germany up to March, 1917, that the health of these individuals had suffered.

This method of saving calories is illustrated by the two instances of undernutrition in Table 3. Both were cited by Allen and Du Bois. The first of the two subjects had been investigated by Magnus-Levy.

It is evident, therefore, that one may reduce the basal requirement of energy by undernutrition, and

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[10] Allen, F. M., and Du Bois, E. F.: Metabolism and Treatment in Diabetes, Arch. Int. Med., June, 1916, p. 1010.

[11] Anderson and Lusk: Jour. Biol. Chem., 1917, **32**, 421.

[12] Taylor and Kellogg: The Food Problem, New York, The Macmillan Company, 1917, p. 90.

TABLE 3.—TWO INSTANCES OF UNDERNUTRITION

| | Weight Pounds | Height Ft. In. | Basal Metabolism Calories | Calories per Hour per Sq. M. of Surface |
|---|---|---|---|---|
| Case 1: | | | | |
| Original measurements .. | 115 | 5—2 | 1,486 | 40.5 |
| After undernutrition .... | 84 | | 1,077 | 33.0 |
| Difference .............. | 31 | | 409 | |
| Case 2: | | | | |
| Original measurements .. | 163 | 6—2 | 1,920* | 40.0 |
| After undernutrition .... | 101 | | 1,032 | 25.4 |
| Difference .............. | 62 | | 888 | |

*Calculated from a surface area of 2 square meters on the basis of the height-weight formula, and 40 calories per hour per square meter of surface as the standard of normal nutrition.

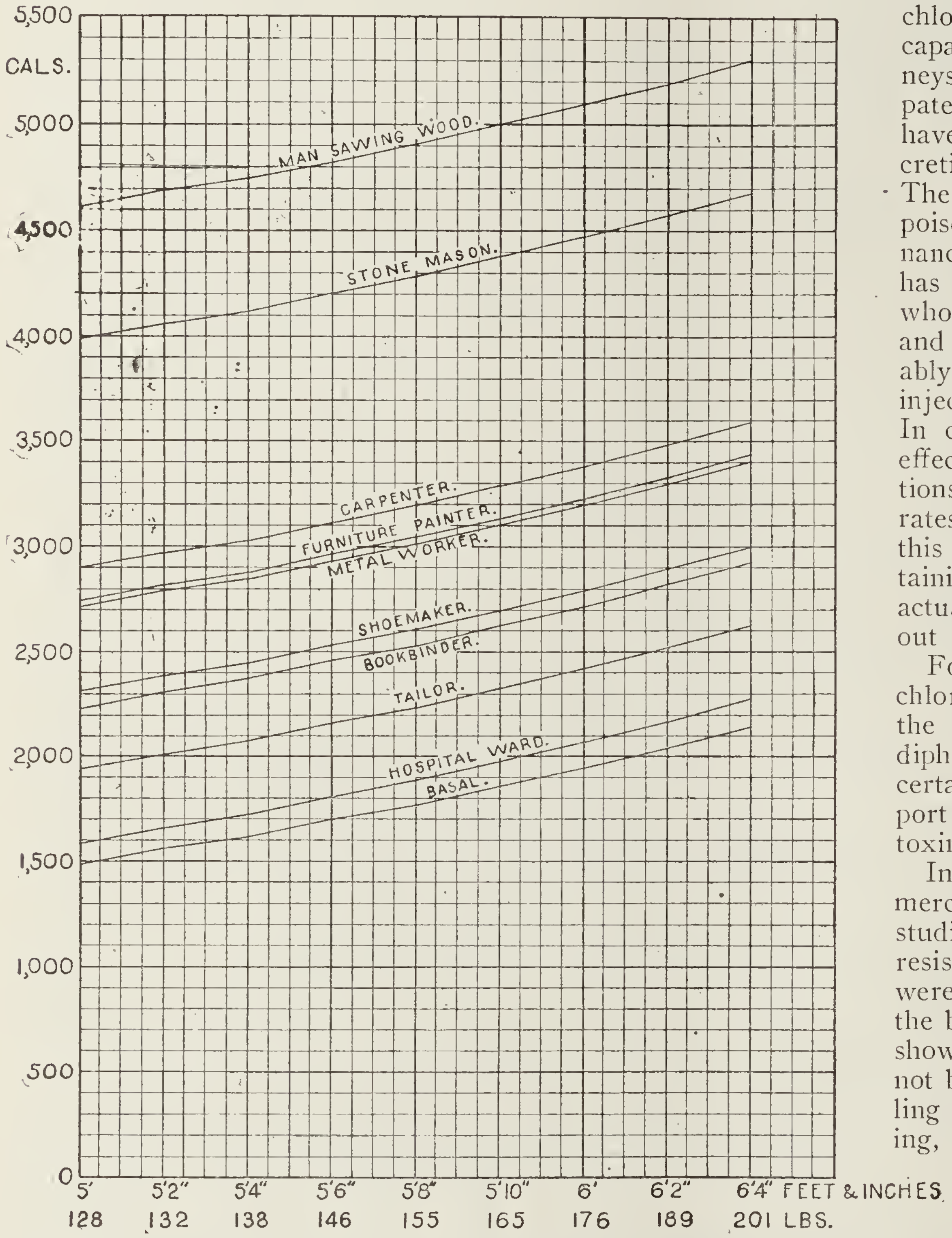

Chart 3.—Metabolism in calories per day of men engaged for eight hours in various industrial pursuits.

that this process may largely economize food, but that to accomplish a given amount of work a fixed amount of food-fuel is required, irrespective of the nutritive condition of the organism.[13] It may become necessary for Americans to "train down hard" as people in the warring nations of Europe are forced to do, and it is important to realize that this may be done without detriment to health. Certainly, the practice of habits of gluttony or of waste of food must be regarded as ethically abhorrent in days like these, when whole peoples are starving to death.

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[13] Anderson and Lusk: Proc. National Acad. Sc., 1917, **3**, 386.

# THE PRINCIPLES OF TREATMENT IN MERCURIC CHLORID POISONING

## AN EXPERIMENTAL STUDY *

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The passage through the body of very large quantities of water by sustained intravenous injections of glucose at supertolerant rates has been observed to result in a marked flushing out of urea, chlorids and other substances that are capable of excretion by way of the kidneys. It would seem rational to anticipate that this procedure might perhaps have clinical value in hastening the excretion of certain water soluble poisons. The idea of an actual flushing out of poisons by the production and maintenance of hyperdiuresis is an old one. It has been emphasized by M. H. Fischer,[1] who used particularly saline solutions, and by Turrettini,[2] who reported favorably on the use of intravenous glucose injections in mercuric chlorid poisoning. In connection with other work on the effects of sustained intravenous injections of sugar, salts, etc., at different rates, experiments have been made in this laboratory for the purpose of ascertaining the extent to which one may actually wash poisons of various sorts out of the body by this method.[3]

For experimental study, mercuric chlorid was selected as representative of the heavy metal group of poisons, and diphtheria toxin as representative of a certain type of bacterial poison. A report on the experiments with diphtheria toxin follows.[4]

In this series of experiments with mercuric chlorid poisoning, we have studied especially the influence of diuresis; and although no beneficial results were obtained, the study is reported with the belief that it is of clinical interest in showing clearly what can and what cannot be accomplished in the clinical handling of cases of mercuric chlorid poisoning, and to emphasize the uselessness of all known forms of eliminative treatment in cases in which the relatively small but uniformly fatal dose of mercuric chlorid has been once absorbed. The study establishes the minimum uniformly fatal dose of mercuric chlorid with greater sharpness than has been done before. It also brings out the probable reason for the frequent recovery of patients both treated and untreated who have taken quantities of mercuric chlorid which far exceed the minimum lethal dose. It may be stated in the beginning that this study leads us to the belief that efforts to secure the elimination of this poison from the body, once it has been absorbed, are of very doubtful utility, and that the essential indication in the treatment of mercuric chlorid poisoning is to prevent the absorption of a fatal dose.

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* From the Otho S. A. Sprague Memorial Institute, Laboratory of Clinical Research, Rush Medical College.

[1] Fischer, M. H.: Edema and Nephritis, New York, John Wiley & Sons, 1915.

[2] Turrettini: Rev. méd. de la Suisse romande, 1915, **35**, 204.

[3] A fourth detailed report covering phases of work outlined in a preliminary communication (Woodyatt, R. T.; Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, The Journal A. M. A., Dec. 11, 1915, p. 2067).

[4] Sansum, W. D.: The Influence of Forced Diuresis in Experimental Poisoning with Diphtheria Toxin, The Journal A. M. A., to be published.

The glucose solutions, varying in strength from 18 to 54 per cent., were made by dissolving a chemically pure product prepared in this laboratory in freshly distilled water. In some of these experiments sufficient sodium chlorid, potassium chlorid and calcium chlorid were added to the glucose solutions to give them the salt content of Ringer's solution. Hypertonic salt solutions (Fischer's) also were used. The injections were made with a volumetric pump. Two pumps were used in some cases, the second to supply the fluid necessary to preserve the water balance. In these instances the discharge tubes were anastomosed to form a common delivery tube.

The mercuric solutions were 0.1 per cent. (1 mg. per cubic centimeter), dissolved in 0.8 per cent. sodium chlorid.

### THE MINIMUM UNIFORMLY LETHAL DOSE OF MERCURIC CHLORID

When this poison is given by mouth, the fatal dose is found to be extremely variable and comparatively large, owing to many factors and especially those preventing uniformity of absorption (emesis, purgation, the character and amount of food contained in the alimentary tract, etc.). When given by this route, the mercuric chlorid, moreover, passes at the initial absorption rate to the liver, an organ that may differ greatly in its glycogen content and its power to retard the passage of poisons into the blood of the vena cava under varying physiologic conditions. Fantus,[5] working with rabbits, found that in unstarved animals the surely fatal dose by mouth was as high as 40 mg. per kilogram. When given subcutaneously, variations in the absorption time also appear to occur, owing in part to the fact that the tissues at the injection site become necrotic and slough. One of our dogs was given subcutaneously 5 mg. and another 10 mg. of mercuric chlorid per kilogram. Both animals lived, and in both the sites of injection became necrotic and sloughed. By this method, at any rate, we did not succeed in establishing a minimum uniformly lethal dose with sufficient sharpness for a satisfactory control.

To eliminate these uncertainties of absorption, etc., it was decided to determine the least uniformly fatal dose by intravenous injection, and in this way we found a small and very uniform value. Meyer and Gottlieb[6] state that 100 mg. is the minimum dose that has proved capable of causing death in human adults when taken by mouth (1.4 mg. per kilogram on a 70 kg. basis). American textbooks give a higher figure, namely, from 3 to 5 grains, which, for a body weight of 70 kg., would be equivalent to from 2.7 to 4.6 per kilogram of body weight.

The least uniformly fatal dose was determined by us in a series of nine dogs. Each of the first three received intravenously 3 mg. of mercuric chlorid per kilogram as 3 c.c. per kilogram of a 1:1,000 solution. The injections administered by means of the volumetric pump were always made to consume exactly one-half hour except when otherwise noted. Two of these animals lived, and the third died in seven days. Each of the second three then received 4 mg. per kilogram as before. All of these animals died, the duration of life being four, four and eight days, respectively. None of them developed anuria. The third three dogs each received 5 mg. per kilogram as before. All of these animals died after two, four and six days, respectively. All of them developed anuria. These fatal doses agree approximately with the accepted minimum lethal doses for adult human beings, and in such human cases the inference would be that the patients absorbed all of the dose swallowed. We therefore chose 4 mg. per kilogram as the minimum uniformly fatal dose; and when it was desired to produce anuria, 5 mg. per kilogram were given.

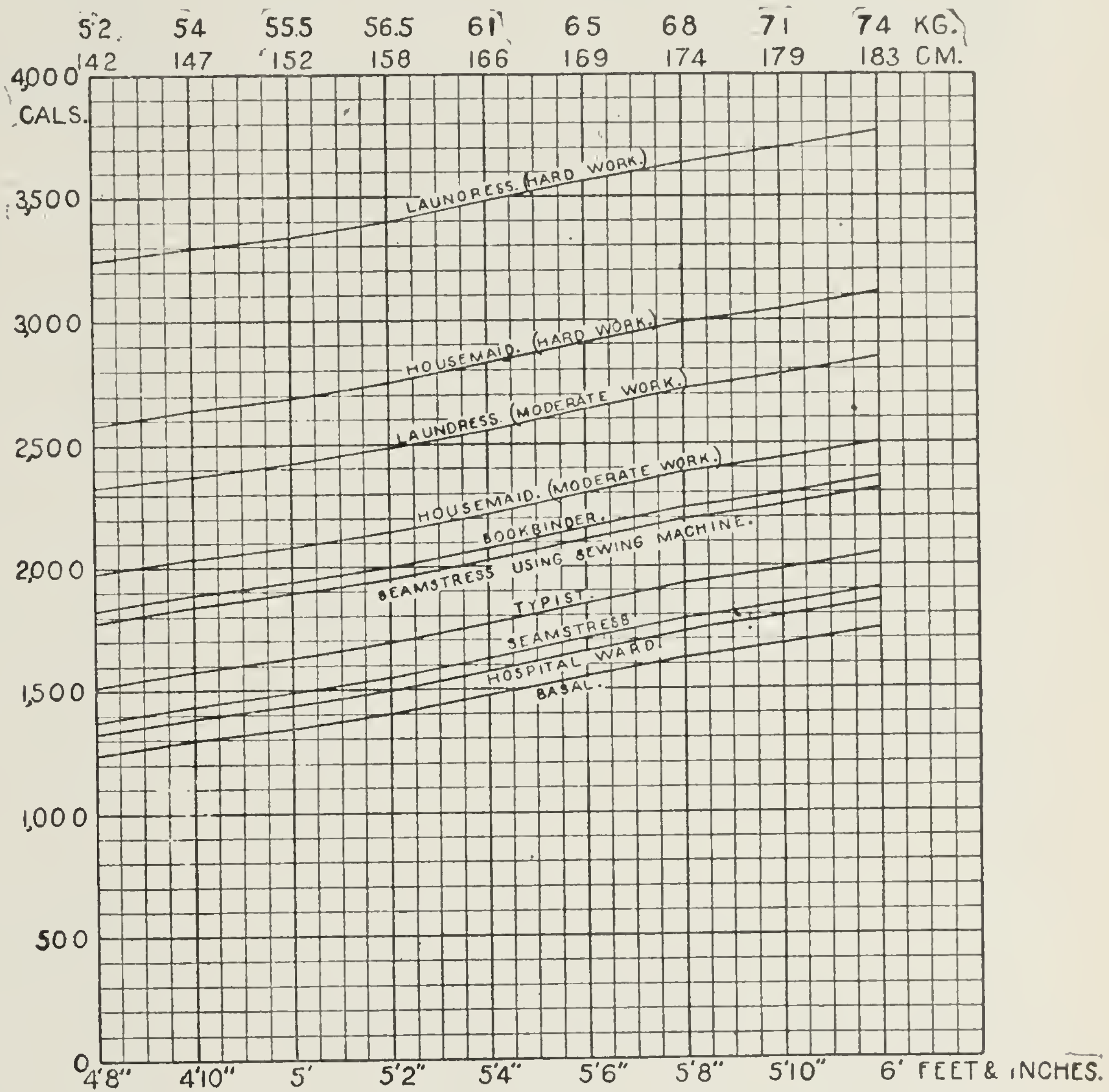

Chart 4 (accompanying article by Lusk, p. 821).—Metabolism in calories per day of women engaged for eight hours in various industrial pursuits.

### EXPERIMENTS

Our first attempt was to determine whether it was possible to establish a flow of urine in an animal made anuric by the smallest dose of mercuric chlorid capable of producing this phenomenon. A dog was given intravenously 5 mg. of mercuric chlorid per kilogram in the form of a 1 : 1,000 solution. Twenty-four hours later the dog had passed no urine, but 20 c.c. of thick albuminous urine were obtained from the bladder by catheter. To determine whether the animal was anuric, 200 c.c. of water were given by stomach tube, and four hours later 5 drops of urine were obtained from the bladder. Then 300 c.c. of 0.8 sodium chlorid were given, and two hours later, 3 or 4 drops of fluid were obtained from the bladder. This animal was considered, therefore, to present an anuria of true renal origin. Such a precaution as the foregoing was deemed necessary because in dogs there is often such a suppression of urine associated with the violent catharsis produced by the mercuric chlorid, however given, that the animal may become anuric not from the impaired kidney function but because the available water of the body is deficient.

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[5] Fantus, Bernard: Jour. Lab. and Clin. Med., 1916, **1**, 3; 1917, **2**, 3.

[6] Meyer, H. H., and Gottlieb, R.: Die experimentelle Pharmakologie, Ed. 2, Berlin and Vienna, 1911, p. 463.

A 54 per cent. glucose solution was then given intravenously at the uniform rate of 5.4 gm. of glucose per kilogram per hour for three hours, but only 10 c.c. of albuminous fluid containing a trace of glucose were obtained from the bladder. A normal animal weighing 10 kg. and receiving the same treatment will, as a rule, pass about 1,000 c.c. of urine. The dog continued to be anuric, and died on the seventh day.

The next experiment was undertaken to ascertain whether any protection could be afforded an animal if treated by copious diuresis immediately following the smallest uniformly fatal dose, that is, 4 mg. of mercuric chlorid per kilogram of body weight, the animal weighing 14.77 kg. This dose of 59 c.c. of a 1 : 1,000 solution was given intravenously at a uniform rate over a period of one hour, and immediately followed by the injection of 19.49 per cent. glucose solution at the rate of 5.4 gm. per kilogram per hour for three hours. During this time, the 14.77 kg. dog received 3,101 c.c. of fluid (1,251 c.c. of the glucose solution with one machine, and 1,850 c.c. of water with the second machine), and passed 2,805 c.c. of urine.[7] The dog continued to excrete urine, but died at the end of the third day. (The diuretic treatment itself does not seriously affect normal dogs).

The same experiment was repeated, with the difference that sufficient sodium chlorid, potassium chlorid and calcium chlorid were added to the glucose solution to give it the salt content of Ringer's solution, and Ringer's solution was used instead of water to preserve the water balance. During the three hours, the 14.77 kg. dog received 2,333 c.c. of fluid (1,353 c.c. of 18 per cent. glucose solution and 980 c.c. of Ringer's solution), and passed 2,125 c.c. of urine. The dog continued to excrete urine, but died in less than forty-eight hours in spite of the active kidney function.

The same experiment was repeated, except that Fischer's solution, as recommended by Weiss,[8] was used immediately following the intravenous poisoning. An 18.4 kg. dog received 30 c.c. of this solution per kilogram of body weight per hour for two hours. During this time it received 1,100 c.c., and the fluid output amounted to 1,000 c.c. of urine and 400 c.c. of liquid feces. (Fischer's solution administered intravenously in the foregoing amounts acts as a cathartic.) The dog continued to excrete urine, but died at the end of forty hours.

As these experiments proved entirely negative, so far as beneficial results were concerned, it was deemed futile to continue along this line. Within the past few years, however, a combination of sodium phosphite and sodium acetate has received some attention as a therapeutic agent. Carter[9] reported the successful treatment of many cases of mercuric chlorid poisoning by the oral administration of these salts, and explained their apparently beneficial results on the theory that the sodium phosphite reduced the mercuric chlorid in the tissues to the much less toxic mercurous chlorid (calomel), a reaction that is known to take place rapidly in vitro. Carter's reports[10] are very inadequate, consisting for the most part of mere statements of the number of cases successfully and unsuccessfully treated. But Fantus,[5] working with a large number of rabbits, found these salts of distinct therapeutic value when administered by mouth.

The intravenous injection of sodium phosphite would be the ideal way of bringing this salt into general contact with mercuric chlorid poisoned tissues. A series of experiments was therefore undertaken to determine whether any protection could be afforded in this manner. Carter recommended the use of these salts in the proportion of 10 gm. of the sodium phosphite to 6.6 gm. of the sodium acetate and held that, if the amount of mercuric chlorid taken is known, from five to ten times that amount of the sodium phosphite should be given.

Sodium acetate is a nontoxic substance in everyday use. Sodium phosphite was found by experiment to be nontoxic when administered intravenously in large doses. One dog received intravenously 57 and a second 200 mg. per kilogram of this salt with no apparent toxic symptoms.

One experiment was performed to test the detoxicating power of sodium phosphite in vitro. One gm. of sodium phosphite and 6.6 gm. of sodium acetate were added to 100 c.c. of a 1 : 1,000 solution of mercuric chlorid. The proportion of sodium phosphite to mercuric chlorid was thus 10 parts by weight of the former to 1 of the latter. A white precipitate of calomel soon formed. Of the filtrate, 10 c.c. per kilogram of body weight were given to a dog intravenously with no apparent toxic effects.

Two experiments were performed to determine whether the phosphite solution, when given intravenously immediately following the injection of mercuric chlorid, afforded any protection. The first dog, weighing 14.56 kg., received 58.24 c.c. (4 mg. per kilogram of a 1 : 1,000 mercuric chlorid solution) over a period of fifteen minutes, which injection was followed immediately by 116.48 c.c. of a solution containing 1 per cent. sodium phosphite and 0.66 per cent. sodium acetate over a period of thirty minutes. Thus twenty times as much sodium phosphite as mercuric chlorid was given. The urine, which amounted to 1,785 c.c. in the first twenty-four hours, contained sodium phosphite. The dog continued to excrete urine, but died in five days with typical lesions. In this case the minimum uniformly lethal dose was given in fifteen is that the treatments were begun almost immediately after the apoplectic stroke, and the treatments were so graduated that there was benefit. There appears to be no good reason why suitable exercises may not be given within a day after the occurrence of an apoplectic paralysis.

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[7] This diuresis in the case of a dog weighing 14.77 kg. corresponds to 1,900 c.c. per 10 kg. of body weight. It is stated in the first paragraph but one preceding that a normal 10 kg. dog receiving the same intravenous and glucose water treatment will, as a rule, pass only about 1,000 c.c. of urine. This dog passed nearly twice as much. The extra diuresis cannot be attributed to the extra water given with the mercuric chlorid, since this was only 40 c.c. per 10 kg. It is due rather to the diuretic effect of the mercury salt itself. The mercuric chlorid, unless given in too large doses, acts as a powerful diuretic.

[8] Weiss, H. B.: A Method of Treatment of Mercuric Chlorid Poisoning, The Journal A. M. A., June 2, 1917, p. 1618.

[9] Carter, T. A.: Chicago Med. Recorder, 1914, **36**, 444.

[10] Carter, T. A.: Critic and Guide, 1915, p. 266.

Case 4.—A retired professional man, aged 60, while abroad, had an apoplectic stroke with hemiplegia, and was cared for by a physician until he was able to return home. He had been given "general" massage by his nurse daily for about two months.

On his return to Washington he was sent to me by his physician. This was about ten weeks after the beginning of the paralysis. At that time it was found that his speech was slow, there was an obvious paralysis of the facial muscles on the right, the right arm and the leg showed muscular atrophy, and there were contractures; the forearm being tightly flexed on the arm. The patient could not carry out any movements with the arm, there was a peroneal lameness, and he could walk only when assisted and held up by attendants on both sides.

Daily treatments directed to the paralyzed muscles were given to the patient at a hotel at which the family resided. These were continued for three weeks. Because of the projected continued absence of his physician for the summer he was then sent to a hospital, where the treatments were continued for five weeks, but under protest from his new medical adviser, who recommended "general massage," and wished to insist on it. The treatments had been continued for about two months, and at the end of that time the patient could abduct and adduct his arm and use it to nearly the normal extent, but not with normal force. He was able to walk without difficulty, with one attendant supporting him on the lame side.

The patient was then sent North, and on his return it was not possible for me to continue his treatments. By direction of his physician, "general massage" was then given to him; but although I have seen the patient several times, it is apparent that no further improvement has taken place; in fact, there has been a retrogression, and this I attribute to the fact that the muscles that should not be massaged have been equally worked with those that should be given stimulating treatment.

This case illustrates two points of importance. The first is that general massage, by which I mean the rubbing and kneading of the muscles, is not beneficial to this class of patients, because the muscles which are contracted or which have a tendency to contracture should not be stimulated. They are already being stimulated by the efferent impulses coming from the spinal cord, and by the lack of inhibition which is probably normally exerted by the cerebrum. The second is that the physiology of the condition is not always appreciated by the attending physician, who has been taught and who has read that massage should be given, and who consequently wishes to insist that the flexors be massaged as well as the extensors. It is not the *quantity* of the massage which is of benefit, but the *quality*, the latter including the direction of the treatments to the muscles and nerves that need them most.

Case 5.—Three years ago, a man at the age of 59 had a stroke with resulting hemiplegia on the right. From this he recovered to a great extent without treatment, but he was weak and "lame," and could not perform movements that required a great degree of accuracy. A year subsequent to the first stroke he had a second, which also left him with a right hemiplegia. He had been in bed for the following two years; but whenever his condition would permit, he was lifted from it daily and placed in a chair. At times also he has been carried out to a carriage or to an automobile and given a ride, but he has tended to slip off the seat. For the two years he had been given "general" massage by his nurses, and several neurologists who examined the patient said that nothing could be done for him, and that the paralysis as it existed would be permanent.

He was given special treatments directed to the paralyzed muscles for ten weeks, twice a week, with some improvement in his condition, and the patient was then sent to me. The examination revealed the following: The right side of the face was paralyzed, and saliva drooled from that corner of his mouth, especially when he made an effort. There was no reaction of the muscles when the nerves were stimulated. The muscles were somewhat atrophied, and he showed no voluntary control of most of them. His speech was slow and very poor, and only a few things that he attempted to say could be understood. There was a contraction of the right sternocleidomastoid, the right trapezius was very much atrophied, and the right pectoral was contracted. The right arm was contracted and flexed, with considerable shortening of the flexor muscles, the forearm was flexed on the arm at an angle of about 70 degrees, and the wrist on the forearm at an angle of about 160 degrees, with the fingers tightly flexed on the palm. There was only a little voluntary flexion or extension of the arm, and the patient could abduct it about 20 cm. from the body. Both legs were atrophied, and the feet were turned inward, the right more so than the left. There was some change in the articulations of the tarsal bones. There was no reaction of the muscles when they were stimulated. There was a strong contraction of the ileopsoas. The patient could not move himself to any appreciable extent in bed, and when he was moved by assistants he showed great fear that he would fall.

It was reported to me that the twenty special treatments that were given previous to those given by me had resulted in some slight improvement, which can be estimated by the betterment in the position of the arm at the beginning and end of the series. At the beginning the forearm was flexed on the arm at an angle of 55 degrees, and the hand on the forearm at an angle of 110 degrees; while at the end of the series there had been a straightening, respectively, to 70 and to 160 degrees. At the same time, while at the beginning he was unable to move the arm at all, he could lift the hand almost to the chin after the twenty treatments; and although the right foot could not be lifted at the beginning, it could later be brought up to touch the middle of the tibia of the left leg. At the beginning, also, stimulation of the muscles and nerves produced no reactions; but subsequently an occasional effect could be obtained from the peroneus, and usually from the extensors of the forearm; but the latter were not contracted when the nerve was vibrated.

Up to the present writing I have given the patient three treatments a week for eleven weeks. There has been a gradual improvement in the condition of the muscles of the paralyzed segments and in his voluntary control of them. Speech is slightly improved, there is some reaction of the facial muscles when they are stimulated, there is less drooling of saliva, and the patient can extend his tongue and carry it over to the right angle of the mouth. He can abduct the right arm to the level of the shoulder (about 90 degrees instead of about 30 as at the beginning), and he can draw the arm forward across the chest and touch his chin. With the aid of his left arm he is able to put his right hand on the top of his head. The pectoral muscle is now very slightly contracted, the sternocleidomastoid little, if any. He now lifts his right leg, flexes it, and can touch the knee cap of the left with the heel of the right. The left leg is less atrophied, and he flexes and extends it with good force. The patient is also able to move himself from the longitudinal position on the bed to the transverse position without any aid, and when he is assisted to a sitting position he can maintain it without help. He can return to the longitudinal bed position from the sitting position without assistance. He can also stand on the left leg for short periods when he is assisted.

From the therapeutic standpoint the case is not encouraging because everything that can be done for the patient by others is being done for him, and he has been relying on his wife, his physician, and his nurses to do everything. Because of this he is deprived of the much needed effort to help himself; and since he has been petted so long he does not care to exert himself to the slightest degree, and he can be made to do so only by insistence that he help. It is also likely that if it were possible to give the patient more frequent treatments, some of the results would have been bettered, for by having only three a week there is time for some of the good effects to pass away between the individual treatments, and the cumulative effects are not so readily obtained.

### COMMENT

These five cases illustrate very well that improvement, and in many cases a considerable amount of improvement, can be brought about in the condition of a hemiplegic if appropriate exercises are given to the involved muscles. They also show that "general" massage, as indicated in Cases 1, 2, 4 and 5, has not brought about such improvement, although it is reasonable to suppose that the promptness and the extent of this form of treatment could have demonstrated its efficacy if any existed. It should be remembered that the amount of special treatment that I gave these patients was much less than the amount of "general" massage that had been given to them. It may be remarked that the amount of improvement in four of the cases did not go to the extent of a complete recovery, and that Case 3 should not be considered in connection with the other four. With both of these remarks I am willing to agree; but with respect to the lack of a complete recovery, it should be borne in mind that in all cases the treatments did not extend over a sufficient time to show the full possibilities. Although small in amount, they have shown that much more can be done than with "general" massage, which is usually advocated, and they show that we have not reached the limit of possibility. Patient 1, who had been paralyzed for nine months, was almost completely "cured" by special treatments for three and one half months, although during the nine months he had not improved under "general" massage. Patient 2 improved under three months' treatment, although he had not improved under five years' "general" massage. Patient 4 improved in two months, although he had not improved in the preceding two months' treatment with "general" massage, and has deteriorated in the succeeding time when general massage has been given. Patient 5, who has received the equivalent of nine weeks' treatment, has improved, although in two years with "general" massage he had been getting worse in that the contracture state was being exaggerated and the muscle atrophy was increasing. In most cases the patient or his physician or his relatives, seeing the improvement that takes place, thinks this will continue by itself, and the patient is either given no treatment or is turned over to a cheaper operator, who again gives "general" massage; and since the proper physiologic efforts are not made, there is a retardation or a stopping of the improvement. This is the same as others have found, and is the same condition encountered with other kinds of chronic cases. It is unreasonable to suppose that the treatments for two or three months will bring about a complete recovery in those who have had the paralysis for some time. It is well known that if an athlete ceases to exercise for a time, it is difficult, most frequently impossible, for him to return to his former level of ability, even though he practice for a considerable period of time. At the same time it is well recognized that after a certain age the adaptability decreases, and this lowering of the individual's capacity for new adjustments is probably both nervous and muscular. The results that have been obtained do indicate that a considerable amount of voluntary control follows the treatment of the paralyzed muscles and their nerves. It should also be mentioned that the contracture is overcome; and although this is a matter more of cosmetic interest, it is not unimportant that the deformity be improved.

It might also be remarked that we do not know, but can only estimate from the combined clinical symptoms, how extensive the cerebral lesions in these cases were, or what special parts of the brain have been destroyed, and that only the examination of the brains will show the extent and the limits of the destructions. Although this criticism has actually been made, it appears to be forgotten that competent physicians, and especially neurologists, can estimate quite closely, and it is possible to predict within a fair degree of certainty that in the cerebral paralyses either the cortical motor area or the motor fibers have been destroyed. The durations of the paralysis in Cases 1, 2 and 5 previous to the treatments are indications that the conditions were of the nature of residual defects, and that if treatments had not been instituted the motor deficiencies would have persisted. As far, therefore, as this criticism is concerned, I need only say that it is unjust with respect to probability, and furthermore, from the patient's standpoint it makes little difference about the nature of the lesion if an apparently permanent defect can be overcome, and the imperfection give place to a more normal state. It may be necessary to know the exact location, the degree, and the extent of the lesions if we wish to translate the results into terms of a hypothesis; but this can be done best by a suitable series of experiments on animals, or only after the accumulation of numerous cases of recovered hemiplegia. The experiments on animals have been carried out, and the results of the series will be briefly cited[5]:

### REPORT OF EXPERIMENTS

Experiment 1.—A monkey had the left motor cortex cauterized with an electric thermocautery, which produced a right hemiplegia. The left arm was strapped to the body so that it could not be used and so that the animal would be compelled to use the right. At the same time the extensor muscles of the right arm and the arm nerves were stimulated by friction. The animal was also held by its strap and the right hand was struck by another piece of strap. This made the animal attempt to escape the irritation, and although at first the right arm could not be moved away from the irritating stimulus, in a few days the monkey was able to draw away the hand and also to grasp, but with little power, the irritating strap. At the end of two weeks the animal could use its arm and leg very well, and three weeks after the cortical destruction it could pick small pieces of food from the floor, it could climb and walk, and showed in the paralyzed segments no obvious incoordination. A week after it had recovered the use of the right arm and leg the right motor cortex was destroyed in the same manner as the left. This produced a complete left hemiplegia. No treatment was given to the animal for this paralysis; it was permitted to recover by itself if it could, and to date (at the end of six months) the paralysis of the arm has persisted, although there is considerable recovery in the leg segment.

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[5] The results of these experiments will be reported in greater detail in a forthcoming paper with S. I. Franz. The monkeys used in the experiments were supplied to Dr. Franz through a grant to him, and acknowledgment of the assistance of the Carnegie Institution in this regard is here made.

EXPERIMENT 2.—A monkey had the left motor cortex cauterized, June 2, producing a complete right hemiplegia. The animal was given "general" massage to the paralyzed limbs, and all the muscles were thoroughly kneaded daily. This treatment was carried out for twenty-six days, and at the end of that time the animal used the left arm exclusively. The right hand showed marked wrist drop; there was some possibility of flexion and extension, but there was little strength. The right leg also showed little improvement. There was a dragging of the foot when the animal walked or crawled. Four weeks after the first operation, the right motor cortex was cauterized. The right arm was also bound to the body of the animal, and the nerves and muscles of the left arm and leg were given the special treatments. This was continued about four weeks, at the end of which time the movements on the left could not be said to differ in any respect from those of a normal animal. Improvement on the right has continued, and that side is almost well; but the left hand is used more frequently than the right in taking food, etc.

EXPERIMENT 3.—The left motor cortex of a monkey was cauterized, June 2, resulting in a right hemiplegia. The left arm was strapped to the body of the monkey and its movements were prevented, but no other kind of treatment was given. At the end of four weeks, the amount of recovery was slight. Some movement of the right arm and leg was possible, but there was marked incoordination and incompetence. After the four weeks of *laissez faire* management, the muscles and nerves of the right side were stimulated and the treatments continued for four weeks. At the end of that time the right arm and leg had regained their normal power and accuracy. After the recovery from the right hemiplegia, a left hemiplegia was produced in a similar manner. Following this operation the left side was given "general" massage without special attention to the individual muscles and nerves. The animal continued to use its right arm almost exclusively, although after a few months both were used, and they can be used together when necessary. The animal now climbs and jumps, but its movements, especially of the left hand and arm, are awkward. It holds its food awkwardly, and does not carry it full way to the mouth, but the head is inclined to meet the food as it is brought upward by the hand, usually the right.

EXPERIMENT 4.—A monkey had the left precentral area cauterized, July 25. A typical right hemiplegia resulted. The movements of the left arm were restricted by tight bandaging, and the animal was given special treatments such as have been described. The recovery of the right side was rapid, and after three weeks it was not possible to detect any difference in motor capacity for the two sides of the body. The animal was shipped North, but developed pneumonia and died in three days. The brain showed a very extensive lesion involving the left motor cortex.

## COMMENT

It should be pointed out that the results which have been described differ in at least one respect from those of investigators who have previously produced experimental hemiplegia in monkeys. This is the time of the recovery. Previous investigators have shown that if a monkey is paralyzed by the destruction of the motor cortex, recovery takes place "spontaneously." But the period for the recovery is one of months, and is well illustrated by the results of the second part of Experiment 1, in which at the end of six months the monkey has not fully recovered the use of the left hand and leg. The present work shows that the period of recovery may be much shortened and that the full return of voluntary control may take place in a few weeks, if suitable stimulating exercises are given.

The results of the experiments on the artificially paralyzed monkeys may be thus summarized: They show that (1) very little improvement takes place if the animals are given no treatment; (2) when "general" massage is used there may be some improvement, perhaps more than without treatment, but not very extensive, and (3) when the therapeutic attack is directed to specific muscles and nerves, the recovery is rapid and complete. These results are almost directly in accord with those which have been obtained with the human cases of hemiplegia which have been cited; but the rapidity and completeness of the improvement in the animals may be the result of different inherent qualities of the nervous system. It has already been pointed out that there is an almost complete recovery of the monkey after the destruction of the motor area or of the pyramidal fibers, but this recovery is very slow if the animal does not receive treatment. In the human cases, on the other hand, it has been believed that a paralysis which is not appropriately treated is not followed by recovery. Perhaps it would be more accurate to say that at present we are ignorant of the possibility of spontaneous recovery in human paralytics. One reason may be that the occurrence of the contracture which is an almost constant phenomenon may help to prevent or to mask the spontaneous recovery in man, and, secondly, the correlation of the anatomic data with the clinical symptoms has frequently been made without a sufficiently exact histologic knowledge of the destroyed area. If we are willing to conclude that recovery of voluntary motor function in man may take place after the destruction of the precentral cortex or of the pyramidal fibers, as is indicated in the records of the present series of cases, as well as by those reported by Franz, Scheetz and Wilson, and by Elliott and Boorstein, there appears to be no cogent theoretical reason why we must assume that some spontaneous recovery does not take place. It may be that there is no difference in kind but only a difference in degree between man and the monkey and other animals in this respect, and that our assumptions regarding the necessity for continued paralysis are not well founded.

From the work reported, I believe that every case of cerebral paralysis should be given the special treatments that have been found successful, and that we should give to every patient the fullest opportunity for betterment. It is too soon to predict with certainty how much improvement will result in any individual case; but the success noted in the cases that have been cited here and in the other cases that have been reported warrants the belief that the systematic effort of the physician should be directed to the alleviation of the distressing condition, which in the past has all too frequently been left for spontaneous recovery. It may be that further study will show that some patients will progress to a certain point, others may go to a point at which there is almost complete return of function, and others may show no obvious benefit. Further work is necessary for the differentiation of cases; but the facts at hand hold hope that many, probably most, perhaps all, cases of cerebral paralysis may be relieved; and even though the improvement may not extend to the ability to perform all kinds of finely coordinated movements, the prevention or the cure of the deformity of contracture, and the therapeutic production of even gross movements, are ends not to be despised, since they make the patient happier and less helpless.

# THE TECHNIC FOR SEALING MEDICATION IN THE URETHRAL CANAL

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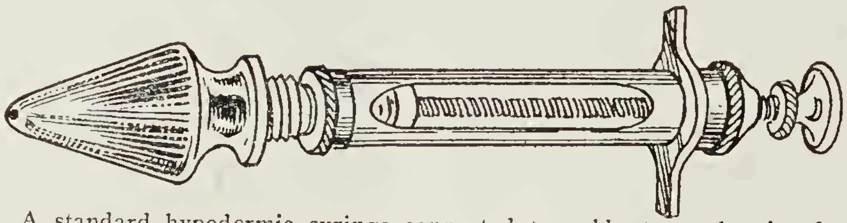
The advantages of prolonged applications of suitable remedies to inflamed mucous surfaces are well known. As a method of securing these advantages as soon as the treatment of a new case of urethritis is begun, and as a prophylactic measure, we have sealed medicament in the urethral canal with collodion. So satisfactory have been our results in the past twelve years that we desire to describe briefly the technic employed and the indications for its use.

## TECHNIC

The patient should be placed in a reclining posture. The penis should be washed and dried, then surrounded with a sterile towel. A syringe holding 25 minims is used to inject this amount of medicament into the urethra. A larger amount does not seem to give any better results and is more likely not to be held in the urethra for the necessary time. Next, the canal is compressed with the left hand while the meatus is dried. Collodion is then applied with a camel's hair brush over the meatus and the glans penis for one-fourth inch around the meatus. The compression of the urethra should continue for about five minutes until the collodion is thoroughly dry and feels hard to the touch. It is important to use plain collodion, U. S. P., 1910, which contains no castor oil nor balsams and which feels hard when it dries. No cotton should be placed over the meatus, as it will not hold well and is unnecessary. When the collodion is thoroughly dried, the urethra should be released and a condom containing a small amount of absorbent cotton should be placed on the penis to protect the patient's clothing, in case the collodion should break and allow the escape of the medicament sealed in the urethra.



A standard hypodermic syringe connected to a blunt metal point for injecting the medicament into the urethra.

The patient, who should empty his bladder just before the treatment is applied, should be told not to drink anything for a few hours and to allow the drug to stay in the urethra four or five hours, if he is not compelled to urinate before this time has elapsed. When he wishes to void, the anterior part of the urethra should be compressed and pressure applied over the collodion, causing it to break at some point that affords a line of cleavage by which the collodion may then be pulled off.

After allowing the escape of the medicament, the patient should drink freely of water for the remainder of the day, so as to flush the urethra with bland, unirritating urine. The following morning very little water or other liquids should be taken, in order to prevent a distended bladder from allowing the medicament to stay in the urethra for the full time.

The treatments may be repeated once a day for five days if conditions are favorable. If the discharge continues or increases, or if organisms can be found in the secretion on the third or fourth day, it may be taken to mean that the germs have extended to a point not reached by the medicament and that this method should be replaced by the usual treatment.

## INDICATIONS

The chief indications for this treatment of sealing the medicament in the urethra are (1) fresh infections and (2) prophylaxis.

Patients should be encouraged to report and have a microscopic examination made as soon as the discharge appears. If gonococci are found, the treatment should be started at once. The best results come when we begin on the first day. A very large percentage of such patients can be cured within five days. The prognosis becomes less favorable as the duration of the infection lengthens.

Sexual intercourse during the period of incubation reduces the chance for a prompt cure about 50 per cent. We cannot hope for a good result when injections and instrumentation have carried the infection deeper than the part retaining the medicament. Nor can we hope for prompt results if there is much swelling of the meatus or foreskin, or if the follicles along the urethra are palpable. Other infections than gonococcic respond equally well to treatment if they are recently acquired, although they are more likely to be deeply seated and are, perhaps, recrudescences brought on by the sexual intercourse at the time at which the patient thought the trouble was contracted. No special advantages are claimed for this treatment except in fresh infections. The surgeon, however, should practice the "sealing-in" process on patients with chronic disorders until he has acquired the knack of carrying out a satisfactory technic.

Our experience with this treatment as a prophylactic measure applied within the first forty-eight hours after exposure has been most satisfactory. We have not yet seen a patient develop gonorrhea who had it employed within this time. In the Army it should have a wide field of usefulness, as it can be applied at a later time than the remedies now in use. Only one treatment is required for prophylaxis.

This method has the advantage of medicating the anterior urethra to the meatus, whereas, when clamps are employed to retain medication in the urethra, the medicament does not reach the urethra anterior to the clamps, and the infection continues to be active.

The solution we usually employ is argyrol, 5 per cent. Stronger solutions are unnecessary.

## SUMMARY

Our twelve years of experience with this method of treating early urethral infections leads us to assert that it is more effective than the conventional methods, also safer, for when we fail to obtain a prompt cure, no harm is done. In fact, the disease seems to run a milder course when the treatment is started by sealing the medicament in the urethra. The urethritis is not intensified, nor are strictures ever caused by the treatment.

We repeat that as a prophylactic measure we have never seen it fail when a treatment was given within the first two days of the infection.

# THE CAUSE OF MUSCULAR ATROPHY FOLLOWING NERVE SECTION

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The nervous system is held to exert a "trophic influence" over the tissues of the body. In proof of this alleged influence, it is pointed out that pathologic changes occur in many tissues as the result of injuries to nerves or to the spinal cord. The pathologic changes usually cited are herpes zoster, the Charcot joint, ulceration of the cornea in lesions of the fifth nerve, bronchopneumonia after section of the vagi, decubitus, osteoporosis, and muscular atrophy. Already evidence has accumulated to show that some of these changes are not due to a trophic influence of the nerve; for example, the formation of vesicles on the skin in herpes zoster is now definitely known to be due to inflammatory changes in the dorsal roots. Phemister has recently argued that the alleged trophic changes in Charcot's joint are due to destructive changes in the bone as a result of the loss of sensation in the joint. The ulceration of the cornea in lesions of the fifth nerve is more probably due to the absence of sensation, which abolishes the reflex cleansing of the cornea by movements of the lids. Double section of the vagi leads to a fatal bronchopneumonia. Here again the result is due, not to a trophic influence of these nerves, but to the abolition of the coughing reflex. Even in the bone, pathologic changes have been described, supposedly due to nerve lesions. Von Leyden and Grumnach[1] report osteoporosis as a consequence of nerve lesions. Their findings were not confirmed, however, by Levy-Dorn and Fürnrohr. Most striking of all the alleged examples of the trophic power of nerves is the wasting of the skeletal muscles, after destruction of the anterior horn cells or section of the motor nerves. It is with this phenomenon that my report is concerned. I shall attempt to show that the wasting of the muscles is not due to the cutting off of a supposititious influence, but rather it is due to an incessant fibrillar activity of the muscles, which begins from three to six days after nerve section and persists until the regeneration of the nerve.

This peculiar fibrillar contraction was first described by Schiff[2] in 1851, although the significance of it as the cause of muscle atrophy was not, apparently, appreciated by him. Schiff's observation was made in the course of a study of the movements of the tongue following a section of the hypoglossal nerve on one side. In his article on the paralysis of the tongue in dogs, Schiff describes the movements of the muscle fibers of the paralyzed side in these words: "It is generally assumed that a muscle which is separated from its nerve center is in a state of most complete rest and inactivity, if external stimuli accidentally act on it. This is not true. I will show, on the contrary, that very soon a long period begins in which the individual muscle bundles take on automatic, rhythmic contractions." For three to five days after the operation, the tongue is quite still. Then:

> There is a continuous rise and fall, a weaving and waving, a bubbling and seething, a flickering and glittering of the individual moving parts, whereas the unparalyzed side remains motionless (Da ist ein fortwährendes Heben und Sinken, ein Wühlen und Wogen, ein Wallen und Weben, ein Flimmer and Funkeln der einzelnen bewegten Theile, während die nicht gelähmte Seite unbewegt daliegt).

Schiff himself did not connect this striking fact with the atrophy of the muscle. Although his observation has many times been quoted, the behavior of muscle fibers after nerve section is not generally known. Recently, Langley and Kato[3] have repeated the observations of Schiff. They worked with rabbits and cats. The tibial nerve was cut on both sides. Their observations may be quoted in their own words:

> On the fourth or fifth day spontaneous twitchings begin; they increase in rate and extent for about a fortnight and continue up to seventy-one days, the longest period observed. The degree of fibrillation varies in different parts of the denervated muscle [after section of the tibial nerve]; it occurs both in white and red muscle. When well developed, the muscle presents a continuously quivering surface; this is best seen when the surface is well moistened with warm Ringer's fluid. When there is but little fluid, the fibrillation appears as short depressions, occurring now here, now there, on the surface. The contractions of any one fiber have a regular rhythm. The fibrillation is seen only when the muscle is looked at from certain angles, and its distinctness varies with the angle.

## RESULTS OF EXPERIMENTS

My own experiments were performed on dogs. The facial, the hypoglossus and the tibial nerves in certain animals were cut. Of these nerves, the hypoglossus is the most satisfactory for this experiment, for the reason that the fibrillation can be observed directly in the tongue, either on the dorsal surface or underneath. Where the muscle is covered with skin, it is impossible to see the movements. In order to demonstrate the fact in the gastrocnemius, it is necessary to expose the surface of the muscle by a supplementary operation. All operations were performed under ether anesthesia. A section of the nerve 1 cm. in length was removed.

In my experiments, the contractions first appear on the fourth day after the operation. Although there is some slight difference among animals, the essential phenomenon is this: About the third day, a fine, tremor-like movement is seen underneath the tip of the tongue on the operated side. When the tongue is moist, the movement is more apparent. At the end of seven days, more marked, rhythmic contractions make their appearance on the dorsal surface of the tongue at the tip. As time goes on the fibrillation spreads toward the root of the tongue. In some animals, a wormlike movement, due to the contraction of large muscle bundles, can be seen on the dorsum of the tongue near the midline. The rate of movement is from ten to twenty times a second. Although I have not been able to time the period of the contractions in any one muscle fiber, casual observation seems to indicate that the movement is incessant. From eight to twenty days after the operation, the mucous membrane on the dorsum begins to show folds and fissures, owing to a shrinkage in the volume of one-half the tongue. The loss in the substance of the tongue can be determined easily by palpation. The tip and lateral margin of the tongue become very thin and fimbriated. The coarser fascicular contractions gradually disappear and, as the process of regeneration goes on, the fine tremor diminishes, first in the region about the base of the tongue and finally at the tip. There seems to be an exact parallelism between the appearance of the contractions and the wasting of the muscle, and between the disappearance of the contractions and the return of voluntary control. As yet I have had no animal under observation for more than 101 days. One animal observed for this length of time still shows slight fibrillar movements, marked atrophy and only slight voluntary control of the paralyzed side.

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[1] Von Leyden, E., and Grumnach, E.: Die Roentgenstrahlen im Dienste der Rückenmarkskrankheiten, Arch. f. Psychiat., 1903, **37**, 188.

[2] Schiff, Moritz: Ueber motorische Lähmung der Zunge, Arch. f. Physiol. Heilk., 1851, **10**, 587.

[3] Langley, J. N., and Kato, T.: The Physiological Action of Physostigmine and Its Action on Denervated Skeletal Muscle, Jour. Physiol., 1915, **49**, 410-431.

### THEORIES OF MUSCULAR ATROPHY

In attempting an interpretation of this phenomenon, I shall find it necessary to consider the theories which have been formulated to explain the atrophy of muscle after nerve section.

1. The theory of a trophic influence of nerves on muscles is sometimes stated in such a way as to imply that there are (*a*) special trophic fibers contained within the nerve trunks of the spinal nerves; by some writers it is held that (*b*) there is a special kind of nerve impulse which regulates the nutrition of the muscle. Aside from the general fact that muscle wastes after the section of its motor nerve, there is no physiologic evidence for either the special trophic fiber or the special trophic nerve impulse.

2. On the assumption of continuity of substance of nerve and muscle tissue, the section of a part of this system might explain the atrophy which takes place in another part. Against this view is the fact that the histologic evidence shows that the nerve fibrils are separate and distinct from the muscle cells.

3. There remains the hypothesis that muscular atrophy is due to fatigue caused by fibrillar contractions, which have been described and which will be demonstrated. That the overaction of muscle may lead to a shrinkage in volume is a well attested fact. Furthermore, it may be pointed out that the specific gravity of fatigued muscles is less than the specific gravity of normal resting muscles. Also the specific gravity of atrophied muscles is less than the specific gravity of normal resting muscles.

In the clinical literature of poliomyelitis, I have been able to find only one reference to the fibrillar and fascicular contractions of the atrophied muscle. Hoffmann[4] describes what he calls a myokymie in certain old cases of poliomyelitis.

> Those leg muscles which have not wholly atrophied, show a continuous fibrillar and fascicular twitching, which in the thigh muscles simulates a muscle surging, with a twitching of the bundles at intervals; this muscle unrest is also present in the abdominal muscles (myokymie) (Die nicht geschwundenen muskeln der Beine sind Sitz unaufhörlich sich abspielender fibrillärer und fasciculärer Zuckungen die an den Oberschenkeln besonders das Bild des Muskelwogens geben, dazwischen auch stärkere Bündelzuckungen; diese Muskelunruhe besteht ferner am Abdomen [myokymie].

Rosenow, Towne and Wheeler[5] described fibrillar contractions in the limbs of rabbits experimentally inoculated with Rosenow's organism of anterior poliomyelitis. "The onset of later paralysis, especially in rabbits, was sometimes preceded by a fine tremor or even definite twitching of the muscles, which later became flaccid." Similar fibrillar contractions have been observed in certain cases of central neuritis as well as in progressive muscular atrophy and amyotrophic lateral sclerosis.

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[4] Hoffmann, J.: Ueber eine Epidemie von Poliomyelitis anterior acuta in der Umgebung Heidelbergs im Sommer und Herbst 1908 und bemerkenswerte Beobachtungen aus früheren Jahren, Deutsch. Ztschr. f. Nervenh., 1909-1910, **38**, 146-166.

[5] Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, The Journal A. M. A., Oct. 21, 1916, p. 1202.

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# PNEUMOCOCCUS TYPE DETERMINATION BY AVERY'S CULTURAL METHOD

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BOSTON

Since the publication of Avery's[1] work on a rapid cultural method for the determination of types of pneumococcus in sputum from cases of lobar pneumonia, the diagnostic laboratory of the Massachusetts State Department of Health has used this method together with the method of mouse inoculation.

The specimens of sputum received are from hospitals and private cases in Boston. The technic employed by us is as follows: One c.c. of sputum is washed and ground in a sterile mortar with approximately 2 c.c. of broth, 1 c.c. of the emulsion is inoculated into a mouse, and the remaining cubic centimeter is inoculated into 4 c.c. of blood glucose broth in a centrifuge tube. For the mouse test, the method outlined by Blake[2] is used. For the cultural test, Avery's method is followed. The broth cultures are examined from time to time, and when pneumococci are abundant the precipitin test is made. The time for abundant growth varies from four to eight hours.

From a comparison of forty-eight specimens examined by both methods, we obtained checks on forty-three specimens.

FINDINGS IN COMPARATIVE TESTS

| | Cultural Method | Mouse Inoculation |
|---|---|---|
| Type I | 7 | 8 |
| Type II | 10 | 12 |
| Type III | 3 | 5 |
| Type IV | 28 | 23 |

Five specimens that were Type IV, according to the cultural method, were distributed among Types I, II and III.

The specimens received at this laboratory are often contaminated with saliva; but it is usually impossible to get second specimens without considerable delay, and tests are made with the ones received, though they often appear unsatisfactory. The fact that we do not have any control over the taking of specimens may account for our somewhat less successful results with the cultural method than those obtained by Avery. However, our results have been sufficiently satisfactory for us to decide to use this method when mice are not obtainable, rather than to stop the work entirely.

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[1] Avery, O. T.: Determination of Types of Pneumococcus in Lobar Pneumonia, The Journal A. M. A., Jan. 5, 1918, p. 17.

[2] Blake, F. G.: Methods for the Determination of Pneumococcus Types, Jour. Exper. Med., 1917, **26**, 67.

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**Therapeutic Overdoing.**—In the department of therapeutics overdoing is wrongdoing; activity here to the extent of harm is the reproach of medicine.—W. B. Konkle, M.D.

# PAIN IN ACTIVE PATHOLOGIC PROCESSES IN STOMACH OR DUODENUM

## GASTRIC AND DUODENAL CONTRACTIONS AS THE DIRECT CAUSE

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CHICAGO

That the question of genesis of gastric pain in pathologic conditions of the stomach and duodenum is still an open one can readily be seen from the diversified opinions of authors on the subject. The work of Ginsburg, Tumpowsky and Hamburger[1] emphasizes the gastric tension and contractions of the stomach, together with the hyperirritability of the stomach, as the most important factors in the etiology of pain. According to the older view of chemical distress in gastric ulcer, there are certain facts which are not explainable on the basis of acid irritation. The only basis for this view at present is the alkali treatment in gastric ulcer, by which the pains are immediately relieved.[2] Carlson[3] concludes that the pains of gastric and duodenal ulcers are contraction pains, either in the stomach or in the pylorus and upper part of the duodenum. In order to confirm the contraction theory, analysis was made of three distinct types of cases:

1. Carcinoma of the pylorus in which there were vigorous peristalsis and a moderate degree of pain.
2. Healed ulcer of the duodenum with cicatricial contractions, high grade obstruction, and a very pronounced hyperperistalsis.
3. Typical peptic ulcer with vigorous peristalsis.

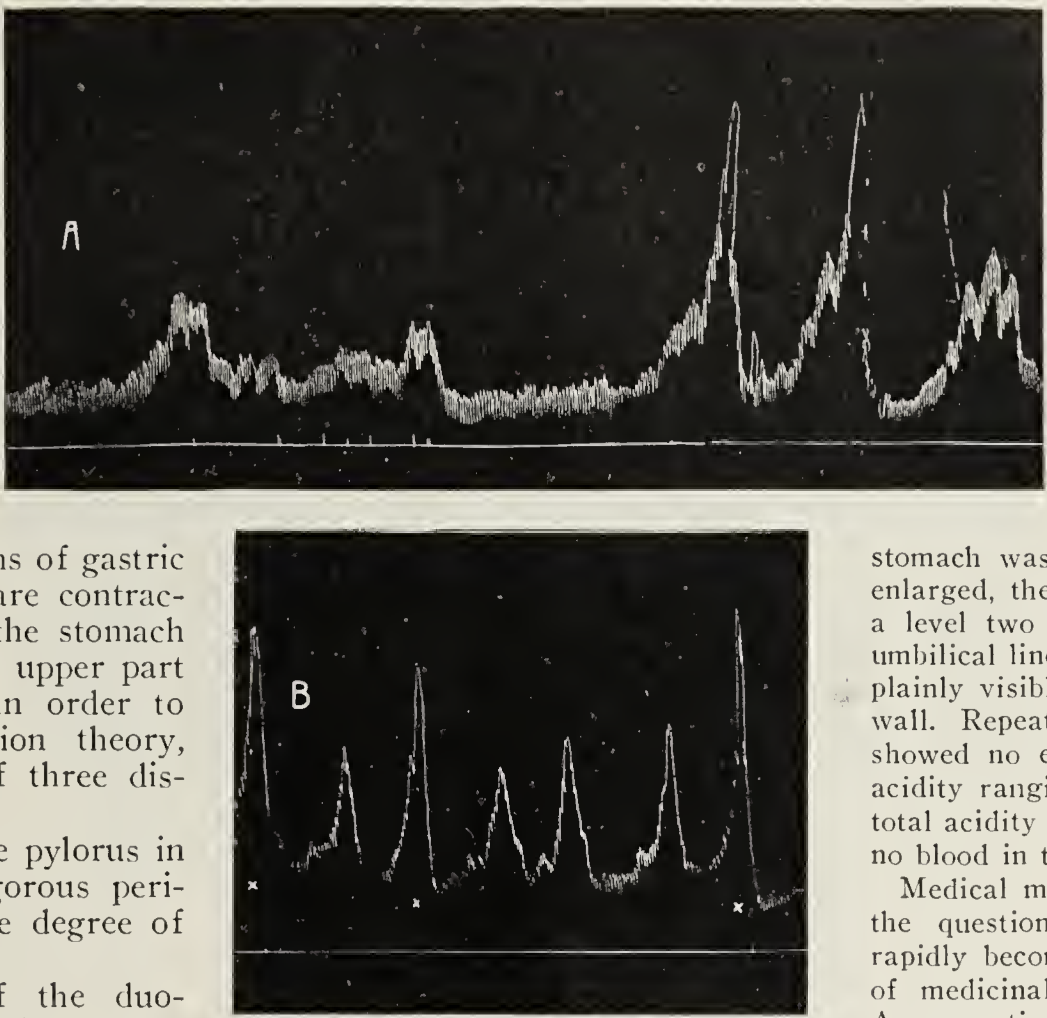

Fig. 1 (Case 1).—Record of the visible peristalsis, Feb. 20, 1917, by means of a recording signal (straight line at bottom of tracings) parallel with the recording of the contractions of the stomach by the balloon method, with the use of a chloroform manometer: *A*, two hours after the patient had eaten soup, milk, potatoes, beans, bread, tea and ice cream; *B*, after the aspiration of 700 c.c. of food material with a free acidity of 40 and a total acidity of 65. These tracings show that in healed ulcer of the duodenum or pylorus, with high grade obstruction, the contractions of the stomach are not painful.

### METHOD

The patients employed for this work were carefully examined and diagnosed clinically by Dr. B. W. Sippy and his assistants. After the diagnosis was made, the procedure was similar to that of Ginsburg, Tumpowsky and Hamburger. Kymographic tracings of the stomach contraction were begun immediately after the patient had a meal, and were continued until vigorous hunger peristalsis was obtained. The patients all cooperated very intelligently. In each case the patient swallowed two tubes, one a Rehfuss and the other an ordinary tube with rubber balloon attached. By means of the Rehfuss tube, acids and alkalis could be administered, or the stomach contents could be aspirated from time to time without disturbing the patient. When the tracings were started, the patient was told to tap the key, to note the occurrence of pain. If the pains were mild, he tapped the key once; if severe he tapped it twice, and when intense he tapped it three times. The line below the tracings records the pain periods.

### REPORT OF CASES

CASE 1.—A boy, aged 17, gave a typical history of gastric ulcer which began about eight years previous to admission. The pain had been present at irregular intervals for about five years after the onset. But during the three years previous to admission, the pains had practically disappeared, and obstructive symptoms developed. When the patient entered the hospital, Feb. 3, 1917, he had the symptoms compatible with a high grade obstruction at the outlet of the stomach. Practically no food could pass beyond the pyloric outlet. The stomach was found to be very much enlarged, the lower border coming to a level two fingerbreadths below the umbilical line. Peristaltic waves were plainly visible through the abdominal wall. Repeated stomach analysis showed no evidence of blood, a free acidity ranging from 40 to 65, and a total acidity from 50 to 90. There was no blood in the stool.

Medical management seemed out of the question because the boy was rapidly becoming dehydrated in spite of medicinal and dietetic measures. An operation was performed and a cicatrix found at the outlet of the stomach involving a portion of the upper part of the duodenum and lower part of the pylorus. There was no evidence of an active process. Tracings (Fig. 1) were obtained previous to the operation, and vigorous peristalsis was recorded. In no instance were the peristaltic contractions associated with pain. The more vigorous were obtained when the stomach contained large quantities of food and liquid which could not pass beyond the pylorus. The contractions of the empty stomach were also exaggerated but not painful.

CASE 2.—The case described here is one which is typical of four others of this group. The patient, a man, aged 47, entered the hospital, March 5, 1917, with a typical history of gastric ulcer of about one year's duration. The distress came from two to four hours after eating, and was relieved by the taking of food or alkalis. The pains were usually more severe in the afternoon, but occasionally the patient was awaked in the middle of the night by the distress. On careful questioning, we find that the pains were intermittent in character and not continuous.

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[1] Ginsburg, Harry; Tumpowsky, Isidor, and Hamburger, W. W.: Contribution to the Physiology of the Stomach: The Newer Interpretation of the Gastric Pain in Chronic Ulcer, THE JOURNAL A. M. A., Sept. 30, 1916, pp. 990-994.

[2] Sippy, B. W.: Medical Cure of Gastric and Duodenal Ulcer by an Efficient Removal of Gastric Juice Corrosion, THE JOURNAL A. M. A., May 15, 1915, pp. 1625-1630.

[3] Carlson, A. J.: Am. Jour. Physiol., 1917, **45**, 81.

Two complete series of tracings were obtained which were begun immediately after the eating of a large meal and continued until intense pains were experienced. The results of the two experiments were practically identical. No pains were experienced during the first two or three hours after eating, but fractional distillations of gastric juice at this time revealed a free acidity of from 30 to 40, and a total acidity of from 50 to 60. The digestive peristalsis was plainly visible on the records at this time, but nothing to indicate the painful pylorospasm or hunger peristalsis (Fig. 2 *A*). Three hours after eating, the patient complained of severe pain (Fig. 2 *B*). Sixty c.c. of 0.3 per cent. hydrochloric acid was administered, which gave temporary relief (Fig. 2 *C*).

Five hours after eating, the patient complained of a great deal of epigastric distress, which was of a burning, gnawing character, and as the records show, also intermittent. The pains were more severe toward the end of a hunger contraction. The patient was aspirated, and 25 c.c. of thick mucus were withdrawn. No free acid was present, and only a trace of combined acidity. Immediately after aspiration, the pain disappeared for about ten minutes. The stomach was then washed, and the pains again disappeared. One and a half hours after it had been washed, the pains were quite severe and the stomach was again aspirated. The aspiration yielded 55 c.c. of fluid which had a free acidity of 55 and a total acidity of 70. The pains were severe at this time, but the contractions were also augmented.

During one of the painful periods a powder, containing 30 grains each of bismuth and sodium bicarbonate, was administered through the tube and gave almost instant relief. No pains were experienced for the next hour and a half, and the stomach was practically quiescent (Fig. 2 *D*). At the end of this period, the stomach was aspirated and 55 c.c. of a yellowish green material were obtained which had a free acidity of 65 and a total acidity of 75. Ten minutes after aspiration, the pains returned and were more intense than on any previous occasion. The vigorous peristalsis of the stomach returned, synchronous with the return of the pain (Fig. 2 *E*).

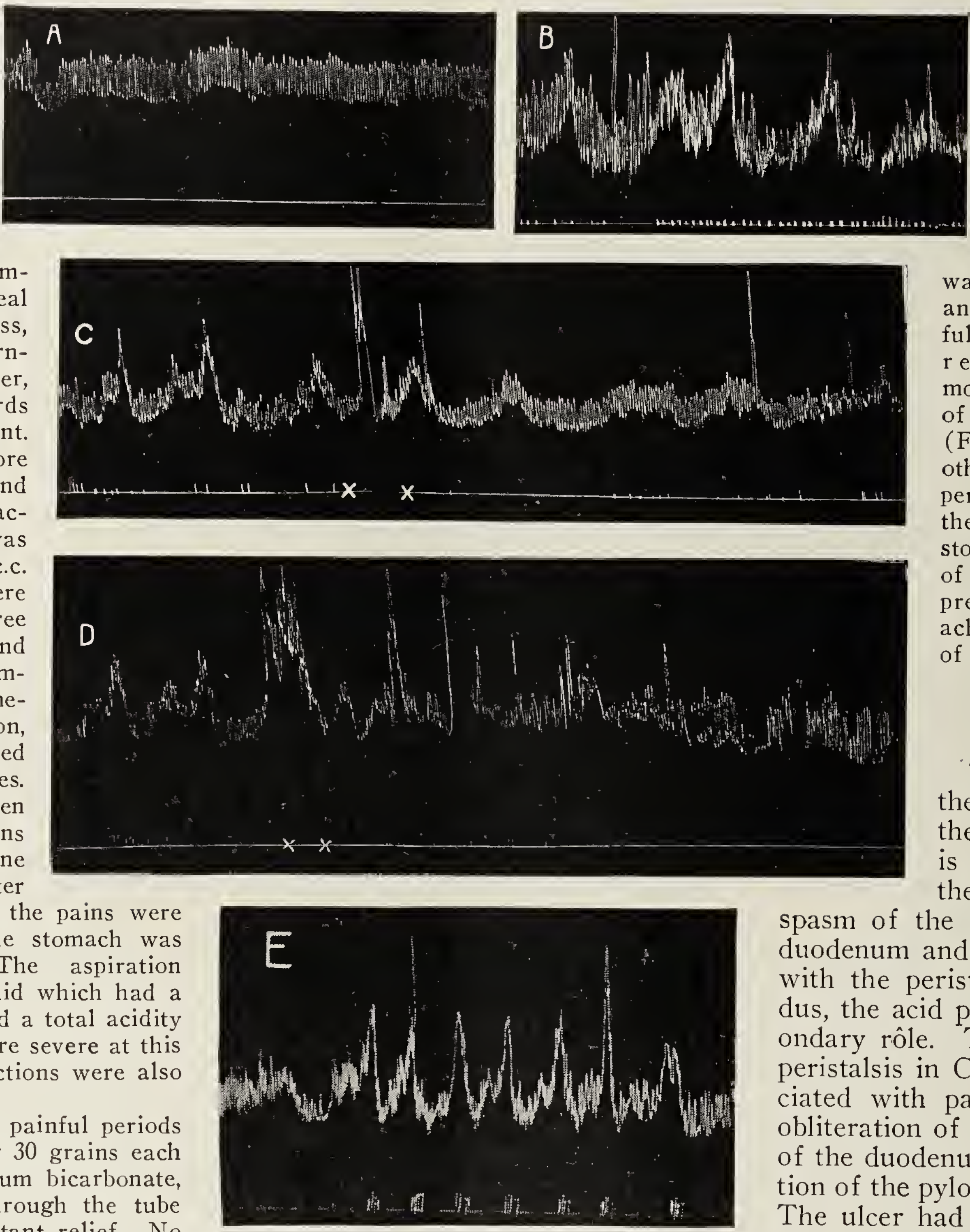

Fig. 2 (Case 2).—Record of the pain in case of gastric ulcer, March 13, 1917: *A*, one hour after the patient had eaten meat, potatoes, vegetables, bread, butter and tea; no pains; stomach contents showed a free acidity of 30 and a total acidity of 50; *B*, three hours after eating (intense pains); stomach contents showed a free acidity of 35 and a total acidity of 60; *C*, 60 c.c. of 0.3 per cent. hydrochloric acid were introduced into the stomach through a tube; *D*, at *x*, sodium bicarbonate and magnesium carbonate, 30 grains each, were introduced into the stomach through the tube; pain ceased five minutes after administration of the alkalis; the stomach was aspirated one and a half hours later, and 55 c.c. of fluid with a free acidity of 65 and a total of 75 were removed; *E*, ten minutes after the aspiration, the contractions became vigorous and the pains returned.

Case 3.—A man, aged 67, was first admitted to the hospital, April 1, 1916, at which time a diagnosis of peptic ulcer of the duodenum was made. He left the hospital, June 13, 1916, apparently very much improved. At that time repeated stomach analyses showed a free acidity of 70 and a total acidity of 110, with an occasional weak positive Weber test. The stools also showed a weak positive Weber test. He returned again, Feb. 25, 1917, very much undernourished, and with all of the classical symptoms of high grade pyloric obstruction. Peristaltic waves were visible in the upper abdomen and as low as half way between the umbilicus and symphysis. The patient was rapidly losing weight, and an operation was performed under a local anesthetic. Carcinoma was found at the outlet of the pylorus. Gastro-enterostomy was performed, and the patient recovered. A number of tracings previous to operation were obtained which revealed the following facts:

There was a hyperperistalsis of the stomach. The digestive peristalsis as seen in the normal individual was greatly augmented, and found to be painful. The pains, as the records show, were most severe at the end of the peristaltic wave (Fig. 3 *A* and *B*). In other words, when the peristalsis had reached the pyloric end of the stomach, the same type of peristalsis was also present when the stomach had been aspirated of its food contents.

## COMMENT ON RESULTS

The results further substantiate the theory that the pain is mainly due to the contraction or spasm of the upper end of the duodenum and pylorus, together with the peristalsis of the fundus, the acid playing only a secondary rôle. That the vigorous peristalsis in Case 1 is not associated with pain is due to the obliteration of the upper portion of the duodenum and lower portion of the pylorus by scar tissue. The ulcer had healed and there was no longer an active hyperirritable process to produce a duodenopylorospasm. The increase in the tension and the hyperperistalsis of the fundus were not sufficient to produce typical gastric pains. This peristalsis is merely intensified digestive peristalsis, which is not subjective in character in the absence of an active hyperesthetic process.

## DISCUSSION ON CAUSE OF GASTRIC PAIN

In the normal stomach, as digestion continues and the stomach gradually empties itself, there is an increasing tonus together with a low degree of hyperirritability, which culminates in hunger pains.[4] When there is an active ulcer, or carcinoma at the outlet, these normal processes are intensified and we have distinct gastric pains. If the pain were due to acid corrosion, we would expect that when the stomach contents were sufficiently acid (free acidity from 30 to 50 and total acidity from 40 to 70) pain would be experienced; but the results in Case 2 do not support this theory. When the stomach was relatively quiescent (Fig. 2 *A*) and the stomach contents had a free acidity of 30 and a total acidity of 50, the patient did not complain of pain. Two hours later, with only a slight variation in acidity (free, 35, total, 60) and with marked peristalsis, he complained of severe epigastric pains (Fig. 2 *B*). These pains were temporarily relieved by a 0.3 per cent. hydrochloric acid solution, and the contractions were slightly diminished.

The action of the alkalis in relieving pain is due not merely to the neutralizing of the acid content, but also to their inhibitory action on the contractions of the stomach. The alkalis act partly through a sedative effect on the stomach, in which the vigorous peristalses and painful pylorospasms are inhibited. The neutralization of the acid is probably a minor factor in the relief of pain, as is shown in Figure 2 *E*. The alkalis relieved the pain for one and a half hours, after which the stomach was aspirated of 55 c.c. of fluid, with a free acidity of 65 and a total acidity of 75. Ten minutes after 55 c.c. of acid had been aspirated, pains became more severe than on any previous occasion, and continued until the stomach was washed. The pains returned one hour after the stomach had been washed. The stomach analysis showed this time 55 c.c. of a watery mucus with a free acidity of 60 and a total acidity of 70. The ulcer pain is apparently independent of the variations in acid concentration. There may be intense intermittent pains synchronous with the contractions with no free acid in the stomach. The stomach contents may be highly acid without causing pain.

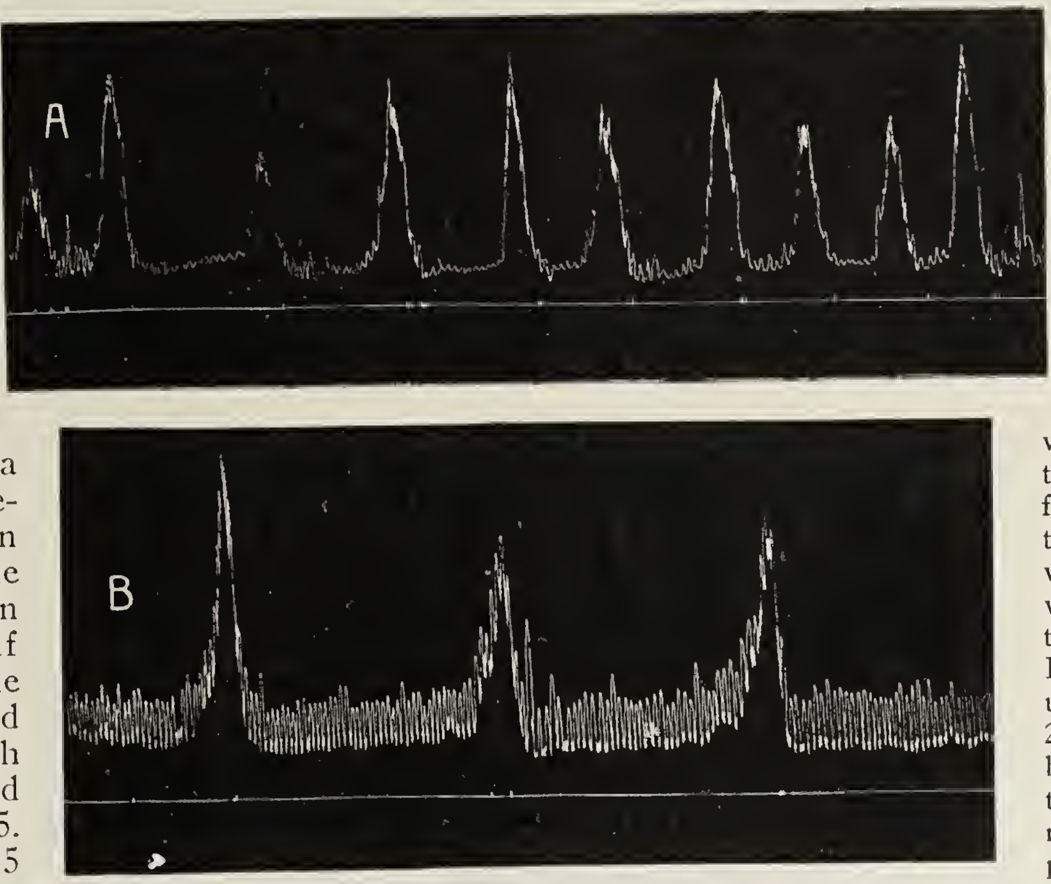

Fig. 3 (Case 3).—Record of the pain in a case of carcinoma of the pylorus, Feb. 22, 1917: *A*, one and a half hours after the patient had eaten toast, milk, egg, soup and cereal; the pain usually occurred toward the end of the contraction; *B*, two hours after the aspiration of 1,300 c.c. of food material; the contractions and pains were present, but not so marked as in *A*.

Case 3 represents a high grade pyloric obstruction in which an active hyperirritable process is present. By means of the kymographic tracing, it was demonstrated, previous to operation, that an active process was present at the pylorus or upper duodenum. The patient invariably recorded pains (of varying intensity) toward the end of a contraction. The fact that pains were experienced when the stomach contained from 12 to 1,500 c.c. of food material, and that the pains were felt only when the peristalsis had reached the pylorus, led to the conclusion that an active process was present at the outlet. Operation confirmed the conclusion.

## CONCLUSIONS

1. Ulcer pains may be present in the absence of free acid, and may be temporarily relieved by a 0.3 per cent. hydrochloric acid solution.

2. Gastric ulcer pains may be absent in the presence of high acidity.

3. Any active process (ulcer or carcinoma) producing a hyperirritable condition may result in pain; but the pains are intermittent, being synchronous with the contractions of the stomach, pylorus or duodenum, and bearing no relation to the degree of acidity.

4. Hypertension and hyperperistalsis with high grade pyloric obstruction are not sufficient to produce pain in the absence of an active irritable process (ulcer or carcinoma).

**Malnutrition Among Schoolchildren.**—The bureau of child hygiene of the New York City Health Department has just completed a survey of 171,691 schoolchildren of the borough of Manattan. This figure was below the registration figures for the borough, as the survey was made during the intensely cold weather. The fact that the children came to school at this time would indicate that they were rather hardier than those not examined. The Dunfermline scale was used. Of those examined 29,781, or 17.3 per cent., belonged to the first class, that is, were perfectly normal from the nutritional point of view; 104,908, or 61.1 per cent., belonged to the second class; 31,718, or 18.5 per cent., to class three, the so-called borderline cases, and any pronounced change in their living conditions would undoubtedly have a distinct effect on their physical condition; 5,284, or 31 per cent., belonged to the fourth class, which was distinctly undernourished, and in need of immediate supervision and readjustment of life and environment. Of the children 6 years of age, 22.5 per cent. were undernourished. This undernourishment increased in percentage up to 9 years of age, at which 25.2 per cent. were found undernourished. Then followed a gradual decrease up to the age of 16 years, at which only 12.1 per cent. were found undernourished. The general proportion of actual undernourishment for the borough was 21.6 per cent. It was found that nationality played an important part in the consideration of the prevalence of malnutrition. Of the Italian children examined, 28.7 per cent. were found undernourished. The Italian children comprised 23 per cent. of the total number examined. The children from Russia and Poland, who comprised 26 per cent. of all the children examined, were found undernourished in 19.8 per cent. of the cases. The figures for immigrants from other countries ranged from 17 to 20 per cent.

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[4] Rogers, F. T., and Hardt, L. L. J.: Am. Jour. Physiol., 1915, **38**, 274-284.

# SPONTANEOUS RUPTURE OF CESAREAN SCAR

## REPORT OF TWO CASES

JOSEPH L. DeCOURCY, M.D.
CINCINNATI

While spontaneous rupture of the cesarean scar is not as rare as ordinarily supposed, occurring, as it does, in about 3 per cent. of all cases,[1] yet it is rare enough to occasion interest. For this reason, it may be worth while to report the following cases:

Case 1.—Mrs. H. A., aged 33, was admitted to my service at the Seton Hospital, Oct. 18, 1917. She gave a history of having had three pregnancies covering a period of ten years. Her first child was taken away by craniotomy, several attempts of high forceps having failed. The second was born alive with much difficulty and has since been mentally defective. The third child was delivered by cesarean section transperitoneally, June 4, 1916. In referring to the operative history of this case, I found that the incision was made into the placental site. This is of especial interest, since Spalding,[2] in a recent study of four cases, gave this as a possible cause of the weakening of the resulting scar.

The patient appeared to be in good health. She was 4 feet and 10 inches in height, and had been pregnant eight months, with neither signs nor history of tuberculosis or syphilis. Vaginal examination showed a contracted pelvis, especially in the anteroposterior diameter. The scar on the abdomen was scarcely noticeable and had apparently healed by first intention.

Fearing a possible rupture of the cesarean scar, I decided to perform the second cesarean operation, the following morning, and preparation was made accordingly. Throughout the night the patient seemed restless and vomited twice. At 8 o'clock the following morning, she experienced a severe pain in the abdomen and went into a state of collapse. She was immediately given a quarter grain of morphin and was taken to the operating room.

The abdomen was opened under local anesthesia and the child was found lying among the intestines with the membranes intact. The abdomen was filled with blood, and the uterus was laid wide open by a longitudinal tear corresponding to the previous cesarean scar, and, although contracted into the pelvis, it was bleeding profusely. Under mild ether inhalations, a rapid supravaginal hysterectomy was performed and the patient returned to bed. The postoperative course was very stormy, and although the patient apparently rallied from the shock, she never became rational. She died on the third day following the operation from general peritonitis.

Case 2.—I was called in consultation to the home of Mrs. M. A., aged 28, Oct. 25, 1916. The physician in attendance told me that she had been in labor about six hours and that the os had been fully dilated when she had suddenly experienced a terrific pain in her abdomen and had gone into a state of collapse. Six years previously, she had had one living child delivered by a transperitoneal cesarean section, because of a contracted pelvis.

When I first saw her, one-half hour after the apparent rupture, she had a subnormal temperature and a pulse so weak and rapid that it could not be counted. The child could be distinctly palpated and outlined lying in the abdominal cavity, and vaginal examination revealed the uterus contracted into the pelvis.

The patient was immediately sent to the hospital, but was dead before she reached it. On her arrival, the abdomen was opened with hopes of resuscitating the child, but the effort was futile. The child was lying among the intestines with the membranes ruptured. The placenta was found in the pelvis extruding from the ruptured uterus. The abdomen was filled with blood.

### COMMENT

The first of these cases is exceptionally interesting because of the early rupture and its occurrence at the end of the eighth month. The second case is interesting because of the long period, six years, since the patient's previous cesarean section.

In each of these cases, the incisions in the abdomen were unusually large for the cesarean operation, and although the tears in the uterus may have extended beyond the previous scar, they were unusually long, extending well over the posterior surface of the fundus.

In these two cases it was impressed on me that a comparatively small incision into the uterus in a cesarean operation is of advantage, and also that when a second cesarean operation is considered advisable in a patient having a cesarean scar, the operation should be performed not later than the end of the eighth month. For at this time, the life of the child will not be jeopardized, and the possibility of rupture up to this time is comparatively small.

827 West Eighth Street.

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[1] 1. Rongy, A. J.: Am. Jour. Obst., 1916, **74**, 954.

[2] 2. Spalding, A. B.: Cesarean Section Scars, The Journal A. M. A., Dec. 1, 1917, p. 1847.

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# NEUTRAL SOLUTION OF CHLORINATED SODA (DAKIN'S SOLUTION) IN THE NORMAL PERITONEAL CAVITY

## AN EXPERIMENTAL STUDY *

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The purpose of this research was to determine whether or not neutral solution of chlorinated soda (Dakin's solution) could be used with safety in the peritoneal cavity. The series of experiments was begun with the sole idea of deciding this point for our own benefit, as we believed that other investigators more closely associated with the work would soon publish similar experiments. Since this has not been done, we thought it might be of value briefly to give our results.[1]

All of the experiments were performed on dogs. In some cases the animals were etherized and the effect of the injection of the solution on the blood pressure was noted. In other experiments, the symptoms produced by the injection on the normal animal were studied.

The solution was made fresh for each day's experiments except in those cases in which it was desired to observe the effect of an old preparation, and the hypochlorite concentrate varied between 0.45 and 0.50 per cent. and was neutral.

The usual effect of an intraperitoneal injection of a fresh preparation of Dakin's solution into an etherized dog is an immediate and marked drop in blood pressure, which progresses until it becomes quite low. This result is, of course, more marked when large amounts (300 c.c.) of the solution are employed, but also occurs at times with relatively small quantities. Usually, however, when small amounts (10 c.c.) are used, the blood pressure is at first slightly increased but is soon followed by a decrease. It may or may not return to normal (Experiments 212-17 and 253-17, and Fig. 1).

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* From the Mayo Clinic.

* On account of lack of space the details of animal experiments are omitted. They appear in the author's reprints of the article.

[1] 1. It should be emphasized that no conclusions are drawn either in regard to the use of Dakin's solution or the employment of the Carrell-Dakin method of wound treatment.

The first effect produced by the intraperitoneal injection of Dakin's solution in an unanesthetized dog is evidence of pain. This has been elicited with as small an amount as the first 2 c.c. of an injection. The animal develops a marked abdominal rigidity, spontaneously passes feces and urine, vomits, and becomes very restless. When the injection has been relatively small (10 c.c.), the effects gradually decrease, and may have practically disappeared within an hour or two. When larger amounts are injected, the animal may be restless until death occurs.

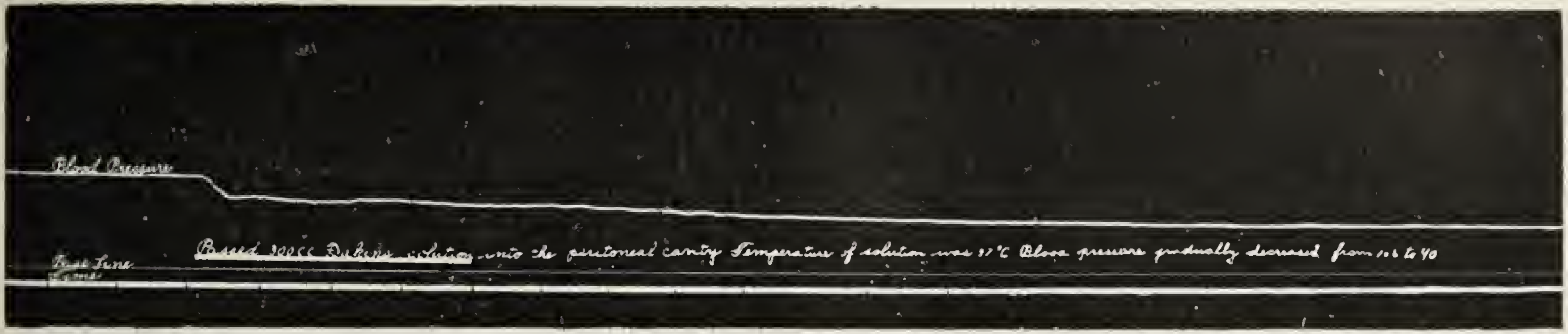

Fig. 1 (Experiment 253-17).—Kymograph record showing the effect of the injection of Dakin's solution on blood pressure.

At the necropsy of a dog dying after the intraperitoneal injection of Dakin's solution, three changes are always noted. The peritoneal cavity and usually the pleural cavities contain a dark blood-stained fluid. There may be quite large amounts of this fluid present. The omentum and the intestine are perforated with numerous holes, and in some cases only the large blood vessels of these structures remain. The parietal peritoneum on the side on which the animal has lain is edematous.

The effect of the injection of Dakin's solution into the pleural cavity is practically negligible both in the anesthetized and in the unanesthetized animal. Of course, owing to the mechanics of the thorax, only relatively small amounts of the solution can be injected. Blood pressure is only slightly affected; the animal does not show signs of pain. In one dog, 20 c.c. of the solution injected into the right pleural cavity did not produce any noticeable effect, while 5 c.c. injected intraperitoneally produced a marked reaction (Experiment 290-17).

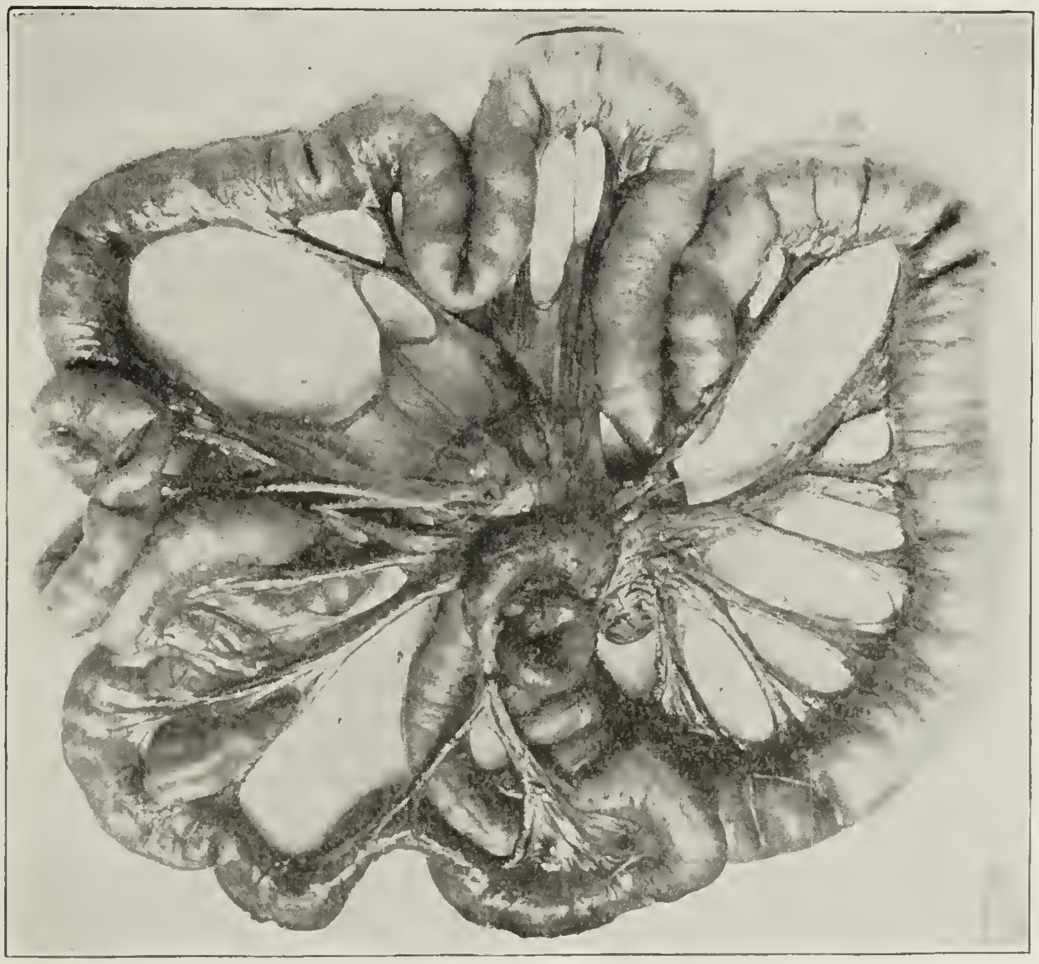

Fig. 2 (Experiment 212-17).—Intestine and mesentery after an intraperitoneal injection of Dakin's solution.

The intravenous injection of Dakin's solution in the dog is comparatively not very dangerous. Carrel and Dehelly[2] state that the solution is very dangerous when injected into the general circulation of rabbits. The only changes noted were increased coagulation time and a laking of the blood, which assumes a very dark color. Blood pressure is only slightly affected by doses which produce a marked reaction when injected intraperitoneally. The intravenous injection of 180 c.c. in 30 c.c. doses every half hour did not produce any other changes except those noted as affecting the blood (Experiment 319-17).

In one series of experiments the effect of an old preparation of Dakin's solution was studied. After the usual results had been obtained with the fresh solution, the remaining portion was tightly corked in an amber-colored bottle and placed in a dark room in which the temperature was not more than 20 C. The effect of the intraperitoneal injection of a solution kept under such conditions for three or four days was practically negligible.

## CONCLUSIONS

1. The intraperitoneal injection of various amounts of Dakin's solution in the dog produces (*a*) decrease in blood pressure, (*b*) pain, (*c*) marked serous exudate, (*d*) erosion and perforation of the omentum and mesentery, and (*e*) with rather large amounts, eventually death.

2. The injection of Dakin's solution into the pleural cavity, in amounts too small to produce a mechanical action, is without noticeable effect.

3. The intravenous injection of Dakin's solution in amounts large enough to produce a marked reaction

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[2] Carrel, Alexis, and Dehelly, D.: The Treatment of Infected Wounds, New York, Paul B. Hoeber, 1917, p. 32.

when injected into the abdominal cavity, does not produce any general effect. When large injections are employed, the blood is laked and the coagulation time is greatly increased.

4. An amount of solution which is practically innocuous in either the pleural cavity or vascular system will produce quite marked effects when injected into the peritoneal cavity.

5. Only fresh preparations produce this response when injected intraperitoneally.

6. These conclusions apply only in regard to the action of Dakin's solution in the normal peritoneal cavity.

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# MALPOSITION OF THE DESCENDING COLON

## REPORT OF CASE

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LOS ANGELES

*History.*—Mrs. W. K. P., aged 59, 5 feet 9 inches tall, and weighing 160 pounds, came under my care in November, 1917. About twenty-five years before she had had an operation on the pelvic organs. Following this, according to her own account, her convalescence was stormy and prolonged. Gradually she began to note that she became more and more constipated, and abdominal tenderness was felt, which was general rather than localized. Some four years before she had had a number of attacks of pain referable to the right iliac fossa, none of which were severe enough to put her in bed. About this time she began to suffer with a mild form of mucous colitis, which persisted, gradually increasing in severity, until the time I first visited her. By nature she was of high-strung nervous type, and these features had increased as time passed, until she had become a pronounced neurasthenic.

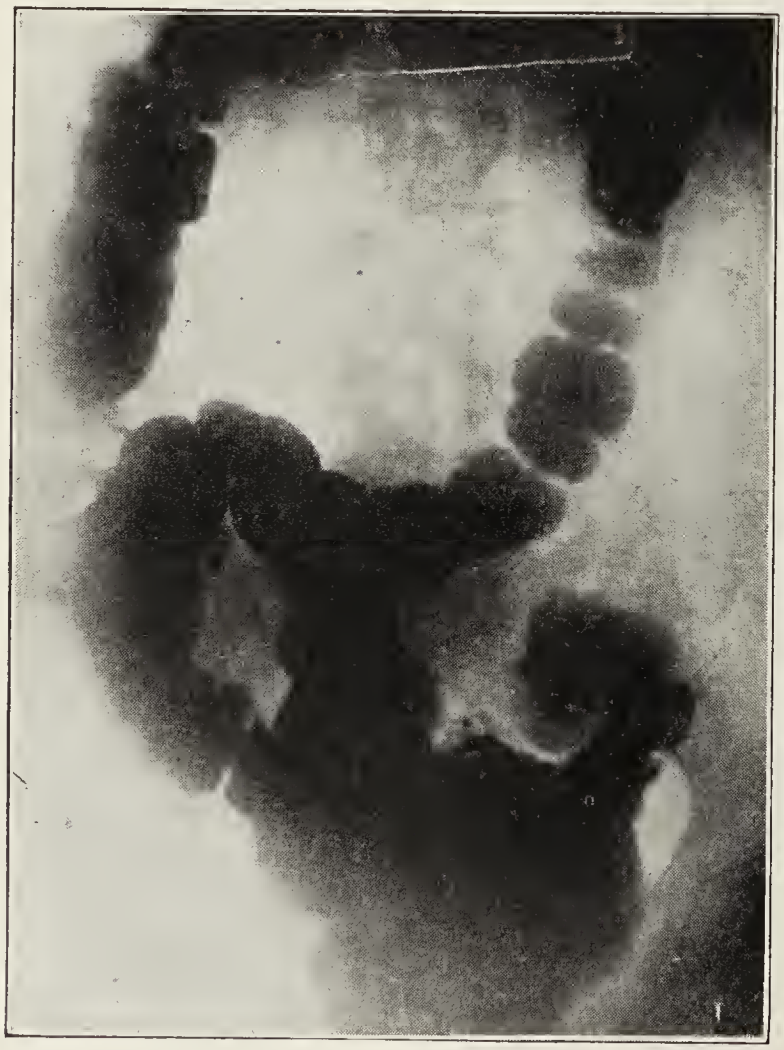

Fig. 1.—Colon, thirty hours after ingestion of bismuth meal.

In November, 1916, she had a violent attack of abdominal pain, which was diagnosed by her attending physician, in consultation with a competent surgeon, as acute appendicitis. Owing to conditions with which I am not fully acquainted, it was thought best not to operate at that time. She remained constantly in bed for several months, and following her arrival in California in March, 1917, was in bed most of the time for the subsequent seven months. During this time she had received much treatment in the line of abdominal massage, fomentations, and applications of "radiant heat"—so much so that the skin of the abdomen was extensively mottled and discolored. Much of the time spent in bed since her arrival in California had been utilized by the attendants in vain attempts to keep the alimentary canal comfortably free of solid and gaseous contents. It is of interest to note here that it was much easier to secure the passage of solid material than of gas.

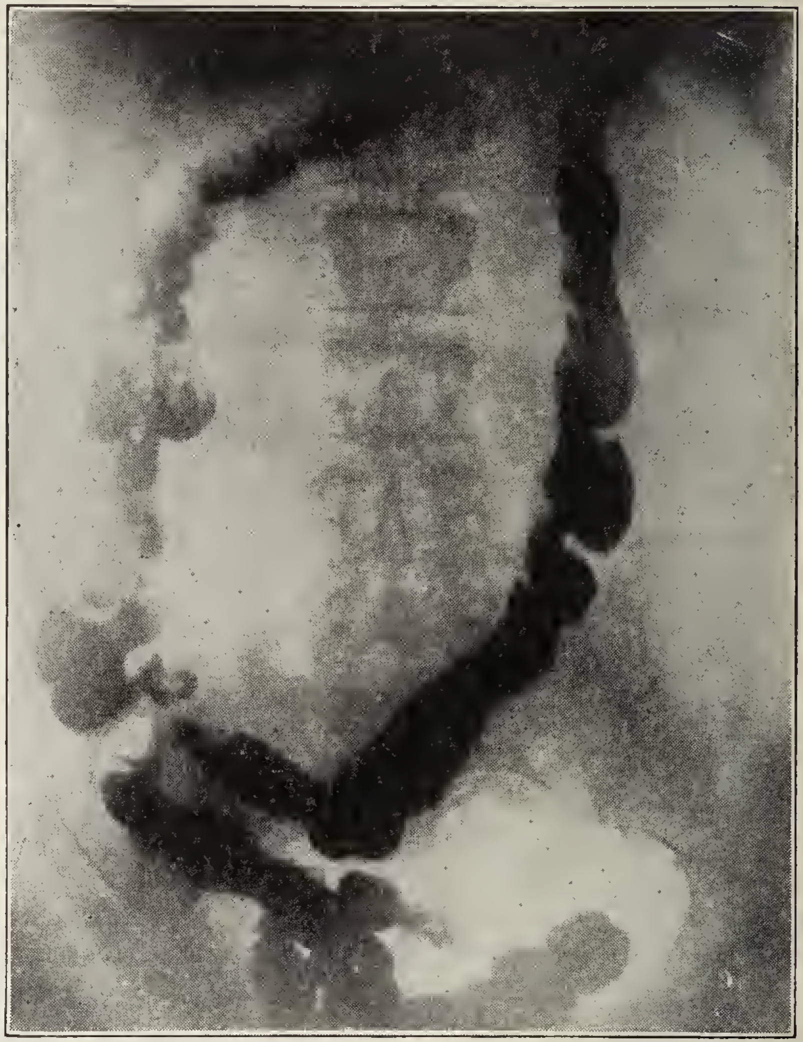

Fig. 2.—Colon, after an opaque enema, on the day after Figure 1 was taken.

*Examination.*—So great were the abdominal distention and the general tenderness that it was impossible to make anything like a satisfactory physical examination. There were unmistakable rigidity of the right rectus muscle and hypersensitiveness of the abdomen over all portions. The patient at this time was profoundly neurotic, nervous and highly excitable. After much hesitation she consented to visit a roentgen-ray laboratory. Figure 1 was made thirty hours after the ingestion of the bismuth meal. Figure 2 was made the following day after an opaque enema.

It will be noted that the position of the colon in the two illustrations is practically the same, the descending colon lying much nearer the midline throughout its course than the ascending colon, and its point of mergence into the sigmoid being pulled entirely across the abdominal cavity and tightly adherent to the cecum. When we recall that in approximately only 20 per cent. of cases is the descending colon provided with a mesentery of any length, it is apparent that in this case the development of the mesentery was so great as to mark it as being most unusual.

*Operation and Result.*—Nov. 28, 1917, through a long right rectus incision, the conditions about the cecum were first investigated. Dense bands of adhesions passed in every direction from this focus, entirely burying the appendix, with the exception of about three-quarters inch of its distal extremity. Not only was the terminal end of the descending colon found tightly adherent to the cecum, as shown in the illustrations, its lumen being contracted probably one half, but also dense bands of adhesions radiated in every direction, one of these passing over to and being tightly adherent to the terminal ileum about 2 inches from its junction with the cecum, forming a typical Lane's kink and resulting in marked obstruction at this point. When the adhesions binding the descending colon or sigmoidocolonic junction in its false position were released, the problem presented itself as to what precaution would best prevent recurrence. The best solution of the problem seemed to be to carry the descending colon across the abdomen and fix it in approximately its normal position by means of a colopexy through a second incision in the external edge of the left rectus muscle. This was done. The adhesive bands about the cecum were dealt with as radically as seemed wise at the time, and the appendix was freed and removed. The hand, passed into the pelvis, found the great omentum tightly adherent at the site of the abdominal incision made a quarter of a century previously. This was released, and a good portion of the omentum ligated and cut away.

The convalescence from a surgical standpoint was without incident, with the exception of the onset of an acute attack of left parotitis beginning about eighteen hours subsequent to the operation. It must be noted, however, that the patient's morale was far from satisfactory during the first ten days. Her constant complaint was that she had not been allowed to die. Now, two months after the operation, her condition in every way is most satisfactory, the mucous colitis being practically eliminated, the highly wrought nervous tension being no longer in evidence, and the gaseous distention and constipation no longer giving trouble.

### COMMENT

Several features of this case, in addition to the malposition of the colon, seem interesting enough to be worthy of comment:

1. Partial obstruction was more pronounced with reference to gas than to solid material.
2. The mucous colitis was almost magically relieved, thus again emphasizing what I have long maintained, that this malady is practically always the result of mechanical causes, usually operating from outside the colon.
3. A curious feature was that when the patient suffered the acute attack of appendicitis in November, 1916, it was attended by a violent attack of inflammation of the right parotid gland; eighteen hours subsequent to the operation on the appendix she developed a similar violent attack involving the gland of the left side.

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**Supplies for Halifax.**—Among the requests for assistance in the early hours after the disaster at Halifax was one for a million units of "antipneumonia serum." This request was made of the civilian branch of the American Red Cross, and within a few hours all the available product in the United States was on the way to Halifax. This serum is a comparatively new agent for the treatment of pneumonia and the supply in the United States was of course insufficient to meet this large demand. The *Survey*, December 15, gives an interesting account of the way in which this call on the biologic product houses was met, as well as information of the prompt response to the needs of the suffering people of Halifax in the way of clothing, cots, blankets, bandages and dressings for the wounded, lumber, glass and other building materials. Supplies and money poured in on the stricken city in such abundance that in a few days those in charge of the situation were compelled to request that additional material be not sent except on specific requests.

## *Clinical Notes, Suggestions, and New Instruments*

### REOPERATION OF INCOMPLETE SUBMUCOUS RESECTION OF THE NASAL SEPTUM

G. W. Mosher, M.D., Chicago

In the early days of submucous resection for septal deformities, and in more recent times, on account of the clinician's failure to appreciate the importance of deflections and thickenings of the upper part of the septum, many incomplete operations were done. These operations may be classified as follows:

A. The procedures of crushing and repositioning, as in the Asch and Gleason operations.

B. The removal of spurs and ridges by various means, leaving a complete bony and cartilaginous wall between the two membranes.

C. The submucous removal of a portion of the bone and cartilage at the most prominent part of the obstruction, producing a window where the membranes become adherent to each other.

D. A combination of B and C.

In a considerable percentage of cases, the results from these measures are not satisfactory and the patients later seek further relief. In Classes A and B, the technic for the second operation is the same as for a case in which no operation had been performed, although the derangement of relations and the presence of scar tissue render the work more difficult. The problem of Classes C and D is somewhat different.

Formerly, I endeavored to separate the adherent membranes and do a typical submucous resection. In practically every case, some tearing occurred, and in too many cases both membranes suffered and perforation resulted. Recently I have adopted the following method, which has thus far proved perfectly satisfactory: I use the Killian incision on the convex side, elevate the membrane as completely as possible without disturbing the part attached to the opposite membrane, incise the cartilage anterior to the old window, and elevate the other membrane. I use a Freer knife or sharp elevator and, working from within outward to the side of the first incision, cut as clearly as possible around the adherent mucosa, leaving it attached to the other mucosa, thus making a corresponding hole in the incised membrane. I complete the elevation of the membranes and finish the operation as in an uncomplicated case.

By this method of procedure, the membrane on the concave side can be kept intact almost as easily as in a typical case, while the membrane on the convex side has only the original incision and a comparatively clean incision about the adherent portion. As a consequence, there is a minimum of traumatism. Healing is little, if any, slower than in an uncomplicated case, and the final result is comparable to that of a typical primary operation.

25 East Washington Street.

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### IMPROVED METHOD FOR REFILLING IN ARTIFICIAL PNEUMOTHORAX

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For some little time I have been refilling my patients treated by artificial pneumothorax by a more satisfactory method than I had heretofore used.

I have been using a 20 gage, 1¼ inch steel needle for injecting the cocain, and have then attached to the needle, after the syringe has been removed, a tuberculin syringe which has been previously attached to the rubber tubing from the bottle containing the air to be used, the air having been passed through a solution of mercuric chlorid for sterilization.

While the caliber of this needle is much smaller than that of the Shortle refill needle, the oscillations of the manometer have been very satisfactory.

This method renders the operation relatively simple and harmless, in that a knife is not used, and the pleura is punctured only once, when the cocain is injected.

The air does not enter the pleural cavity so rapidly, there is practically no tissue injury, bleeding nor subcutaneous emphysema, and the danger of pleural shock and embolism are practically eliminated.

Patients who have tried both methods are enthusiastic in their praises of the new method, as there is no more discomfort than in a hypodermic injection.

# *Military Medicine and Surgery*

## ARMY CARDIOVASCULAR EXAMINATIONS

### A CLASSIFICATION OF ABNORMALITIES WITH REFERENCE TO REJECTION, ACCEPTANCE, OR SPECIAL SERVICE OF RECRUITS

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The work on which these comments are based was in two parts: The first part was a final cardiovascular survey of about 25,000 national guardsmen at Pelham Bay and Camp Mills, both of which were tent camps, requiring about six weeks for its performance. The guardsmen were also examined for tuberculosis, but I confine this paper to the heart work. The second part of the work was the service rendered by my colleagues and myself as members of the cardiovascular consulting board at Camp Upton, a cantonment of the National Army, during a period of four weeks covering the arrival of the fourth increment of the first draft.

### METHODS OF EXAMINATION

At Pelham Bay and Camp Mills the number of examiners varied from five to twelve, according to need. The necessity was great, and in both camps the work was pushed with the utmost speed, under the command of Major L. A. Conner, M. R. C.

Permission was obtained to use one of the large Red Triangle tents. The troops were examined by companies, each containing about 250 men or similar units, officers first. The enlisted men then entered at one end of the tent and were formed in two lines, each in charge of a noncommissioned officer, whose duties were to preserve order, prevent smoking and loud talking, and to see that each man stripped to the waist and carried his clothes on his arm. He also saw to it that at least two men were constantly in front of each examiner, so that when one man had been examined, the next immediately stepped forward. As each man finished, he passed out at the farther end of the tent. The examiners were stationed along each side of the farther half of the tent. In the middle was a table at which sat two clerks, each with a roster of the company. Here also were benches for rejected men and doubtful cases. As each man was examined, he reported "O. K." to the nearest clerk, or was sent to the benches for further examination. In the latter case, the examiner usually made a brief note which was sent to the ranking medical officer, who acted as referee. It was only by this careful attention to detail that the requisite speed could be obtained.

While the company or other unit was passing through the tent, the papers of those unquestionably rejected were made out. The doubtful cases were then examined by at least three, and if of special interest, by nearly all, of the examiners. The decision of the ranking officer was, of course, final. In this manner a team of from ten to twelve examiners put through about 1,000 men a day, the work including auscultation for active tuberculosis. Percussion was always difficult, and sometimes impossible, because of the unavoidable noise and confusion incident to the voluntary coughing required to elicit râles. Each one of the team averaged from ninety to a hundred men per day—too many for the best results.

The hours of work were from 9 to 5, with an intermission for lunch. Six and one-half hours may not seem long, but the examiners were constantly on their feet, and engaged in intensive work Going so rapidly, they found it necessary to concentrate their attention to the utmost in order not to miss something which ought not to be missed. At times the examiner would draw out an empty diagnostic net fifty or a hundred times in succession, and begin to doubt his own faculties. On one occasion, however, an examiner found two aortic insufficiencies, one following the other, after which he regained a little self-confidence.

It was usually possible to devote a little more than three minutes to each man, for both heart and lungs. The routine followed by most of us was to locate the apex by palpation, observe the general shape of the thorax, look for enlargement of the thyroid, percuss the right and left second interspaces, and scrutinize the neck, the upper sternal region, and the precordium for abnormal pulsations. The last step was to auscultate, in succession, the cardiac apex, the second interspaces to the right and left of the sternum, and the third left costosternal junction, the last being auscultated while breathing was suspended, especially for the soft diastolic murmur of aortic insufficiency. During auscultation we not only noted the presence of murmurs and adventitious sounds, but also carefully observed the character of the first sound, and the character and relative accentuation of the aortic and pulmonary closure sounds. If the heart action was rapid, its rate was counted. The wrist watch proved an extremely convenient article.

If any abnormality was found, unless indubitably negligible, the man was held for a more detailed examination. Observation of the effect of the recumbent position on murmurs, and of the effect of the exercise test on the heart and the respiration rate was most useful. The exercise test consisted in the recruits hopping on one foot 100 times. The pulse rate was taken before, and immediately after, the hops, and again two minutes later, at which time it should have come back to nearly normal, and the dyspnea should have largely subsided. Working in this fashion, and with persistent concentration, we hope that not many defective hearts escaped our observation.

The work at Camp Upton was of a somewhat different character. The cardiovascular consulting board consisted of Lieut. E. J. Riley, M. R. C., Dr. Tasker Howard, contract surgeon, and myself. We examined only those men who, while passing through the routine examination by the regular teams, were considered to require a special heart examination. Out of 10,850 drafted men, 340, or 3.1 per cent. were sent to us for judgment. Of this number, sixty, or 17.7 per cent., were rejected by us.

From time to time, it was necessary to recall men for reexamination on the next, or a subsequent, day. This occurred most frequently with the men suffering from tachycardia, occasionally in cases of extra systole or of poor response to the exercise test. Such a reexamination also proved most useful in a very few instances in which there was reason to suspect that a man had come primed to the minute with belladonna, to cause a tachycardia, or with digitalis, to simulate an organic heart-block, or auricular fibrillation, or coupled beats. There were some men, gratifyingly few, who had fought John Barleycorn the night before. A day or two of waiting cleared up a large percentage of such abnormal findings.

In general, it may be said that the conditions which had escaped observation in previous examinations—for all these men had been examined from one to three times—were hyperthyroidism, mitral stenosis, and aortic insufficiency. The diastolic murmur of the last condition, often extremely soft and almost inaudible, is the one bruit that can at times be heard by immediate auscultation, when it cannot be detected by the stethoscope. But after catching one of these shadowy diastolics, the examiner found it difficult not to hear it in the next three or four hearts. Thickened radials, with a normal blood pressure, were of frequent occurrence.

### STANDARDS ESTABLISHED

Until one examines a few thousand presumably normal hearts, one has no idea of the abnormalities that may be found, or of the difficulty that may be experienced in deciding whether they should be considered as cause for rejection, acceptance, record only, or for special service. It was a source of regret that, up to the end of our term, we were required either to accept, with or without record of findings, or to reject. We found, for instance, an architect, a draftsman, an artist, a printer, public accountant, and a number of stenographers and typists, who were not fit for full military duty, but who were perfectly able to carry on their habitual work. These we were obliged to reject at a time when there was an apparent need for them in Army work. But it has been stated that in the near future, the men will be either accepted, rejected, or assigned to special service.

The Surgeon-General has laid down some very definite rules for the guidance of cardiovascular examiners. The normal heart is defined as one with the apex impulse within the left nipple line and not below the fifth interspace, of normal, not heaving character, with normal sounds, without murmurs, without pulsation or dulness above the base of the heart, with regular pulse of normal rate, and with no unusual thickening of the arteries or evidences of high blood pressure; and finally it shows a normal response to the exercise test.

But there is a considerable number of abnormalities that do not furnish grounds for rejection, as well as those that do. Furthermore, there are abnormalities which in the future will allow a conditional acceptance of the recruit, but will require additional observation by the medical officers of each recruit's unit, in order to determine the effect of training.

From a practical point of view it has seemed useful to classify the abnormalities that may be found, in order to facilitate the making of the proper recommendation.

I. *Abnormalities requiring unconditional rejection.*—1. Hypertrophy sufficient to cause a heaving impulse to the left of the nipple line, or below the sixth rib, usually due to hypertension or valvular disease.

2. Diastolic murmurs at the apex or base.

3. Presystolic murmurs at the apex or base.

4. Systolic murmurs over the aortic area, if harsh and heard well up in the neck, or if associated with thrill, or with a markedly weak aortic closure sound.

5. Loud systolic murmurs audible at the apex and the back, if associated with hypertrophy, or snapping first sound, or accentuated pulmonic closure sound.

6. A loud, harsh, systolic murmur heard over the upper left chest, front and back, or associated with thrill during quiet breathing, as in congenital cardiac disease.

7. Considerable dilatation of the aorta, or

8. Slight dilatation of the aorta, with a positive Wassermann reaction. The presence of the dilatation is to be determined by roentgen-ray examination.

9. A pulse constantly more than 100, when the man is recumbent.

10. A persistent pulse rate of 50 or less, if heart-block is proved by tracings or electrocardiograms.

11. Extrasystoles, but only when very frequent and persistent, with poor response to exercise, as determined by watching the man during his training.

12. Complete and permanent irregularity of the pulse, in other words, auricular fibrillation.

13. A systolic blood pressure of 200 or more or a diastolic pressure of 120 or more, when the man is quietly recumbent.

14. Aneurysm in any vessel.

II. *Abnormalities permitting unconditional acceptance for full military service.*—1. Systolic apical murmurs, on excitement, especially when recumbent.

2. Systolic accentuation of the respiratory murmur, especially on inspiration, heard near the apex or over the back.

3. Systolic murmurs heard over the second and third left interspaces. With few exceptions these are accidental, and often disappear during full inspiration.

4. A slight systolic murmur over the second right intercostal space, when it is the only abnormal sign, and the response to exercise is normal and unattended with marked dyspnea or precordial distress.

5. Other systolic murmurs not attended by hypertrophy, alteration of the first sound, accentuated pulmonary closure sound, or abnormal response to exercise. These should be recorded, F. R. O.

6. Findings in accordance with the special order of the Surgeon-General's Office, War Department, Oct. 25, 1917, which direct that recruits who show loud systolic murmurs, audible at the apex and in the left back, if unassociated with any definite enlargement of the heart, or with snapping first sound, or accentuation of the pulmonic second sound, and in whom the response to exercise is normal, may be accepted for full military service, but that the physical sign present shall be entered on the record.

7. Slight dilatation of the aorta, determined by the roentgen ray, with a negative Wassermann reaction, if it is the only impairment, with no symptoms, and with a normal response to exercise.

8. Bradycardia with normal rhythm and normal response to exercise.

9. Extrasystoles, that is, premature contractions, if occasional, without hypertrophy, and with a normal response to exercise.

10. Sinus arrhythmia, that is, respiratory irregularity of the pulse.

11. Thickened arteries, without cardiac hypertrophy or high blood pressure, and with normal response to exercise.

12. Unusual findings, not covered by instructions, if there is no cardiac hypertrophy and if the response to exercise is normal.

III. *Abnormalities permitting acceptance, but to be reported to the camp surgeon with a request that the recruit be watched during training.*—1. Persistent extrasystoles, if only impairment.

2. History of attacks of severe tachycardia with dyspnea.

3. Normal heart, but with poor response to exercise, and with a past history of incapacity for physical exertion.

IV. *Abnormalities which permit a recommendation for special service requiring little bodily exertion.*—1. Dilatation of the aorta, or syphilitic aortitis, if without symptoms.

2. Systolic blood pressure more than 160, but less than 200; or a diastolic more than 100 and less than 120, if persistent.

3. Heart normal, but with the response to exercise impaired, and a past history of incapacity for bodily exertion.

### SIGNS OF VASOMOTOR INSTABILITY

The cases that gave us the greatest difficulty in decision were the tachycardias, with the pulse ranging from about 120, when the recruit was standing, up to 140, 160 or 180 after exercise. After a time we learned to separate these men into three groups:

1. The cases of purely nervous tachycardias, in easily disturbed persons. Some of the recruits had a history of a rapid pulse whenever examined. Some were excited for fear of rejection, and a very few for fear they would not be rejected. The tachycardias in these cases, as well as the rapid pulses due to exertion immediately before examination, were for the most part easily eliminated by a few minutes of quiet, with the recruit in a recumbent position, or if not by this, by a reexamination a day or two later.

2. The cases of tachycardia which showed a barely perceptible thyroid enlargement, slight tremor, moderate dermatographia, and other signs of vasomotor instability, but no eye symptoms. These were by far the most difficult to decide, and were very much more common than our civil practice would suggest. The majority of the men were of excellent physique and were keen for service, but were excitable and perhaps somewhat on the so-called neurasthenic order. Clinically, one would make a diagnosis of a mild hyperthyroidism, or beg the question of etiology by calling it vasomotor ataxia of unknown origin. It was so hard to decide about these men that on one occasion we had a special examination of a baker's dozen. Each one was examined by every member of the board at Camp Mills, and the question of acceptance or rejection voted on by the whole board for each subject. Most of the men were accepted, but the voting was by no means unanimous. This incident is mentioned simply to show that, even after a fairly large experience, there is room for difference of opinion in these puzzling cases.

Several of us believed, and still believe, that such men, desirable as they may be in all other respects, will not be able to stand the strain of service. This opinion has been voiced by Osler,[1] who, to use his own words, "sees the wastage of the recruiting office." He says: "The trenches are no place for the man with unstable vasomotors. In the strain of war they break like dry twigs, and become a heavy burden on the hospitals and convalescent homes. In all cases, when in doubt, give the country the benefit."

3. Exophthalmic goiter. When there was no doubt as to diagnosis, men with marked exophthalmic goiter were, and should be, rejected.

In this connection, it is of interest to mention the extraordinary prevalence of the plain cystic goiter in men from certain parts of the country, especially from the northern part of New York and from the other states bordering on the Great Lakes. Provided there were no evidences of hyperthyroidism, these men were nearly all accepted, but were made F. R. O.'s. A negligible few were not accepted because of certain symptoms following exercise, which indicated undue pressure on the trachea—a purely mechanical effect.

As to the tachycardias in general, it may safely be said that it is often impossible in one examination to distinguish with certainty between the nervous and the slight hyperthyroid cases. It should be the rule to reexamine after the lapse of one or more days—a week, if possible. If a second examination is impracticable, the medical officer of the soldier's unit should be requested to keep the latter under observation during his training, that is to say, ascertain the results of a functional test.

226 Gates Avenue.

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[1] Osler, Sir William: War Wastage, The Journal A. M. A., July 28, 1917, p. 290.

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# ACIDOSIS IN SHOCK *

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At the suggestion of the National Research Council, extensive investigations on shock have been undertaken. Numerous theories have been offered as to the cause of the condition termed "shock." One attributes the condition to acidosis, and sodium bicarbonate has been suggested in the treatment.

In connection with observations on shock carried on in this laboratory, a preliminary report of which has been published,[1] studies on the acidosis factor were undertaken. The results of these observations form the context of this report.

### METHODS OF EXPERIMENTATION

The method of producing shock and judging of the condition has been described in a previous report.[1] Essentially, they comprise prolonged strong rhythmic stimulation of the afferent nerves of dogs, under ether anesthesia. Under such circumstances the time required to establish the condition varied greatly in different animals. When necessary, the onset of the condition was hastened by other means, such as exposure and manipulation of the abdominal viscera. In later experiments peripheral nerve stimulation combined with partial cerebral anemia was found to be the most satisfactory procedure yet employed in refractory cases.[2] Anemia was produced by temporary occlusion of arteries supplying the medulla and brain. It should be noted that blood was always lost, but the quantity was not great, being limited to the amount unavoidably escaping from operative procedures and samples withdrawn at intervals for analyses.

The methods used for studying acidosis were the indicator methods of Levy, Rowntree and Marriott for H-ion concentration;[3] of Marriott for reserve alkalinity,[4] and of Van Slyke for plasma bicarbonate.[5]

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* From the Laboratory of Physiological Chemistry, University of Pittsburgh School of Medicine.

[1] Guthrie, C. C.: Experimental Shock, The Journal A. M. A., Oct. 27, 1917, p. 1394.

[2] Guthrie, C. C.: Observations in Shock, Proc. Am. Physiol. Soc., 1917; Am. Jour. Physiol., to be published.

[3] Levy, R. L.; Rowntree, L. G., and Marriott, W. M.: A Simple Method for Determining Variations in the Hydrogen-Ion Concentration of the Blood, Arch. Int. Med., September, 1915, p. 389.

[4] Marriott, W. M.: A Method for the Determination of the Alkali Reserve of the Blood Plasma, Arch. Int. Med., June, 1916, p. 840.

[5] Van Slyke, Donald D.: A Method for the Determination of Carbon Dioxid and Carbonates in Solution, Jour. Biol. Chem., 1917, 30, 347.

In the early experiments, the indicator methods for H-ion concentration and reserve alkalinity being used, variations in different animals were found. In some cases there was no change, while in others there was an increase in concentration. The greatest variations occurred in reserve alkalinity.

In later experiments aimed primarily at the acidosis factor, Van Slyke's method for plasma bicarbonate was employed. This method was chosen, first, because the preliminary experiments showed greatest changes in reserve alkalinity, and in some cases no change in the H-ion concentration itself. Secondly, because our use of the term acidosis is based on the work of Henderson,[6] Van Slyke[7] and others, namely, that the blood bicarbonate is the criterion of the acid base balance of the body.

Van Slyke's technic was followed in detail. Blood samples were drawn from the femoral vein by the syringe method. Coagulation was prevented by neutral potassium oxalate. The blood was immediately centrifuged and the plasma removed, saturated with the expired air of the operator, and 1 c.c. taken for analysis.

## RESULTS

1. *Plasma Bicarbonate in Ether Anesthesia.*—The observations on normal dogs before the administration of ether have fallen within the range for normal adults given by Van Slyke (from 53 to 77 per cent. of carbon dioxid by volume). Following the administration of ether a considerable decrease in the plasma bicarbonate was noted. We have observed that under anesthesia only, before the measures employed to induce shock were begun, the bicarbonate content of the plasma ranged between 40 and 50 per cent. of carbon dioxid by volume. In one case, we observed 55.7 per cent. of carbon dioxid by volume under ether anesthesia. This was due, no doubt, in part to the muscular activity associated with the administration of the anesthetic.

2. *Plasma Bicarbonate in Shock.*—In general there was a gradual decrease in reserve alkalinity associated with shock production. The results obtained in shock ranged between 35 and 45 per cent. of carbon dioxid by volume. The amount of decrease varied in different animals. In some cases the results were very slight, being only 5 per cent. of carbon dioxid by volume; in others they were more marked, 10 per cent. of carbon dioxid by volume being observed. Two animals were reduced to a profound state of shock, showing a bicarbonate content of plasma within the range of other animals before shock production. The results of two experiments illustrating this point are given in the accompanying tabulation.

PLASMA BICARBONATE IN SHOCK

| | Per Cent. of Carbon Dioxid by Volume | |
|---|---|---|
| | Exp. 30 | Exp. 31 |
| Before shock production, immediately after administration of anesthetic | 55.7 | 40.0 |
| During period of shock production | 51.9 | 40.0 |
| Animal showing symptoms of profound shock | 49.0 | 35.3 |

3. *Injection of Sodium Bicarbonate in Shocked Animals.*—The injection of sodium bicarbonate in shocked animals brought the reserve alkalinity back to the upper limit of normal. This return of reserve alkalinity to normal was not associated with improvement in the condition of the animal in excess of that probably due to the volume of fluid injected.

4. *Shock Production Without Decrease in Reserve Alkalinity.*—By the injection of sodium bicarbonate the reserve alkalinity was maintained within the normal range. By the usual methods, the animal was reduced to a state of profound shock. No increased resistance to shock was noted by so maintaining the reserve alkalinity.

5. *Experimental Acidosis.* — By the intravenous injection of lactic acid a primary acidosis was produced. By the injection of acid the reserve alkalinity could be lowered at will. When the reserve alkalinity had been lowered within the range observed in shocked animals, no change could be noted in the condition of the animal. It was necessary to lower the reserve alkalinity from 10 to 15 per cent. of carbon dioxid by volume below the range of shocked animals before a material fall in blood pressure occurred. The further injection of acid produced a rapid fall in blood pressure to a very low level, with cardiac and respiratory failure. At this point artificial respiration and cardiac massage alone were ineffectual, but, combined with the injection of sodium bicarbonate, produced prompt recovery and return of reserve alkalinity to normal.

## SUMMARY OF RESULTS

In the type of experimental shock studied there was a gradual decrease in the reserve alkalinity of the blood. The decrease varied in different animals. Anesthesia was an important factor. In some instances, the reserve alkalinity in shock was as great as in other animals before shock. This shows that acidosis was not an important causative factor. In no case was a change in reserve alkalinity sufficient to account for the condition observed.

In experimental primary acidosis the alkali reserve may be lowered to a degree observed in shock without producing any marked change in the condition of the animal.

The injection of sodium bicarbonate into animals reduced to a terminal state by injection of acid resulted in prompt recovery.

The injection of sodium bicarbonate into animals in shock was without beneficial action, although the reserve alkali was restored.

Shock may be induced while the alkali reserve is maintained by injection of sodium bicarbonate.

## CONCLUSION

In the type of experimental shock studied, acidosis was not the cause but one of the many secondary changes associated with the condition.

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[6] Henderson, L. J.: The Theory of Neutrality Regulation in the Animal Organism, Am. Jour. Physiol., 1908, **21**, 427; Das Gleichgewicht zwischen Basen und Säuren im tierischen Organismus, Ergebn. d. Physiol., 1909, **8**, 254.

[7] Van Slyke, D. D., and Cullen, G. E.: Studies of Acidosis, Jour. Biol. Chem., 1917, **30**, 289.

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**Health Conditions in Newark.**—The death rate of Newark during 1917, according to the *Monthly Bulletin* of the department of health, was 15.3 per thousand on an estimated population of 405,000, as against a rate of 16.5 for 1916. There was a total of 6,205 deaths, the figures for the extreme of life being 1,461 under 5 years and 2,892 at 45 and above. There were 11,824 births, a rate of 29.1 per thousand, as against 29.7 for 1916. There were 1,038 deaths under 1 year, a rate of 87.8 per thousand births. This is a decrease of 1.8 from the rate for 1916. Deaths for the six chief contagious diseases, including poliomyelitis, were 304 as against 851 for 1916 when the epidemic of poliomyelitis swelled the figures, which were 376 for 1916, as against 11 for 1917.

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SATURDAY, MARCH 23, 1918

## THYROID HYPERPLASIA AND IODIN

In view of the widespread distribution of simple goiter in the United States as well as in those countries which have been the classic localities of thyroid enlargement in considerable portions of the population, it is rather surprising that so little attention has been paid to the subject. The hopeful aspect of the goiter problem lies in the fact that the malady is almost always easily avertible. The magnitude of the incidence of thyroid enlargement in man is indicated by the suggestive investigations which Marine and Kimball[1] of Western Reserve University have conducted in the interest of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association. In a complete census of the condition of the thyroid gland in girls from the fifth to the twelfth grades of the school population of a large community at the southern edge of the Great Lakes goiter district, they found that 2,184, or 56 per cent., had enlarged thyroids, 13 per cent. having well defined persistent thyroglossal stalks. These startling facts correspond with what might have been anticipated only by consideration of goiter statistics from some of the most conspicuous goiter regions of Europe.

To meet this situation a systematic scheme of administration of iodin in some form has been proposed. Its efficacy is admitted; and the widely adopted plans of school inspection by duly appointed medical experts seem to furnish an almost ideal opportunity for observing the results of a wholesale attempt to counteract the tendency to goiter that prevails in many localities. Wherever the thyroid hyperplasias have been encountered and carefully investigated, they have yielded to the iodin therapy. Marine and Kimball state that from the practical standpoint, the first instance of preventing goiter on a large scale was accidental and in connection with the sheep raising industry of Michigan. Prior to the discovery of salt deposits around the Great Lakes, the future of the industry seemed hopeless; but with the development of the salt industry and its use by the sheep growers, goiter rapidly decreased. The explanation is furnished by Marine. The salt contains appreciable quantities of both bromin and iodin, and in places these elements are extracted commercially. The second instance of goiter prevention on a large scale was in brook trout, and the disease was averted in the hatcheries by the use of small amounts of tincture of iodin added to the water.[2] Similar possibilities have been suggested to prevent the fetal myxedema of pigs and the hairless pig malady that has been definitely associated with a hyperplasia of the thyroid gland of this species.[3] We have already directed attention to the widespread experience, in the northwestern part of the United States, of the animal growers in obtaining young that are born dead and hairless, or, if alive when born hairless, die in a short time.[4]

There seems little doubt that the immediate cause of these thyroid disturbances is associated with a deficit of iodin in the gland itself. The avidity of this tissue for iodin is now well known, analyses of the hyperplastic glands confirm the deficit of the element, and the remedial response to iodin medication is an added indication of the correctness of the view just stated. The first impulse is to assume, in the light of what has been found, that a deficiency of essential iodin in the food supply is responsible for the pathologic condition so often observed in the thyroid of both man and animals. The extensive investigations now undertaken from the standpoint of animal nutrition have an immediate interest for human pathologic physiology. It has actually been shown that feeds from all parts of the country tend to be extremely low in their content of iodin; and there are no obvious distinctions that can be ascribed to different localities. Hart and Steenbock have accordingly formulated the query whether the primary cause of thyroid hyperplasia, such as they have observed in swine, may not be associated with a failure to absorb iodin from the digestive tract or to a faulty metabolism of the gland rather than to an extreme shortage of the element. They have observed that the same feeds which produce hairless and dead pigs can be so combined as to produce normal young. It thus seems that if certain unknown conditions are favorable, an animal may obtain from natural feeds the iodin required for both her own and the fetal thyroids. If unknown unfavorable conditions prevail, the animal may then obtain barely enough for her own thyroid activity and not enough for fetal thyroid development. In other words, a ration that is near the border line of deficiency in iodin and, as Hart and Steenbock express it, slightly out of balance in some other respect, may affect some individuals more than others. This seems to be particularly true during the period of most rapid growth. In recognizing a corrective factor in iodin we need not overlook the possibility of deficient functions which are a secondary yet important consideration in the complete solution of the difficulty. None of the more recent experimental evidence, however, gives support to the hypothesis that the enlarged thyroid is the result of a specific infection.[5]

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[1] Marine, David, and Kimball, O. P.: The Prevention of Simple Goiter in Man, Jour. Lab. and Clin. Med., 1917, **3**, 40.

[2] Marine, David, and Lenhart, C. H.: Observations and Experiments on the So-Called Thyroid Carcinoma of Brook Trout, and Its Relation to Ordinary Goiter, Jour. Exper. Med., 1910, **12**, 311.

[3] Smith, G. E.: Fetal Athyreosis: A Study of the Iodin Requirement of the Pregnant Cow, Jour. Biol. Chem., 1917, **29**, 215. Hart, E. B., and Steenbock, H.: Thyroid Hyperplasia and the Relation of Iodine to the Hairless Pig Malady, I, Jour. Biol. Chem., 1918, **33**, 313.

[4] Fetal Athyreosis, editorial, The Journal A. M. A., July 7, 1917, p. 43.

## NEW PHYSIOLOGIC ASPECTS OF RADIOACTIVITY

The "laborious and diligent search after truth," which is the dictionary's interpretation of research, ordinarily exhibits so much of a routine character and so much reiterated effort in traditional directions that the suggestion of something novel is always decidedly refreshing. In this spirit we refer to somewhat startling observations by Zwaardemaker,[6] physiologist at the University of Utrecht, leading him to the hypothesis that radioactivity possesses peculiar significance for the automaticity of the heart beat. He has pointed out that of the comparatively small group of elements — essentially twelve in number — which make up animal tissues, two possess a very characteristic atomic property which may enable them to exert unusual influences. Iron is ferromagnetic, but this property is concealed by the presence of other elements in the body. Potassium is reputed to be radioactive.[7] Although its radioactivity is of extremely low order and therefore very little pronounced, the property remains in the compounds of the element, "so that it may be expected to reveal itself in the organism anywhere at any time."

The powerful effects of radium on living tissues are beginning to be appreciated. They are somewhat similar to those of intense ultraviolet light, but much more powerful. It is known that the negatively charged beta-particles of radium produce coagulation of oppositely charged colloids, and the effect appears to be an electrical one. It is a long step, however, from such pronounced effects to the more subtle possibilities suggested by an element so weakly radioactive as is potassium. Potassium is stated to emit exclusively beta-rays of a high penetrating power; but a photographic plate is said to be rendered appreciably black by potassium only after fifty-six days. Its ionizing power is a thousand times weaker than that of uranium, which in turn is a million times weaker than radium.

Zwaardemaker has attempted to detect any possible physiologic function of the feeble radioactivity of potasssium by ascertaining whether it can be replaced by other radioactive elements in such artificial perfusion fluids as that of Ringer. It is well known to the student of experimental physiology that the excised heart, which beats automatically when perfused by a suitable circulating medium, comes to a standstill when potassium is omitted from such a fluid. Zwaardemaker reports that solutions containing equiradioactive quantities of rubidium, thorium or uranium in place of potassium are quite effective. The remarkable equiactivity manifesting itself, says Zwaardemaker, in appropriate doses gave rise to the presumption that the substitution is feasible only on the ground of the radioactive, atomic property of these elements, and is not to be ascribed to any other factor. Not only radioactive elements administered internally to the surviving organ but also radiation in appropriate dosage was capable of sustaining the automaticity when potassium was lacking. We are promised demonstrations that the effect of radioactivity is decisive not only for the automaticity of the heart but also for a number of other functions, such as concern the vascular endothelium, the irritability of muscles, and other phenomena. Meanwhile, the possibility of insidious quackery based on these observations and hypotheses must be cautiously guarded against. A little knowledge is a dangerous thing — especially in the hands of an unscrupulous faker in medicine.

## GENESIS OF THE EPIGASTRIC PAIN IN ULCER

Although the sensation of pain furnishes data of first importance to those who are concerned with the management of disease, the physiology and pathology of the pain sense have not yet received the careful scientific evaluation and analysis that their significance in medicine warrants. It has been said that for the evolution of the race as well as for the preservation of the individual, the pain sense is all important because it affords an expression in consciousness of the existence of nocuous factors liable to do damage to the tissues of the body. It seems strange that pain may result from changes in organs that are devoid of ordinary sensibility. Surgical manipulation of the intestine, for example, is not usually attended with any annoying sensation; yet a strong contraction of the muscular wall or increased distention of the intestine will evoke a griping pain. The ureters and other ducts in the body rarely give any evidence of themselves in our sensations until they are firmly contracted on some obstruction contained within their lumen.

Gastric and duodenal ulcers afford instances in which pain sensations give indications of peculiar value to the diagnostician. The pain is so characteristic in coming as a rule when the stomach is empty and in being relieved by the ingestion of food that the incidence of the distress may give a clue to its differentiation from the pain of gastric cancer. Its periodicity also has been noted in contrast with the diffuse sensation commonly designated as gastralgia. The painful feeling awakened by the contact of an irritant like acid with an abraded surface of the skin or mucous membranes is sufficiently familiar in everyday experience to have suggested the view that the pains of gastric and duodenal ulcers are associated with acid irritation of hyperexcitable nerve endings or exposed nerve fibers in the ulcer area. This is the most widely current hypothesis of the genesis of certain epigastric pains.

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[5] Burget, G. E.: Am. Jour. Physiol., 1917, **44**, 492.

[6] Zwaardemaker, H.: Aequiradio-Activity, Am. Jour. Physiol., 1918, **45**, 147.

[7] Campbell, N. R., and Wood: Proc. Cambridge Phil. Soc., 1906-1908, **14**, 15.

In harmony with the theory just suggested is the frequent occurrence of the so-called gastric hyperacidity in cases of gastric and duodenal ulcer, and the temporary alleviation of the ulcer pain by food and alkalis. In a recent study of the origin of the epigastric pains in cases of gastric and duodenal ulcer, Carlson[1] has pointed out certain facts that are not readily explained by the "acid corrosion" theory. For example, gastric ulcer with or without clinical hyperacidity may be present without pain. Gastric ulcer and ulcer pain may be associated with normal acidity, and even with hypacidity. The pains of gastric ulcer may be present and be temporarily relieved by food or alkalis, even though the stomach contents are alkaline. The introduction of acids (0.5 per cent. of hydrochloric acid) into the stomach does not, or at least not invariably, induce or augment the ulcer pains in gastric ulcer patients. The ulcer pains usually show a periodicity (being described as "gnawing" or "boring"), and the periods are too short to be explained by variations in the gastric acidity. An alternative hypothesis connects the pain with contractile phenomena of the stomach.

The association of periodic pangs of hunger with the coincident contractions of the empty stomach has become an accepted fact in physiology. Carlson has reinvestigated the problem of distress in cases of well diagnosed ulcer by the use of graphic methods of recording gastric contractions associated with chemical analysis of the gastric contents. He has established anew the frequent lack of parallelism between ulcer pains and gastric acidity. Indeed, within certain limits the motility of the stomach is independent of the chemical reaction of the stomach contents.

As the result of his studies, Carlson states that all the evidence now points to the fact that the pains of gastric and duodenal ulcers are contraction pains arising either in the stomach or in the pylorus and upper part of the duodenum. In the case of the stomach the contractions are usually not stronger than those of normal digestion peristalsis of the filled or the hunger tonus rhythm of the empty stomach. This points clearly to a condition of hyperexcitability of the gastric pain nerves in the ulcer patients experiencing the typical ulcer pains. Since, Carlson adds, the ulcer pains are due to tension of excessive contractions or of normal contractions on hyperexcitable pain nerves, it is evident that pathologic states other than ulcer, inducing such hyperexcitability or hypermotility, will cause symptoms of gastric ulcer pains practically identical with those of ulcer, as appears to be the case in many instances of appendicitis, cholecystitis and achylia.

These findings regarding the genesis of gastric ulcer pains have been corroborated in carefully diagnosed clinical cases observed at the Presbyterian Hospital in Chicago by Hardt.[2] He, too, noted that the ulcer pains may be absent in the presence of high acidity, and present in the absence of acid in the stomach. Hardt states that any active process, such as an ulcer or carcinoma, which produces a hyperirritable condition may result in pain; but the pains are intermittent and, as may now be suspected, they are synchronous with the contractions of the stomach, pylorus or duodenum. Furthermore, they bear no relation to the degree of acidity that is either naturally present or induced by feeding.

It follows from these associations of ulcer pains with the tonus and contractions of the body of the stomach that any measure which inhibits or decreases the gastric tonus (ingestion of food, water, alkalis or acids, passing of the stomach tube, etc.) will temporarily ease the pains, irrespective of the chemical reaction of the stomach content. Continuous epigastric pain in ulcer cases may thus be attributable to a persistent hypertonus of the stomach or pylorus. If we accept this analysis of a much debated problem, it is easy to accept Carlson's further reminder that the elimination of the ulcer pain is no criterion of healing of the ulcer. This criterion, he bluntly states, satisfies only the ignorant patient and the careless clinician.

## PEANUTS AS FOOD

"Nuts in general," says Sherman,[3] "being rich in both protein and fat, are comparable with meats as food and may be used interchangeably with meat in the diet; in fact, they are being so used to an increasing extent. With the constant tendency toward higher cost of meat, and with growing knowledge of nut culture, we may look for a much larger use of nuts as 'meat substitutes.' Even at the present prices the economy of nuts both as sources of energy and of protein will doubtless be surprising to many who have not previously compared the composition and cost of typical articles of these groups." The exigencies of war time have prepared our population to accept or try radical alterations in their dietary customs to a degree that would scarcely have been expected during normal periods of peace. The effort to obtain calories at a low cost is, however, attended with certain possibilities of danger to nutrition if energy value is made the sole criterion of our food propaganda. The importance of taking into account other equally indispensable factors in the diet has often been emphasized in The Journal. Therefore we can only urge that every pronounced dietary innovation shall be investigated with due appreciation of all the requirements that the newer study of nutrition has established for an adequate ration.

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[1] Carlson, A. J.: Contributions to the Physiology of the Stomach, XLIV, The Origin of the Epigastric Pains in Cases of Gastric and Duodenal Ulcer, Am. Jour. Physiol., 1917, **45**, 81.

[2] Hardt, Leo L. J.: Pain in the Active Pathologic Processes in Stomach or Duodenum, The Journal A. M. A., this issue, p. 837.

[3] Sherman, H. C.: Food Products, New York, 1914, p. 345.

This has recently been done in a most satisfactory way for the peanut, a food which has steadily grown in popularity so that it seems about to be transferred from the category of a delicacy to that of a more staple item in the diet. The peanut enters into the preparation of most of the vegetable "meat substitutes" long warmly advocated by the vegetarians and now made more conspicuous by the governmental admonition to "eat less meat"; and peanut "butters" or "pastes" are widely used. Today the value of the peanut crop, which is divided between the production of the promising peanut oil, peanut cake for animal fodder, and roasted peanuts for human food, has begun to total many millions of dollars. At the University of Wisconsin, Daniels and Loughlin[4] have demonstrated by feeding experiments on animals that the peanut can supply adequate protein, that is, all of the essential amino acids, in sufficient proportions for growth and reproduction. It also can furnish an abundance of the water-soluble vitamin. The food as used in the human dietary does not, however, yield the growth-promoting fat-soluble vitamin, which has come to be recognized as a remarkable constituent of butter fat and egg fat; nor are the inorganic constituents adequate in quality to supply sufficient calcium and certain elements. Of course, the peanut is not used as a sole source of nutrients for man; nevertheless, the delineation of its physiologic value enables one to define more intelligently the place which it can take in the ration. Daniels and Loughlin foresee an increasing usefulness for the peanut, now that its real value has been scientifically established. When we consider the broad areas, they say, which may be adapted for growing the crop, and the fact that our food supply tends toward a wider use of the seeds of plants, it seems appropriate to expect that the peanut, when rightly supplemented, will form a staple article of the human dietary. Like the soy bean, which has lately come into new prominence in American homes, the peanut needs only to have added suitable inorganic salts and the fat-soluble accessory to make it a complete food.

## SUGAR AND WORKING POWER

There can be no longer any doubt that the great function of carbohydrate food is to afford energy. This does not mean that other types of foodstuffs are useless in this respect; on the contrary, it is easy to foresee and to devise conditions in which fats and proteins are responsible for the energy metabolism. In starvation, for example, carbohydrate is not directly available; but under normal conditions of diet, approximately two thirds of the entire calorific intake is derived from carbohydrates by the average person with no extreme eccentricities in his eating habits. Half a century ago, physiologists were inclined to attribute a superior value to proteins in the performance of muscle work, the supreme manifestation of the transformation of energy in the body. Today it need scarcely be argued that, so long as work is not excessive and does not lead to pathologic consequences, with an abundance of all types of foodstuffs in the diet, there is practically no change in the nitrogen output, i. e., there is no evidence of protein disintegration from it.

Anderson and Lusk[1] have just furnished even more direct evidence of the superior value of carbohydrate in muscular activity. In calorimetric observations on animals, they found that the quantity of energy required to move a unit of body substance a definite distance through space is a constant factor that is independent of the condition of the body. It matters not whether the subject is in the best nutritive condition or has lost as much as one fifth of his weight through fasting: the quantity of energy required to do a definite amount of work remains the same.

It is known that the metabolites of the foodstuffs, but notably of proteins, induce an extra heat production in the body which is commonly described as their specific dynamic action. They stimulate metabolism independently of the use to which they are put in the organism. Anderson and Lusk have found that whereas on a meat or high protein diet the increment of energy required to perform a definite amount of mechanical work is added to the specific dynamic quota that meat ingestion contributes to the basal metabolism, the metabolites of glucose induce no such extra heat production. When mechanical work is accomplished during the hours following a large ingestion of glucose, the metabolism rises to about the same height as when the same amount of work is done during a period when the gastro-intestinal tract is free from food. There is no "waste" of energy in useless heat production. This economy of carbohydrates for the accomplishment of work deserves to be emphasized at a time when food fuel is in great demand and the superior value of meat is still lauded. Whatever significance meat may have as a highly palatable form of protein food must not be confused with the discarded claims of its superiority as a source of energy for our working machine.

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[4] Daniels, Amy L., and Loughlin, Rosemary: Feeding Experiments with Peanuts, Jour. Biol. Chem., 1918, 33, 295.

[1] Anderson, R. J., and Lusk, Graham: Animal Calorimetry: The Interrelation Between Diet and Body Condition, and the Energy Production During Mechanical Work, Jour. Biol. Chem., 1917, 32, 421.

## Current Comment

### THE GROUND GLASS OBSESSION

Rumors continue to appear to the effect that ground glass has been found in food and that an investigation is to be made by the federal government. During the last two or three years we have passed through a whole series of such nation-wide "scares." Our readers may remember the vogue of infected court-plaster, of the insertion of various organisms into bandages and dressings, of the finding of numerous alleged bombs in different localities. Today ground glass holds the stage. Just why any intelligent spy, or even an unintelligent German diplomat, should choose ground glass to kill off a community is problematical. Neither has any one explained how enemy sympathizers are going to avoid the alleged manipulated foodstuffs. In works on forensic medicine and toxicology ground glass is mentioned as a mechanical poison. When the glass is coarsely ground it produces mechanical lesions of the lining of the gastro-intestinal canal which become infected. Ultimately the condition resembles a catarrhal and hemorrhagic inflammation. Both may result from perforation of the stomach or bowel, or from infection of the wounds and extension of the inflammation. A meal of very finely ground glass is regarded by some as harmless, and it has been reported that it is even used as a remedy among the peasants of eastern Europe. The concealing of ground glass in flour or in sugar, the two substances most commonly mentioned in the newspapers — any amateur psychologist can figure out why — would necessitate that it be ground very fine. These stories may have a certain value in keeping the public alive to the dangers of the spy peril. On the other hand, they stimulate cranks and other unbalanced persons to "go and do likewise," thus lending a substantial basis to the original imaginative stories.

### SOME ODDITIES IN FOODS

War time needs or threatened deprivations of food have served in many unexpected ways to elicit knowledge of hitherto little used products that may be incorporated into the dietary. The soy bean has been brought into a new prominence in this country, where it was until recently for the most part used only as a food for diabetics. The dasheen has become more familiar, though its deserts are still far from being appreciated. The admonition to eat more fish has tended to increase the names, if not the actual varieties, of this class of foods; thus the grayfish has taken its place alongside the bluefish and whitefish — and the colors of the rainbow are not yet exhausted in providing an attractive new nomenclature for old species. A prominent American scientist has brought new notoriety to the whale by serving its flesh as a delicacy to his colleagues at a widely heralded dinner in New York. A well known surgeon has called attention in public print to the "wicked waste of good meat" in the thousands of tons of the flesh of seals that are left unutilized by the sealing fleet in the North. The animals that are taken at this time of year are the young of the harp seal, which are "living on their mother's milk in the killing season, and are tender and excellent for food purposes." Perhaps a surprise even greater has been prepared for us by the Bureau of Biological Survey in classing the fur-bearing muskrat as a source of human food. The government's biologist, Dr. Lantz,[1] frankly admits that one writer condemns the musky flavor of the muskrat as something that "would keep any but the starving from eating it." But in view of the ancient admonition *de gustibus non est disputandum,* and the assurance that a number of persons have likened the flavor of the muskrat to that of the famous terrapin of the Chesapeake, we ought not to conceal the new food possibilities from American epicures, if there are any such individuals left. At any rate, Lantz assures us that in the retail markets of Philadelphia, Baltimore, Wilmington and other cities, the animals in question, trapped primarily for their pelt, are sold as "marsh rabbits," although no attempt is made to conceal the fact that they are muskrats.

### THE CHLORID CONTENT OF THE BLOOD PLASMA

It has been emphasized of late, as never before, that the proper performance of physiologic functions in health is conditioned by "the accurate adjustment and preservation of temperature, molecular concentration and neutrality." The extent to which this is normally accomplished is strikingly illustrated by the composition of the blood, which is regulated to a nicety so as to present a minimum of variation under widely varying conditions. The kidneys, the respiratory apparatus and the tissues serve, as the case may be, to facilitate or prevent the withdrawal of blood constituents to the end that fixity of composition in the circulating medium may be attained. The content of protein is little altered in health; the sugar and non-nitrogenous components tend to approach a stationary level; the hydrogen ion concentration is singularly constant, and the alkali reserve is continually being adjusted toward a normal standard. The same tendency has been exhibited anew in the recent studies of Austin and Jonas[2] of the William Pepper Laboratory of Clinical Medicine, at the University of Pennsylvania, on the effects of diet on the plasma chlorid and chlorid excretion. They showed that it is not possible to raise the level of the plasma chlorids other than in transient manner by a prolonged regimen on a high chlorid diet, or to lower the plasma chlorids below the normal level even by a prolonged regimen on a very low chlorid diet. The kidneys, in health, evidently have a surprisingly constant threshold for the excretion of substances contained in the blood. This applies, for example, to sugar and to alkalis or acids. The new experiments of Austin and Jonas verify the evidence of McLean[3] for the constancy of the chlorid threshold, showing that a definite rise in plasma chlorids provokes a definite increment in the urinary excretion. In pathologic cases, however, one notes in the case of chlorid elimination what is seen to be true of other regulatory manifestations, namely, an occasional failure. In the pathologic kidney there may be either an alteration in the threshold or a disturbance in the degree of renal response to increments in the plasma chlorids above the threshold.

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[1] Lantz, D. E.: The Muskrat as a Fur Bearer, with Notes on Its Use as Food, Farmers' Bull. 869, U. S. Dept. Agric., September, 1917.

[2] Austin, J. H., and Jonas, L.: Effects of Diet on the Plasma Chlorides and Chloride Excretion in the Dog, Jour. Biol. Chem., 1918, 33, 91.

### THE HUNGER SENSATION IN FASTING

In numerous descriptions of the experiences of man in the course of more or less prolonged fasting, one meets the repeated assertion that after a brief initial period little or no hunger whatever is felt. Since it has been well established that the sensation of hunger is induced by a certain type of tonic and peristaltic contractions of the empty or nearly empty stomach,[4] it must be assumed either that these contractions are abolished as a fast proceeds or that the sensations are decidedly modified. Professor Carlson of the University of Chicago, to whom we owe so many fundamental researches in this field, has lately had an exceptional opportunity to investigate these questions.[5] As the result of careful observations on man during prolonged intentional starvation, Carlson found that during the fifteen days' complete fast and the subsequent eight days of abstinence from food with daily ingestion of cotton fiber, the gastric hunger contractions of his subjects continued with practically normal rhythm and intensity; but the subjective sensations induced by the gastric contractions appeared to be somewhat weakened and tinged with an element of general epigastric distress or sick stomach. The view that hunger mechanism fails early in prolonged fasting is therefore not tenable as a general law. This is of more than passing significance to the physician, who has at times to reckon with the possibility of hunger sensations in enforced inanition. In tentative explanation of the current beliefs that he has controverted, Carlson says:

> Most of the evidence tending to show suppression of hunger after a few days' fasting consists of the statements of professional fasters or persons fasting to improve their health. Many of these persons have a fixed faith in fasting as a cure-all; hence they tend to ignore or deny most discomforts of starvation. The professional faster may do so in the spirit of bravado, and where the elements of faith or bravado are not in evidence the statement of the fasting person is observed by the usual confusion of the sensations of the pangs of hunger with the appetite for food. In prolonged fasting the latter is interfered with in many persons by a persistent bad taste in the mouth.

## Medical Mobilization and the War

### Amendment to Owen Bill

Senator Owen has proposed the following amendment to his bill asking increased rank for members of the medical department of the Army: "Nothing in this act shall be construed to deprive any officer of the Medical Corps of the United States Army of a commission he now holds."

### Bill to Furnish Uniforms of Officers

Senate Bill 3433, requiring the government to furnish uniforms of officers of the Army, has passed the Senate and is now resting in the Committee of Military Affairs of the House. This bill provides that all uniforms, accoutrements and equipment required for any officer of the military forces of the United States shall be furnished and issued to such officers by the government at cost price under regulations to be prescribed by the Secretary of War, and that they shall be similar in quality and price for all officers of the same rank.

### New Assignment to Provost-Marshal-General's Office

A few weeks ago we announced that Major Frank Billings had been assigned to the Provost-Marshal-General's Office, to have charge of the medical work connected with the selective service. Major Billings has now been transferred to the Surgeon-General's Office, to act as director of the Division of Reconstruction in that office. The Provost-Marshal-General requested the Surgeon-General to commission Dr. Hubert Work, Pueblo, Colo., and to assign him to the Provost-Marshal-General's Office to take the place made vacant by Major Billings. This has been done and Dr. Work is now in Washington.

### Personnel of the Medical Department

For the week ending March 15, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 799, including 1 major-general, 66 colonels, 102 lieutenant-colonels, 177 majors, 2 captains and 451 lieutenants.

MEDICAL RESERVE CORPS: 18,037, including 1,085 majors, 4,163 captains and 13,789 lieutenants. On active duty: 14,655, including 937 majors, 3,579 captains and 10,139 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,242, including 11 lieutenant-colonels, 257 majors, 151 captains and 825 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 76, including 4 brigadier generals, 12 colonels, 55 lieutenant-colonels and 5 majors.

The DENTAL CORPS, 210; DENTAL RESERVE CORPS, 5,124, of whom 1,337 are on active duty; DENTAL CORPS, N. G., 261; VETERINARY CORPS, 24; VETERINARY RESERVE CORPS, 1,421, of whom 794 are on active duty; VETERINARY CORPS, N. G., 57; VETERINARY CORPS, N. A., 297; SANITARY CORPS, 947, and AMBULANCE SERVICE, 142 constitute the remainder of the commissioned personnel.

### DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending
March 8, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (DISEASE ONLY):

| | |
|---|---|
| All Troops | 1,413.8 |
| National Guard Camps | 1,103.6 |
| National Army Camps | 1,731.2 |
| Regular Army | 1,221.8 |

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

| | |
|---|---|
| All Troops | 47.5 |
| National Guard Camps | 42.1 |
| National Army Camps | 54.2 |
| Regular Army | 42.0 |

3. ANNUAL DEATH RATE PER 1,000 (DISEASE ONLY):

| | |
|---|---|
| All Troops | 6.6 |
| National Guard Camps | 6.2 |
| National Army Camps | 6.0 |
| Regular Army | 7.5 |

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[3] McLean, F. C.: The Numerical Laws Governing the Rate of Excretion of Urea and Chlorides in Man, Jour. Exper. Med., 1915, **22**, 212.

[4] Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, 1916.

[5] Carlson, A. J.: Contributions to the Physiology of the Stomach, XLV, Hunger, Appetite and Gastric Juice Secretion in Man During Prolonged Fasting (Fifteen Days), Am. Jour. Physiol., 1918, **45**, 120.

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING MARCH 8, 1918

| Camps | Pneumonia | Dysentery | Malaria | Venereal | Measles | Meningitis | Scarlet Fever | Deaths | Annual Admission Rate per 1,000 (Disease Only) | Noneffective per 1,000 |
|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 10 | .. | .. | 17 | 4 | .. | ... | 1 | 537.1 | 23.7 |
| Hancock | 4 | .. | 1 | 15 | 9 | .. | 2 | 3 | 437.1 | 25.1 |
| McClellan | ... | .. | .. | 23 | 10 | .. | 2 | 3 | 728.0 | 30.3 |
| Sevier | 14 | .. | 1 | 23 | 1 | 3 | 2 | 2 | 1,756.1 | 70.5 |
| Wheeler | 13 | 1 | 3 | 35 | ... | 1 | ... | 4 | 1,280.2 | 42.2 |
| Logan | 4 | .. | 2 | 146 | 22 | 2 | 1 | 3 | 1,586.0 | 44.0 |
| Cody | 11 | .. | .. | 2 | 1 | .. | ... | 6 | 578.5 | 35.2 |
| Doniphan | 5 | .. | .. | 18 | ... | .. | 3 | 5 | 1,702.3 | 46.9 |
| Bowie | 15 | .. | 1 | 52 | ... | 2 | ... | 6 | 1,717.4 | 58.0 |
| Sheridan | 2 | .. | .. | 7 | 1 | .. | 2 | 0 | 544.7 | 34.2 |
| Shelby | 4 | 1 | .. | 24 | 1 | 1 | ... | 5 | 1,286.1 | 52.9 |
| Beauregard | 3 | .. | 2 | 18 | 1 | 3 | ... | 3 | 1,299.4 | 54.5 |
| Kearny | 2 | .. | .. | 2 | 2 | .. | 7 | 1 | 1,160.6 | 46.7 |
| Devens | 12 | .. | .. | 63 | 10 | .. | ... | 4 | 1,377.1 | 39.4 |
| Upton | 21 | .. | .. | 40 | 1 | .. | 3 | 6 | 1,140.8 | 28.7 |
| Dix | 5 | .. | .. | 82 | 5 | 1 | 10 | 1 | 2,365.4 | 51.4 |
| Meade | 8 | .. | .. | 23 | 19 | 1 | 13 | 3 | 860.7 | 35.8 |
| Lee | 15 | .. | 1 | 116 | 9 | 1 | ... | 4 | 1,523.5 | 56.7 |
| Jackson | 6 | .. | .. | 302 | 6 | .. | ... | 3 | 2,005.0 | 59.3 |
| Gordon | 6 | .. | .. | 178 | 8 | 2 | ... | 2 | 1,626.2 | 37.6 |
| Sherman | 12 | .. | .. | 47 | 90 | 1 | 29 | 4 | 1,745.0 | 61.5 |
| Taylor | 15 | .. | .. | 41 | 23 | .. | ... | 1 | 1,725.7 | 68.2 |
| Custer | ... | .. | .. | 14 | 6 | 2 | 4 | 3 | 990.9 | 45.7 |
| Grant | 11 | .. | .. | 28 | 20 | .. | 5 | 2 | 1,029.3 | 30.1 |
| Pike | 24 | .. | 1 | 127 | 19 | .. | 9 | 4 | 3,084.1 | 84.1 |
| Dodge | 19 | .. | .. | 121 | 52 | .. | 7 | 3 | 1,744.1 | 48.1 |
| Funston | 10 | 1 | .. | 45 | ... | 3 | 4 | 5 | 2,017.2 | 82.8 |
| Travis | 29 | 1 | 3 | 52 | 23 | 1 | 2 | 2 | 2,975.7 | 68.9 |
| Lewis | 9 | .. | .. | 17 | 44 | .. | 35 | 6 | 1,502.2 | 78.6 |
| N. E. Department | ... | .. | .. | 14 | 7 | .. | ... | 1 | 1,177.6 | 30.3 |
| Eastern Dept. | 11 | .. | .. | 29 | 18 | 1 | 1 | 3 | 843.6 | 26.6 |
| S. E. Department | 9 | .. | 4 | 25 | 17 | 2 | 4 | 6 | 1,015.2 | 48.7 |
| Southern Dept. | 16 | .. | .. | 71 | 55 | 2 | 14 | 10 | 1,066.6 | 39.9 |
| Central Dept. | 6 | .. | .. | 22 | 21 | .. | 7 | 4 | 1,487.9 | 43.2 |
| Western Dept. | 9 | .. | .. | 30 | 39 | .. | 5 | 9 | 1,136.2 | 32.4 |
| Aviation, S. C. | 21 | .. | .. | 91 | 133 | 3 | 12 | 17 | 1,381.2 | 45.4 |
| Camp Greene | 8 | .. | 1 | 36 | 15 | 4 | 6 | 2 | 864.7 | 33.5 |
| Camp Fremont | 6 | .. | 1 | 39 | 15 | .. | ... | 0 | 1,099.1 | 43.3 |
| El Paso | ... | .. | .. | 5 | 12 | .. | 1 | 0 | 1,012.3 | 6.5 |
| Fort Slocum | 2 | .. | .. | 11 | 8 | .. | ... | 0 | 1,840.0 | 39.1 |
| Columbus Bks. | 1 | .. | .. | 16 | 1 | .. | 3 | 0 | 1,876.5 | 51.3 |
| Fort Thomas | ... | .. | .. | 1 | ... | .. | ... | 0 | 1,108.8 | 53.0 |
| Jefferson Bks. | 1 | .. | .. | 10 | 5 | .. | 13 | 5 | 2,272.3 | 117.2 |
| Fort Logan | 1 | .. | .. | 1 | 22 | .. | 5 | 1 | 2,496.6 | 70.8 |
| Fort McDowell | ... | .. | .. | 5 | 5 | .. | 1 | 0 | 1,132.1 | 53.7 |
| D.B.Ft.Leavenworth | ... | .. | .. | .... | ... | .. | ... | 0 | 1,692.4 | 35.2 |
| D.B. Alcatraz | ... | .. | .. | .... | ... | .. | ... | 0 | 852.5 | 13.1 |
| Aberdeen, P. G. | ... | .. | .. | .... | 1 | .. | 1 | 1 | 1,368.4 | 29.2 |
| A. A. Humphreys | ... | .. | .. | 9 | ... | .. | ... | 0 | 1,273.5 | 12.2 |
| J. E. Johnston | ... | .. | .. | 27 | 4 | 1 | 1 | 1 | 940.1 | 33.5 |
| Edgewood | ... | .. | .. | .... | ... | 1 | ... | 0 | 1,642.1 | 140.3 |
| Camp Merritt | 16 | .. | .. | 65 | 16 | 1 | 26 | 5 | 1,944.8 | 74.2 |
| Camp Stuart | 9 | .. | .. | 11 | 6 | .. | 1 | 4 | 1,694.7 | 54.2 |
| West Point, N. Y. | 1 | .. | .. | 1 | 7 | .. | ... | 0 | 1,053.8 | 17.4 |
| General Hosp. No. 1. | ... | .. | .. | .... | ... | .. | ... | 1 | | |
| N. G. Departments | 4 | .. | .. | 12 | 33 | .. | 1 | 2 | | |
| N. A. Departments | 25 | 4 | 1 | 181 | 50 | .. | 14 | 3 | | |
| Total (all troops). | 435 | 8 | 22 | 2,390 | 877 | 39 | 256 | 171 | 1,412.2 | 47.5 |

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

| | All Troops in U. S., Week Ending Mar. 8, 1918 | Regulars in U. S., Week Ending Mar. 8, 1918 | National Guard, All Camps, Week Ending Mar. 8, 1918 | National Army, All Camps, Week Ending Mar. 8, 1918 | Expeditionary Forces, Week Ending Feb. 28, 1918 |
|---|---|---|---|---|---|
| Pneumonia | 18.2 | 15.1 | 13.5 | 22.8 | 26.0 |
| Dysentery | 0.3 | 0.0 | 0.3 | 0.2 | 0.2 |
| Malaria | 100.2 | 67.2 | 1.5 | 0.5 | 0.0 |
| Venereal | 100.2 | 67.2 | 59.1 | 146.3 | 44.2 |
| Paratyphoid | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Typhoid | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 |
| Measles | 36.7 | 52.7 | 8.0 | 37.8 | 13.7 |
| Meningitis | 1.6 | 1.9 | 1.8 | 1.3 | 3.0 |
| Scarlet fever | 10.7 | 13.1 | 2.9 | 13.6 | 13.4 |

## NEWS OF THE CANTONMENTS

### Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Capt. Charles Griffith, M. R. C., has brought his family to Hampton Terrace Annex, North Augusta.

The following first lieutenants of the Medical Corps have been promoted to captains as the result of their service and examinations: Bixby, Allen, Harper, Hemphill, Fisher, Lewis, Ross, Steinmetz, Toland, Stahr, Washburne.

The entire Twenty-Eighth Division gave a very creditable review before Secretary of State Lansing, Saturday, March 8.

### Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

March 18, 1918.

#### ARTICLES OF WAR

Through ignorance of the proper numbering of the Articles of War, in referring to the court martial of Major Milton Board, and relying on a press account of it, I stated in the last issue of The Journal that Major Board was being tried for a violation of the Eighty-Fifth Article of War. The Eighty-Fifth Article of War refers to drunkenness and conduct unbecoming an officer, and as we know Major Board has never drunk intoxicants I am glad to state his trial was for violation of the Ninety-Sixth Article of War, the charges being that he wrongfully dismissed a patient from the hospital who was at the point of death. When there is not any other Article of War an officer can be court martialed under, the Ninety-Sixth Article covering them all. The trial of Major Board was concluded last week, and the result will probably not be known for several weeks, as it must be reviewed by the commanding general and approved by the War Department before an announcement will be made.

#### EXAMINATION OF FOOD

Arrangements have been made for the proper chemical examination of foods suspected of containing material deleterious to the health at Camp Zachary Taylor and mess officers may send suspected food to the Bureau of Chemistry, U. S. Department of Agriculture, at Cincinnati for analysis.

#### BASE HOSPITAL UNIT NO. 40

Miss Elizabeth Bogle, chief nurse of the Good Samaritan Base Hospital, Unit No. 40, has received a telegram from the War Department that all of the one hundred nurses of the unit would be assigned to duty within the next ten days at some of the army cantonments. The nurses will not go in a body, but will be assigned in small numbers to duty in the various cantonments. This is to be a sort of preliminary training, preparing them to join the enlisted personnel which is now training at Camp Zachary Taylor and which will leave soon for overseas. All of the nurses of this unit will be required to furnish recommendations from influential citizens concerning their loyalty to the United States.

Dr. David Barrow, Major, M. R. C., is in charge of this unit, and Capt. Virgil Simpson, M. R. C., is in charge of the enlisted personnel which is at Camp Zachary Taylor.

#### ONLY DEATH IN TEN DAYS

Only one death in ten days is the record at Camp Zachary Taylor. Physicians say that this is an indication that with pretty weather hardly a healthier site in the country could be found than Camp Zachary Taylor. Even in civil life many deaths would have occurred among 30,000 or more men, but the death rate of Camp Zachary Taylor, even with the most severe winter in the history of the city, was not large.

Capt. Matthew Neil, Sanitary Corps, has been appointed division medical supply officer and will report for duty to take up his new work in the office of the division surgeon.

## FIRST LIEUTENANTS OF THE MEDICAL RESERVE CORPS RECOMMENDED FOR PROMOTION AS CAPTAINS, MARCH 14, 1918

JOHN FRANKLIN ALLEN, Omaha; NELSON KINGSBURY, Newark, N. J.; MORGAN LELAND CLINT, Meadville, Mo.; LAFAYETTE THOMAS COX, Napoleon, Ind; MODIE EZRA CUNNINGHAM, Birmingham, Ala.; RAYMOND CANFIELD DODD, Glen Ridge, N. J.; EDWIN CLARENCE FUNSCH, St. Louis; CARL GOEHRING, Pittsburgh; PURSIFOR FRAZIER GUIE, Manheim, Pa.; ROBERT ROY HAMPTON, Salt Lake City; CARLETON GALE KELSEY, Hinckley, Minn.; LAUREN NORTON LINDENBERGER, Cincinnati; CHARLES BAILEY REED, Newburgh, N. Y.; ADDISON MAY ROTHROCK, Reading, Pa.; HARRY CHRISTIAN SCHMEISSER, New York City; DENNIS EDWARD SINGLETON, Clarence, Mo.; WALTER LEO SMALL, Kansas City, Mo.; RALPH WITT STALEY, Cincinnati; CLYDE KRESS STARTZMAN, Bellefontaine, Ohio; JOHN WESLEY TIPPIE, Cleveland.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS

*To Fort Sam Houston, Texas,* for duty, from Newport News, Cols. CHARLES LYNCH, JERE B. CLAYTON, from Fort Bliss Lieut. JAMES S. SIMMONS.

*To Newport News, Va.,* for duty, from Fort Sam Houston, Texas, Col. CHARLES LYNCH. For inspection and on completion *to his proper station,* Col. PEARCE BAILEY. Base hospital, from Fishers Island, N. Y., Lieut.-Col. WILLIAM S. TERRIBERRY.

*To New York City,* for duty and on completion *to their proper stations,* Col. ROBERT E. NOBLE, Lieut. PAUL H. McNABB.

*To Washington, D. C.*, George Washington University Medical School, as instructor, Col. LOUIS A. LAGARDE. For consultation and on completion *to his proper station*, from Allentown, Col. ELBERT E. PERSONS; from Camp Dix, Lieut.-Col. GEORGE M. EKWURSEL; from Camp Sherman, Lieut.-Col. WALLACE DE WITT; from Camp Upton, Lieut.-Col. CHARLES R. REYNOLDS; from Asheville, N. C., Lieut.-Col. WILLIAM H. SMITH. For duty, from Fort Oglethorpe, Lieut.-Col. GEORGE H. SCOTT; from Surgeon-General's Office, Major JOHN O. SKINNER.

*To Allentown, Pa.*, Concentration Camp, from Army Medical School, Lieut.-Col. HAROLD W. JONES; from Fort McHenry, Major CLARENCE R. BELL.

*To Camp Cody,* Deming, N. M., *Camp Kearny,* Linda Vista, Calif.; *Balloon School,* Los Angeles, Calif., *Camp Fremont,* Palo Alto, Calif., *Letterman General Hospital, Fort McDowell and U. S. Disciplinary Barracks*, Benecia, Calif., *Vancouver, Wash., Camp Lewis*, American Lake, Wash., and *Fort Douglas, Utah,* for inspection and on completion *to his proper station*, Lieut.-Col. FRANK W. WEED.

*To Camp Dodge,* Des Moines, Iowa, for duty, from Camp Dodge, Major CLARENCE E. FRONK.

*To Camp Jackson*, Columbia, S. C., base hospital, from Fort Riley, Major THOMAS J. LEARY. For duty, from Camp Jackson, Major JAMES F. JOHNSTON.

*To Camp Logan,* Houston, Texas, for duty, from Camp Logan, Major HENRY P. CARTER, Lieut. PERCY K. TELFORD.

*To Camp Sevier*, Greenville, S. C., for temporary duty, from Camp Sevier, Majors BAXTER R. HUNTER, JAMES E. POORE; Lieut. WILLIAM C. STONE. For temporary duty and on completion *to his proper station,* from Camp Wadsworth, Lieut. HARRY J. WORTHING.

*To Camp Zachary Taylor,* Louisville, Ky., for duty, from Camp Zachary Taylor, Major LUTHER R. FOUST; from Camp Dix, Lieut. VAL E. MILTENBERGER, from Fort Thomas, Lieut. PAUL B. HAWLEY.

*To Camp Wheeler,* Macon Ga., for duty and on completion *to his proper station,* from Camp Sheridan, Major CHARLES W. STONE. For temporary duty, from Camp Devens, Lieut. OTTIS L. GRAHAM.

*To Camp Greene,* Charlotte, N. C., for duty, from Camp Logan, Lieuts. SEYMOUR C. SCHWARTZ, WARD S. WELLS, JOHN R. WHISENANT.

*To Camp Shelby,* Hattiesburg, Miss., for temporary duty, from Fort McPherson, Ga., Lieut. JOHN R. DEVELLING.

*To Corpus Christi, Texas,* for temporary duty, from Camp Dodge, Lieut. FRANK S. MATLACK.

Lieut. WALTER F. TOLSON, who has passed the preliminary examination for appointment in the Medical Corps, will proceed *to Army Medical School* for instruction.

*Honorably discharged* on account of physical disability incurred in line of duty, Lieut. SETH H. SAVAGE.

The resignations of Major EUGENE SWAYNE, Capt. CHARLES E. WILLIAMS, Lieuts. WILLIAM W. MAXWELL, and C. I. TRULINGER, are accepted.

## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Army Medical School* for instruction, Lieut. MONTE LE ROY MOORER, Mt. Vernon.

*To Camp Lee*, Petersburg, Va., base hospital, from Camp Dix, Lieut. BRYANT B. EDWARDS, Union Springs.

*To Camp Travis,* Fort Sam Houston, Texas, to examine the command for mental and nervous diseases, from Kelly Field, Lieut. ROBERT H. HOWARD, Tuskegee.

*To Garden City*, L. I., N. Y., for duty, from Fort Oglethorpe, Lieuts. HUGH W. HILL, Carrollton; WILLIAM R. ROUSSEAU, Hunterville.

*To Fort Oglethorpe* for instruction, from Camp McClellan, Capt. JOHN W. HOOPER, Roanoke. For instruction, Lieut. OLLIE P. BEARD, Birmingham.

*To Fort Riley* for instruction, from Camp Cody, Lieut. LLEWELLYN H. LEDBETTER, Goodwater.

*To Markleton, Pa.*, for duty, from Camp Beauregard, Lieut. CLIFFORD V. MAYHALL, Elkmont.

*To San Juan,* Porto Rico, base hospital, Lieut. SAMUEL W. HORN, Birmingham.

*Honorably discharged,* Lieut. RICHARD B. McCANN, Seale. On account of physical disability existing prior to entrance into the service, Lieut. WADE H. ESSLINGER, Meridianville.

Resignations of Lieuts. LINTON S. ARCHER, Roanoke, and ROLAND C. EVANS, Sheffield, accepted.

### Arizona

*To Fort Thomas, Ky.*, for duty, from Fort George Wright, Major RALPH W. NEWTON, Yuma.

*To Southern Department,* Lieuts. LEE H. CURRAN, Oraibi; FRANCIS R. CARTNELL, Seligman.

*To Washington, D. C.*, Aviation Section, Signal Corps, Capt. FREDERICK T. WRIGHT, Douglas.

### Arkansas

*To Camp Fremont*, Palo Alto, Calif., for duty, from Presidio, Lieut. UREY G. DAVIS, Blytheville.

*To Fort Oglethorpe* for instruction, Lieut. MAURICE F. LAUTMAN, Hot Springs; from Camp Pike, Lieuts. HORACE W. GRAVES, Elm Spring; ISAAC S. BUTLER, Marshall.

*To Fort Riley,* for instruction, Lieuts. ERASMUS S. BAKER, Paragould, THERON E. FULLER, Texarkana.

*To Rockefeller Institute* for instruction and on completion *to Camp Devens*, Ayer, Mass., base hospital, from Camp Devens, Lieut. MAC McLENDON, Marianna.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieuts. HUGH C. BROOKE, Casa; BOULANGER GWALTNEY, Haskell.

*Resignation* of Lieut. ALBERT W. RYE, London, accepted.

### California

*To Camp Beauregard*, Alexandria, La., base hospital, Major DONALD J. FRICK, Los Angeles.

*To Camp Bowie,* Fort Worth, Texas, base hospital, Lieuts. WALTER M. HOLLORAN, GEORGE F. SCHENCK, Los Angeles; ROY F. RUTH, Upland.

*To Camp Doniphan,* Fort Sill, Okla., base hospital, Capt. LASHER HART, Los Angeles.

*To Camp Fremont*, Palo Alto, Calif., for duty, from Fort Barry, Major JOSEPH L. BELL, Fort Barry; from Presidio, Major HARRY S. MOORE, San Francisco; Capt. LEMUEL A. ANTHONY, Novato; from Fort MacArthur, Capt. WALTER O. HOWELL, San Francisco; from Fort Rosecrans, Capt. ALFRED H. BYARS, San Diego; from Western Department, Capt. DAVID B. FIELDS, Weaverville.

*To Camp Lee,* Petersburg, Va., from Boston, Capt. ALBERT M. MEADS, Oakland.

*To Camp Lewis,* American Lake, Wash., base hospital, Lieut. LEO. V. ROSENTHAL, Duarte.

*To Fort Des Moines, Iowa,* from Camp Dodge, Capt. WILLIAM J. HOSFORD, Santa Cruz.

*To Fort Leavenworth, Kan.,* Department Laboratory, Lieut. GEO. H. TREVELYAN, Riverside.

*To Fort McDowell, Calif.,* Lieut. JOSEPH H. D. ROGER, San Francisco.

*To Fort Riley*, Lieut. WALLACE DODGE, Los Angeles. For instruction, Lieut. JOHN T. KERGAN, Oakland; FRANK W. H. TAYLOR, San Diego; from Camp Kearny, Lieut. GEORGE L. A. HAMILTON, Los Angeles.

*To Fort Sam Houston,* Texas, for duty, from Camp Bowie, Major JAMES R. MOORE, Los Angeles.

*To Los Angeles, Calif.,* for duty and on completion *to Camp Kearny*. Linda Vista, Calif., base hospital, Lieut. FREDERICK S. RAY, Los Angeles. For orthopedic instruction, Lieut. CHARLES A. WARMER, Ontario.

*To Portland, Ore.,* for duty, from Fort Liscom, Capt. GEORGE NEWLOVE, Calepico.

*To Western Department,* Lieut. FRANK M. WHITING, Oroville.

*To San Francisco, Calif.,* for instruction and on completion *to Camp Kearny,* Linda Vista, Calif., base hospital, Capt. CHARLES A. WAYLAND, San Jose. On completion *to Camp Lewis*, American Lake, Wash., base hospital, Lieut. OWEN M. HARRAH, Pasadena. On completion *to their proper stations* from Camp Kearny, Lieuts. JOHN G. NORMAN, Allegheny; TILTON E. TILLMAN, San Francisco. For duty, Lieuts. WILLIAM J. JACKSON, HERBERT R. D. SHOEMAKER, San Francisco.

*To Waco, Texas*, Signal Corps Aviation Camp, from Fort Riley, Lieut. WILLIAM B. THOMPSON, Los Angeles.

*Honorably discharged* on account of physical disability existing prior to entrance into the service. Capt. GEORGE H. RICHARDSON, San Francisco; Lieut. ELMER O. HOUSTON, Oakland.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Capt. WILLIAM R. SEVERSON, Los Angeles; Lieut. HERBERT P. NOTTAGE, Alameda.

*Resignation* of Lieut. CHARLES B. ALEXANDER, Alhambra, is accepted.

### Colorado

*To Camp Bowie,* Fort Worth, Texas, base hospital, Lieut. HAROLD G. MACOMBER, Denver.

*To Camp Kearny*, Linda Vista, Calif., base hospital, Lieut. WILLIAM A. McGUGAN, Denver.

*To Fort Riley* for instruction, Lieut. SAMUEL B. McFARLAND, Longmont.

*To Houston, Texas,* Signal Corps Aviation School, Lieut. FRANK J. ERDLITZ, Pyrolite.

*To Waco, Texas,* Signal Corps Aviation Camp for duty, from Fort Riley, Lieut. CARLETON C. BOOTH, Cheyenne Wells.

*To the inactive list,* from Camp Doniphan, Lieut. RANULPH HUDSTON, Denver.

*Resignation* of Lieut. EDWIN D. BURKHARD, Delagua, accepted.

### Connecticut

*To Army Medical School*, for instruction, Lieuts. WILLIAM C. McGUIRE, HERMAN R. WHITE, New Haven.

*To Camp American University*, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. EDWARD A. BRACE, Ellington.

*To Camp Greene*, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. JOHN F. SAGARINO, Hartford.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. RICHARD J. LAWTON, Terryville.

*To Cape May, N. J.*, for duty, from Philadelphia, Capt. AUGUSTIN A. CRANE, Waterbury; from New York City, Lieut. DOUGLAS J. ROBERTS, Bridgeport.

*To Fort Oglethorpe* for instruction, Capt. WILLIAM H. STOCKWELL, Hartford; Lieuts. OWEN J. GROARK, Bridgeport; WILLIAM S. BARNES, New Haven.

*To Garden City,* Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. WILLIAM E. SMITH, Stamford.

*To Williamsbridge, N. Y.,* for duty, Lieut. RAYMOND J. QUINN, Waterbury.

### Delaware

*To Fort Oglethorpe,* for instruction, Lieuts. JOHN H. MULLIN, VICTOR D. WASHBURN, Wilmington.

### District of Columbia

*To Allentown, Pa.,* Concentration Camp, base hospital, from Fort McHenry, Lieut. JOSEPH D. STOUT, Washington,

*To Camp Meade,* Annapolis Junction, Md., base hospital, from Camp Meade, Capt. EDGAR D. THOMPSON, Washington.

*To Fort McHenry, Md.,* for duty, from Camp Gordon, Lieut. JOSEPH D. STOUT, Washington.

*To Fort Oglethorpe* for instruction, Capt. NAYNARD J. SIMMONS; Lieuts. A. MAGRUDER MACDONALD, WILLIAM H. NORTON, Washington. For duty, Lieut. WILLIAM P. O'DONNELL, Washington.

*To report* to the Surgeon-General of the Army, for duty, Capt. MILTON C. WINTERNITZ, Washington.

*To Williamsbridge, N. Y.,* for temporary duty, on completion for instruction *to Rockefeller Institute,* Lieut. JAMES A. CAHILL, Jr., Washington.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Capt. CHRISTOPHER J. MURPHY, Washington.

### Florida

*To Fort Riley* for instruction, from Camp Kearny, Capt. RAYMOND B. McCLAWS, Tampa.

### Georgia

*To Atlanta, Ga.*, for duty, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. JAMES P. McGEE, Atlanta.

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. STEWART McBRYDE, Darien.

*To Camp Gordon,* Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. JOHN B. FITTS, Atlanta.

*To Camp Jackson,* Columbia, S. C., as commanding officer of base hospital, from Camp Jackson, Major STEWART R. ROBERTS, Atlanta.

*To Fort Oglethorpe,* for duty, from Fort Oglethorpe, Lieut. GORDON BURNS, Douglas. For instruction, from Camp Lee, Lieut. LUCIUS F. WRIGHT, Atlanta; from Newport News, Lieut. WESLEY C. THOMAS, Macon.

*To Garden City*, Long Island, N. Y., Aviation Section Signal Corps from Fort Oglethorpe, Lieuts. CARLTON J. WELLBORN, Blairsville; WALTER K. STEWART, Sylvester.

*To New York City*, neurosurgical school, Neurological Institute, for instruction, and on completion to Hoboken, N. J. for temporary duty, Capt. CHARLES M. REMSEN, Atlanta.

### Idaho

*To Camp Lewis,* American Lake, Wash., base hospital, Lieuts. RAYMOND D. MACRAE, St. Mary's; JAMES MacP. McCOLL, Troy.

*To Fort Riley* for instruction, Lieut. VENANDO G. LOGAN, Rockland.

*To Rockefeller Institute* for instruction, and on completion to Camp *Doniphan,* Fort Sill, Okla., base hospital, from Fort Riley, Lieut. CLAUDE W. WILLIAMS, Taclide.

### Illinois

*To Army Medical School* for instruction, Lieuts. ALFRED S. BAILEY, RUSSELL D. ROBINSON, Chicago; JOHN J. HOPKINS, Hindsboro, EDGAR E. POOS, Okawville.

*To Boston, Mass.*, General Hospital, for instruction in urology and dermatology, Lieut. HERBERT B. HENKEL, Springfield.

*To Brooklyn, N. Y.*, base hospital, Lieut. ARTHUR SPRENGER, Peoria; from Fort Riley, Lieut. EDWARD F. FOX, Chicago.

*To Camp Bowie,* Fort Worth, Texas, base hospital, Lieuts. ERIC BARTHOLOMEW, WILLIAM J. QUIGLEY, GEORGE W. SCUPHAM, Chicago; from Camp Bowie, Lieut. JESSE F. BOONE, Chicago.

*To Camp Cody,* Deming, N. M., for duty, from Kelly Field, Capt. ROMNEY M. RITCHEY, Elgin; from Camp Cody, Lieut. WILLIAM P. DAVIDSON, Sullivan.

*To Camp Custer,* Battle Creek, Mich., base hospital, Lieuts. ELMER O. DAHL, ARTHUR M. EVANS, JOHN M. MITCHELL, FRANK M. WELDY, Chicago.

*To Camp Fremont,* Palo Alto, Calif., base hospital, from Fort Riley, Lieut. FRANK J. SCHICK, Chicago.

*To Camp Grant,* Rockford, Ill., base hospital, Capt. FRANCIS LANE, Chicago. Lieut. SAMUEL G. WINTER, Galesburg; from Fort Riley, Lieut. LEON NEWMAN, Chicago.

*To Camp Jackson*, Columbia, S. C., base hospital, from Fort Riley, Lieut. WALTER S. MIX, Beardstown.

*To Camp Kearny,* Linda Vista, Calif., base hospital, from Jefferson Barracks; Capt. FRANK A. PALMER, Morris.

*To Camp Lee,* Petersburg, Va., base hospital, Lieuts. JOHN FAVILL, WILLIAM A. McQUIRE, CHARLES R. WILEY, Chicago.

*To Camp Logan,* Houston, Texas, as division psychiatrist, from San Antonio, Capt. THOMAS F. NEIL, East Moline.

*To Camp MacArthur,* Waco, Texas, base hospital, Lieuts. BERNARD BENKENDORF, CLIFFORD E. BERGIN, HENRY G. LAMPE, THOMAS P. O'CONNOR, PHILIP ROSENBLUM, Chicago; LESLIE D. DARNER, Granite City.

*To Camp McClellan,* Anniston, Ala., base hospital, Capt. WILLIAM T. DOWDALL, East St. Louis; Lieut. ADELBERT M. MOODY, Chicago.

*To Chicago, Ill.*, for duty and on completion to Camp Custer, Battle Creek, Mich., base hospital, from Camp Zachary Taylor, Lieut. LAURENCE H. MAYERS, Chicago. On completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. ROBERT E. FLANNERY, Chicago.

*To Corpus Christi, Texas,* convalescent hospital, Lieut. THOMAS G. ALLEN, Chicago. For duty, from Fort Riley, Lieut. ARTHUR W. DOWNES, Chicago.

*To Danville, N. Y.*, for duty, Lieuts. MAURICE J. RABINS, Chicago; JOSEPH M. KNOCHEL, Lincoln.

*To Fort Adams, R. I.*, for duty, from Fort Riley, Lieut. FRANK KADLEC, Chicago.

*To Fort McPherson, Ga.*, base hospital, from Fort Oglethorpe, Lieut. LEON W. KELSO, Poxton.

*To Fort Oglethorpe* for instruction, Capts. HENRY W. LANG, Chicago; CHARLES E. SCHULTZ, Shirley; from Camp Zachary Taylor, Capt. ALBERT A. ANKENBRANDT, Mt. Carmel. For instruction, Lieuts. JOHN D. HAWKS, Cambridge; JOSEPH G. BERKOWITZ, LLOYD B. CLINTON, ARTHUR C. CONRAD, FRANK C. FARMER, NELSON H. LOWRY, Jr., JOHN J. McDERMOTT, HARRY H. PETERSON, CHARLES E. PHIPPS, Chicago; GEO. E. LYON, Decatur; CLARENCE W. FLINT, Elgin; CALVIN C. MONTGOMERY, Lincoln; JULIAN J. GOLEMBIOWSKI, Waukegan.

*To Fort Riley* for duty, Capt. DAVID H. KELLER, Chicago. For instruction, Lieuts. JESSE C. BAILIFF, HARRY H. BOLTON, Jr., SIDNEY B. CONGER, ARTHUR H. HAUBER, JOSEPH A. JOHNSTON, IGNATIUS W. MATUSKA, PAUL H. ROWE, HENRY O. WERNICKE, JACOB W. WINE, Chicago; HUGH I. COAN, Metcalf.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieuts. WILLIS I. SILVERSTEIN, Chicago; HUGH Q. ALLISON, Elery.

*To Hoboken, N. J.*, for duty, from Army Medical School, Lieut. BEVERIDGE H. MOORE, Chicago.

*To Morrison, Va.*, Aviation Section Signal Corps, for duty, Lieut. CHARLES H. REINHARDT, Chicago.

*To Newport News, Va.*, for temporary duty, from Fort Riley, Lieut. BERTON W. HOLE, Ashland.

*To Philadelphia,* for duty, from Fort Oglethorpe, Lieut. HARRY J. FORTIN, Chicago.

*To Rochester, Minn.*, Mayo Clinic, for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Capt. GEORGE H. MILLER, Chicago.

*To Rockefeller Institute,* for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, from Williamsbridge, Lieut. ROSS W. GRISWOLD, Litchfield. On completion *to Camp Hancock,* Augusta, Ga., base hospital, from Fort Riley, Lieut. HARRY P. REUSS, Granite City. For instruction in laboratory work, Lieut. CHARLES POTT ECK, Chicago.

*To San Juan, Porto Rico,* base hospital, from Fort Riley, Lieut. CHARLES W. MATLOCK, Chicago.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieut. FRANK D. WILSON, Armour.

*To Williamsbridge, N. Y.*, for duty, Lieuts. FRANK S. DICOSOLA, TIMOTHY S. HUGGARD, Chicago; from Rockefeller Institute, Lieut. PIERRE A. STEELE, Chicago.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. BERTON W. HOLE, Ashland.

*Resignation* of Lieut. SAMUEL I. TAUB, Chicago, is accepted.

### Indiana

*To Army Medical School* for instruction, Lieut. EDWARD S. JOHNSTON, Star City.

*To Camp Devens,* Ayer, Mass., base hospital, Lieut. THOMAS P. GOVAN, Richmond.

*To Camp Fremont,* Palo Alto, Calif., for duty, from Fort Winfield Scott, Capt. HOMER H. TALLMAN, Culver. Base Hospital, from Fort Riley, Lieut. CHARLES E. PETERS, National Military Home.

*To Camp Pike,* Little Rock, Ark., for duty, from Camp Pike, Lieut. JOSEPH A. GRAHAM, Hammond.

*To Camp Sevier,* Greenville, S. C., base hospital, Lieut. GEORGE H. PARMENTER, Stewartville.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieuts. THEODORE F. SEYMOUR; Mishawaka, EARL E. JOHNSON, West Lebanon.

*To Camp Travis,* Fort Sam Houston, Texas, as assistant to the camp surgeon, from Fort Riley, Major EUGENE BUEHLER, Indianapolis.

*To Camp Upton*, Long Island, N. Y., for duty, from Camp Upton, Lieut. EARL L. WAITE, Rochester.

*To Camp Zachary Taylor,* Louisville, Ky., for duty, from duty as a contract surgeon at Camp Zachary Taylor, Lieut. STEPHEN C. MARKLEY, Richmond.

*To Fort Ethan Allen Vt.*, for duty, from Fort Oglethorpe, Lieut. ELBERT E. FREEMAN, Greentown.

*To Fort McPherson, Ga.*, for duty, Lieut. HERBERT T. GARRISON, Gary.

*To Fort Oglethorpe* for instruction, Capts. BUDD VAN-SWERINGEN, Fort Wayne; ORLOW C. SNYDER, Rockport; Lieuts. ARCHIE V. HINES, Auburn; EDWIN G. NELSON, La Porte; SAMUEL D. CLAYTON, Maxwell; from Camp Lee, Lieut. ELBERT BAKER, Rockville.

*To Rockefeller Institute* for instruction in laboratory work, and on completion to Army Medical School for duty, Capt. BONNELLE W. RHAMY, Fort Wayne.

*To Walter Reed General Hospital*, Takoma Park, D. C., for duty, Capt. CHARLES N. HOWARD, Warsaw.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. FREEMAN R. BANNON, Kokomo.

### Iowa

*To Army Medical School* for instruction, Lieut. ELLIOTT C. COBB, Sioux City.

*To Camp Cody,* Deming, N. M., for duty, from Camp Cody, Lieut. GEORGE J. WENZLICK, Iowa City.

*To Camp MacArthur,* Waco, Texas, base hospital, Capt. THOMAS M. HEARD, Sioux City.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. MILTON D. JEWELL, Decorah.

*To Camp Upton,* Long Island, N. Y., for duty, from Camp Upton, Lieut. WILLIAM HARRIS, Moravia.

*To Chicago, Ill.*, Northwestern Dental School, for instruction, Capt. CALVIN W. HARNED, Des Moines.

*To Douglas, Ariz.*, for duty, from Fort Riley, Lieut. ARTHUR DRUET, Larchwood.

*To Fort Clark, Texas,* for duty, from Fort Riley, Lieut. ABRAHAM G. FLEISCHMAN, Des Moines.

*To Fort Riley* for instruction, Capts. ALBIN B. PHILLIPS, Clear Lake; GRANT AUGUSTINE, Minden; Lieuts. GEORGE F. PUFFETT, Ames; DON HAMILTON NEWLAND, Belle Plaine; DAN L. MAHONEY, Dubuque; KINSLEY RENSHAW, McGregor; LOUIS E. ESLICK, Rockwell City. For duty, from Fort Riley, Lieut. HARRY J. JONES, North English.

*To Newport News, Va.*, for temporary duty, from Fort Riley, Lieut. EDWIN E. WUTTKE, Sumner.

*To Rochester, Minn.*, Mayo Clinic, for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Capt. JEFFERSON D. BLYTHING, Bettendorf.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieut. LEOMAN D. HUFF, Lenox.

*Honorably discharged,* Lieuts. FRANK L. GRIFFIN, Baldwin; WILLIAM E. BROWN, Cedar Rapids.

### Kansas

*To Camp Upton,* Long Island, N. Y., base hospital, Capt. FRANKLIN T. JOHNSON, Jr., Elindale.

*To Denver, Colo.*, for duty, and on completion to Deming, N. M., base hospital, from Fort Riley, Lieut. WILSON K. HOBART, Topeka.

*To Fort Clark, Texas,* for duty, from Fort Riley, Lieut. EUGENE M. ADKINS, Galatia.

*To Fort McPherson, Ga.*, for duty, Lieut. JOHN G. MISSILDINE, Parsons.

*To Fort Riley* for instruction, Lieuts. ROBERT G. KLEIN, Cimmarron; HARRY H. BROOKHART, Columbus; EARL V. ADAMS, Ingalls.

*To Rochester, Minn.*, Mayo Clinic, for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. MILTON B. MILLER, Topeka.

*To Waco, Texas,* Signal Corps, Aviation Camp, from Fort Riley, Lieut. GEORGE W. B. BEVERLEY, Alma.

*Honorably discharged,* Lieut. FRANK G. ELLIS, Frederick.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. WINSTON G. RAMSEY, Protection.

*Resignation* of Lieut. MALCOMB C. NEWMAN, Toronto, is accepted.

### Kentucky

*To Camp Cody*, Deming, N. M., for duty, from Camp Cody, Lieut. GEORGE A. CRAFTON, Fulton.

*To Camp Fremont,* Palo Alto, Calif., for duty, from Fort MacArthur, Lieut. HUGH F. TAYLOR, Mintonville.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. JAMES M. MORRIS, Chestnutburg.

*To Camp Sherman,* Chillicothe, Ohio, for duty, Lieut. HIRAM C. BEVINS, Thomas.

*To Camp Zachary Taylor,* Louisville, Ky., base hospital, Lieut. DAVID H. McKINLEY, Winchester.

*To Fort Oglethorpe* for instruction, Capts. LEW G. WALLACE, Falmouth; JOHN M. ACTON, Lancaster. Lieut. EDGAR HAWKINS, Louisville; from Camp Zachary Taylor, Lieuts. ALBERT STEWART, Frankfort; JAMES A. GRIDER, Smiths Grove; from Camp Wadsworth, Lieut. HOMER L. NICKELL, Salt Lick.

*To Fort Riley* for instruction, Lieut. KENNETH E. MONTGOMERY, Lexington.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. HENRY A. HUGHES, Bond.

*To Lexington, Ky.,* for duty, and on completion *to Camp Zachary Taylor,* Louisville, Ky., base hospital, Capt. VIRGIL E. SIMPSON, Louisville.

*To New York City* for instruction, and on completion *to Fort McPherson, Ga.,* for temporary duty, Capt. JOHN W. PRICE, Jr., Louisville.

*Honorably discharged,* Lieut. HARVEY L. BIGGS, Jackson.

### Louisiana

*To Camp Cody,* Deming, N. M., for duty, from Kelly Field, Major ROY McL. VAN WART, New Orleans.

*To Camp Travis,* Fort Sam Houston, Texas, base hospital, from duty as contract surgeon at New Orleans, Major EDMUND MOSS, New Orleans.

*To Fort Oglethorpe* for instruction, Lieuts. PRESSLY E. WERLEIN, New Orleans; GEORGE C. McKELLAR, Plain Dealing; from Camp Beauregard, Lieut. WALTER H. REILLEY, New Orleans; from Oklahoma City, Lieuts. THOMAS B. CRACROFT, Kelly; HENRY B. BURDESHAW, FRANK CHETTA, New Orleans.

*To San Juan, Porto Rico,* base hospital, from Camp Sevier, Capt. CHRISTOPHER L. MENGIS, Norwood.

### Maine

*To Camp Gordon,* Atlanta, Ga., for duty, from Fort Oglethorpe, Major WILLIAM L. COUSINS, Portland.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. JOSEPH E. J. PELLETIER, Lewiston.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Capt. GUSTAV A. PUDOR, Portland.

### Maryland

*To Army Medical School* for instruction, Lieut. GEORGE B. CRIST, Frederick.

*To Camp Meade,* Annapolis Junction, Md., base hospital, Majors PAGE EDMUNDS, ARCHIBALD C. HARRISON, Baltimore. For duty, Capt. WILLIAM K. WHITE, Baltimore.

*To Camp Upton,* Long Island, N. Y., for duty, from Camp Upton, Lieut. JAMES E. GUDD, Baltimore.

*To Fort Oglethorpe* for duty, from Fort Oglethorpe, Lieut. ALEXANDER M. EVANS, Baltimore. For instruction, Lieut. FRANK P. NICHOLSON, Baltimore; from Camp Lee, Lieut. LOUIS L. JACOBS, Baltimore; from Camp Meade, Lieut. ALBERT SHELLEY, Baltimore.

### Massachusetts

*To Army Medical School* for orthopedic instruction, and on completion *to his proper station,* from Harvard Medical School, Major ROBERT W. LOVETT, Boston. For instruction, Lieuts. STANLEY H. OSBORN, Cambridge; ERNEST E. SMITH, Webster.

*To Boston, Mass.,* base hospital, and on completion *to Camp Dix,* Wrightstown, N. J., from Fort Oglethorpe, Capt. WESLEY T. LEE, Boston. For duty, and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, Capt. RALPH C. WIGGIN, Cambridge. Massachusetts General Hospital, for instruction in urology and dermatology, from Camp Devens, Capt. CORNELIUS I. McGILLICUDDY, Boston; from Fort Oglethorpe, Lieut. WILLIAM K. TURNER, New Bedford. For duty, and on completion *to Camp Devens,* Ayer, Mass., base hospital, Lieut. CARL T. HARRIS, Boston.

*To Camp Devens,* Ayer, Mass., base hospital, from Camp Devens, Lieut. JACOB GONNERT, New Bedford.

*To Camp Doniphan,* Fort Sill, Okla., as sanitary inspector, from Camp Greene, Major WILLIAM J. McDONALD, Brookline. To examine the command for mental and nervous diseases, from Camp Beauregard, Lieut. FRANCIS S. GALDICOTT, Billerica.

*To Camp Sevier,* Greenville, S. C.; *Camp Wadsworth,* Spartanburg, S. C.; *Camp Jackson,* Columbia, S. C., base hospitals, and on completion *to his proper station,* Camp Wheeler, Major FRED B. LUND, Boston.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Camp Travis, Lieut. GEORGE A. MACIVER, Boston.

*To Camp Wadsworth,* Spartanburg, S. C.; *Camp Jackson,* Columbia, S. C.; *Camp Lee,* Petersburg, Va., base hospitals, and on completion *to his proper station,* from Camp Greene, Major FRANCIS W. PALFREY, Boston.

*To Camp Wheeler,* Macon, Ga., base hospital, from Fort Oglethorpe, Capt. JOHN A. McLEAN, West Somerville; Lieut. PEIRCE H. LEAVITT, Cambridge. Base hospital, Lieut. ALLEN T. MOULTON, Roxbury.

*To Cape May, N. J.,* for temporary duty, Lieut. HARRY C. SOLOMON, Boston.

*To Fort Ethan Allen, Vt.,* for duty, from Fort Oglethorpe, Lieut. ROBERT S. FLETCHER, Oxford.

*To Fort McPherson, Ga.,* for duty, from Fort Oglethorpe, Lieut. EARL H. HUSSEY, Fall River.

*To Fort Oglethorpe* for instruction, Lieuts. ROBERT J. COOK, Boston; SAMUEL E. CHALFEN, Cambridge; THOMAS B. RAFFERTY, Lynn.

*To Fort Rodman, Mass.,* for duty, from Fort Adams, Lieut. VICTOR S. MERRITT, Springfield.

*To Garden City,* Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. JOHN F. MARTIN, Boston.

*To Hoboken, N. J.,* for duty, Capt. ORVILLE R. CHADWELL, Jamaica Plains; from duty as a private at Camp Devens, Lieut. ANTHONY J. RODERICK, New Bedford.

*To New York,* Bellevue Hospital, for instruction and on completion *to Camp Devens,* Ayer, Mass., base hospital, Lieut. EDWIN A. MESERVE, Boston. Neurosurgical school, Neurological Institute, for instruction and on completion *to Camp Wheeler,* Macon, Ga., base hospital, Lieut. DONALD MUNRO, Milton.

*To Rockefeller Institute* for instruction in laboratory work and on completion *to Army Medical School,* for duty, Capt. GEORGE G. PARLOW, Fall River; Lieut. FRANK B. BERRY, Cambridge. For instruction in the serum therapy of pneumonia, Lieut. ARTHUR B. LYON, Boston.

*To San Juan,* Porto Rico, base hospital, Lieut. STEPHEN J. DALTON, Marlboro.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Major WALTER B. LANCASTER, Boston.

### Michigan

*To Army Medical School* for instruction, Lieut. EMMETT C. TROXELL, Detroit.

*To Boston, Mass.,* General Hospital, for instruction in urology and dermatology, Lieut. MAXWELL LANDO, Detroit.

*To Brooklyn, N. Y.,* base hospital, from Newport News, Lieut. ROBERT A. DAVIS, Clinton.

*To Camp Custer,* Battle Creek, Mich., base hospital, Lieut. CLARENCE A. CHRISTENSEN, Detroit; from Fort Oglethorpe, Lieut. ERNEST C. SCHULTZ, Detroit.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieuts. CLAYTON A. WHITE, Burnips; WILLIAM G. SCHLEGELMILCH, Detroit; COLIN C. VARDON, East Jordan.

*To Camp Jackson,* Columbia, S. C., base hospital, from Fort McHenry, Lieut. EDWIN M. CHAUNCEY, Albion.

*To Cape May, N. J.,* for duty, Capt. RAY CONNOR, Detroit.

*To Columbus Barracks, Ohio,* for duty, Capt. BENJAMIN E. A. CRANE, Saginaw; Lieut. EDWARD J. AGNELLY, Detroit.

*To Corpus Christi* for duty, from Camp Sherman, Capt. BERTRAM H. OLMSTEAD, Calumet.

*To Fort Oglethorpe* for instruction, Lieut. ARTHUR R. MUSSELL, Clare.

*To Fort Riley* for instruction, Capt. WILLIAM S. BROWNELL, Detroit.

*To Garden City,* Long Island, N. Y., Aviation Section Signal Corps, from Oglethorpe, Lieut. WILBUR F. SHIRKEY, Jr., Detroit.

*To Hoboken, N. J.,* for duty, from Camp Custer, Lieut. ROSCOE C. MAIN, Marquette.

*To Pittsburgh, Pa.,* for instruction, and on completion *to their proper stations,* from Fort Oglethorpe, Capt. GEORGE S. FODEN, Highland; Lieut. LUCIUS M. PATTERSON, Detroit.

*To Rockefeller Institute* for instruction, and on completion *to Camp MacArthur,* Waco, Texas, base hospital, from Fort Riley, Lieut. HAROLD B. MARKHAM, Marquette.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieuts. HAROLD F. CLOSZ, CLYDE R. VAN GUNDY, Detroit; NELSON McLAUGHLIN, Lake Odessa; EARL V. McCOMB, Menominee.

*To Williamsbridge, N. Y.,* for duty, Lieuts. AARON L. CHAPMAN, Detroit; CUTHBERT E. DEMAY, FRED L. RHODES, Jackson.

*To the inactive list,* from Camp Doniphan, Lieut. DAMON O. WALTHALL, Ann Arbor.

*Honorably discharged* on account of physical disability existig prior to his entrance into the service, Lieut. OSCAR P. GEIB, Hubbardson.

### Minnesota

*To Ann Arbor, Mich.,* psychopathic hospital, for intensive training, Lieut. FRANK W. WHITMORE, St. Paul.

*To Camp Custer,* Battle Creek, Mich., base hospital, Lieut. ROBERT I. BARICKMAN, Lewisville.

*To Camp Dodge,* Des Moines, Iowa, base hospital, Major FRANK E. BURCH, St. Paul.

*To Camp Doniphan,* Fort Sill, Okla., to examine the command for mental and nervous diseases, from Camp Beauregard, Lieut. EDWARD J. ENGBERG, St. Paul.

*To Camp Lee,* Petersburg, Va., base hospital, from Boston, Lieut. CHARLES K. HOLMES, St. Paul.

*To Camp McClellan,* Anniston, Ala., base hospital, Lieut. CHARLES H. GHENT, St. Paul.

*To Cape May, N. J.,* for temporary duty, from Walter Reed General Hospital, Lieut. ARTHUR T. HENRICI, Minneapolis.

*To Chicago, Ill.,* Northwestern University Dental School, for instruction, Capt. WARNER M. KARSHNER, Rochester.

*To Fort Leavenworth, Kans.,* Department Laboratory, Capt. WINFIELD S. NICKERSON, Long Lake.

*To Fort McPherson, Ga.,* base hospital, Lieut. OLIVER C. NELSON, Rochester.

*To Fort Oglethorpe* for instruction, from Oklahoma City, Capt. ROBERT H. MONOHAN, International Falls; Lieut. WILLIAM A. LEE, Underwood.

*To Fort Riley* for instruction, Capt. HARRY H. SELLERS, Minneapolis; Lieuts. LINWOOD M. KEENE, Alexandria; BERNT ODEGNARD, Emmons; JOHN G. GOGGIN, Stewartsville.

*To Hoboken, N. J.,* for duty, from Camp Upton, Capt. GORDON G. ST. CLAIR, Section Thirty.

*To New York City* for instruction in orthopedic surgery, from Allentown, Lieut. PAUL W. GIESSLER, Minneapolis.

*To Pittsburgh, Pa.,* for instruction, and on completion *to his proper station,* from Fort Riley, Lieut. FRANK E. ELLISON, Monticello.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* Lieuts. HERMAN W. HUNDLING, RALPH R. SIMMONS, Rochester.

*To San Francisco, Calif.,* for instruction, and on completion *to his proper station,* from Camp Kearny, Capt. RALPH J. SEWALL, Minneapolis.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieut. PARKER L. BERGE, Brainerd.

*To Washington, D. C.,* for duty, from Fort Oglethorpe, Major CHARLES H. MAYO, Rochester.

### Mississippi

*To Camp Bowie,* Fort Worth, Texas, base hospital, Lieut. ROBERT H. PEGRAM, Potts Camp.

*To Camp Devens,* Ayer, Mass., as a member of the tuberculosis examining board, from Camp Devens, Capt. PARKER M. CORT, Springfield.

*To Camp Sheridan,* Montgomery, Ala., *Camp Wheeler,* Macon, Ga., *Camp Gordon,* Atlanta, Ga., *Camp McClellan,* Anniston, Ala., base hospitals, and on completion *to his proper station* from Camp Shelby, Major WALTER W. CRADFORD, Hattiesburg.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieuts. ABNER J. BARNETT, Carthage; VERSILE E. GATES, Raber.

*To Fort Oglethorpe* for instruction, Lieuts. HENRY G. KALDROP, Bethany; THOMAS A. STRAIN, Meridian; CASSIUS D. ALEXANDER, Vaiden; from Camp Beauregard, Lieut. HUGH L. McCALIP, Rockport; from Camp McClellan, Lieut. HILTON R. CARR, Water Valley.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. GRAHAM W. DIGGS, Black Hawk.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieut. JOHN H. KELLIS, Shugualak.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. JAMES Q. FOUNTAIN, Bay St. Louis; ARCHIBALD W. McNEAL, Ruleville.

*Resignation* of Lieut. JAY R. MANNING, Corinth, is accepted.

### Missouri

*To Ann Arbor, Mich.,* psychopathic hospital, for intensive training, Capt. WILLIAM T. PATTERSON, Shelbina.

*To Army Medical School* for instruction, from Washington, D. C., Capt. GREENE D. McCALL, Fulton.

*To Austin, Texas,* for duty, from Fort Riley, Lieut. CHARLES MOORE, Advance.

*To Camp Beauregard,* Alexandria, La., base hospital, Lieut. VINCENT F. TOWNSEND, St. Louis.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. GROVER C. JOHNSON, Beele.

*To Camp Gordon,* Atlanta, Ga., base hospital, from Fort Riley, Lieut. HERBERT H. PRICE, St. Louis.

*To Camp MacArthur,* Waco, Texas, base hospital, Lieuts. MERRILL N. SMITH, Fayette; IRWIN H. SCHMIDT, St. Louis.

*To Camp McClellan,* Anniston, Ala., base hospital, Lieut. WALTER J. JARACZ, St. Louis.

*To Camp Sherman,* Chillicothe, Ohio, Lieut. ORRILL LEG. SUGGETT, St. Louis.

*To Camp Wadsworth,* Spartanburg, S. C., base hospital, Lieuts. MEYER S. FLEISHER, JOHN R. VAUGHAN, St. Louis.

*To Corpus Christi, Texas,* Convalescent Hospital, from Camp Custer, Major WILLIAM J. FRICK, Lancaster. For duty, from Fort Riley, Lieuts. VIRGIL S. DANGERFIELD, Lurray; JAMES T. COOK, WALTER J. MELLIES, St. Louis.

*To Douglas, Ariz.,* for duty, from Fort Riley, Lieut. JOHN H. WHITTAKER, Kansas City.

*To Fort Ethan Allen, Vt.,* for duty, from Fort Riley, Lieut. LUX H. BOCK, St. Louis.

*To Fort McPherson, Ga.,* base hospital, Capt. GEORGE H. HOXIE, Kansas City; Lieuts. MORRIS H. CLARK, CHARLES C. DENNIE, Kansas City; HENRY ST. C. O'DONNELL, St. Louis.

*To Fort Riley,* base hospital, Capt. JAMES G. CALHOUN, St. Louis. For instruction, Capt. THOMAS C. RICHARDS, Fayette; Lieuts. GOUGH H. TARR, Charleston; BID C. COLE, De Witt; EUGENE A. MILLER, HENRY O. WITTEN, St. Joseph; JAMES C. LANDREE, St. Louis.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieut. HARRY S. CRAWFORD, Harrisonville.

*To Jefferson Barracks, Mo.,* to conduct a nutritional survey, from Belleville, Ill., Capt. DON R. JOSEPH, St. Louis.

*To Lake Charles, La.,* Signal Corps Aviation School, Gerstner Field, from Fort Riley, Capt. NORVELL W. SHARPE, St. Louis.

*To Newport News, Va.,* for duty, Lieuts. JONAS C. KOPELOWITZ, DANIEL P. WRIGHT, St. Louis; from Fort Riley, Lieut. FLOYD H. MAPLES, St. Louis.

*To Pittsburgh, Pa.,* for instruction, and on completion *to his proper station,* from Fort Riley, Lieut. CLAY M. MULLINAX, Princeton.

*To Rockefeller Institute* for instruction, and on completion *to Camp Wadsworth,* Spartanburg, S. C., base hospital, from Fort Riley, Lieut. MADISON J. PULLIAM, St. Louis.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. CLYDE M. VALSLEY, Joplin.

### Montana .

*To Camp Lewis,* American Lake, Wash., base hospital, Lieut. FRANK W. COTTON, Lewistown.

*To Corpus Christi, Texas,* for duty, from Fort Riley, Lieuts. WILLIAM D. MADDEN, Great Falls; WINFIELD S. FAULDS, Roy.

*To Fort Clark, Texas,* for duty, from Fort Riley, Lieut. CLAUDE C. TUCKER, Scobey.

*To Fort Riley* for instruction, Lieut. EUGENE F. BRINDJONC, Butte.

*To Rochester, Minn.,* Mayo Clinic, for instruction and on completion *to Camp Grant,* Rockford, Ill., base hospital, Lieut. CARL A. JOHNSON, Anaconda.

### Nebraska

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. CHARLES C. WALLINGSFORD, Ogallala.

*To Camp Grant,* Rockford, Ill., base hospital, from Fort Riley, Capt. JOHN BUIS, Pender.

*To Douglas, Ariz.,* for duty, from Fort Riley, Lieut. WILLIAM EDMONDS, Nebraska City.

*To Fort Leavenworth, Kan.,* Department Laboratory, Lieut. CLARK D. SPIVEY, Lincoln.

*To Fort Omaha, Neb.,* for duty, Lieut. LEONARD RIGGERT, Omaha.

*To Fort Riley* for instruction, Major CHARLES A. HULL, Capts. JOHN R. NILSSON, NORMAN C. PRINCE, Omaha. Base hospital, Capt. JAMES C. WADDELL, Pawnee City. For instruction, Lieuts. JOHN H. REGAN, Grand Island; MILES J. BREUER, Lincoln; ARTHUR J. GRIOT, Long Pine; JOHN L. LINN, Omaha.

*To Jefferson Barracks, Mo.,* for duty, from Fort Riley, Lieut. HANS C. PEDERSEN, Dannebrog.

*To New York City,* Neurological Institute, for intensive training in nervous diseases, Capt. GUSTAVE W. DISHONG, Omaha.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. SANFORD R. GIFFORD, Omaha.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Capt. GLYNDON A. YOUNG, Ponca.

*The resignation* of Lieut. HERMAN A. GERBIG, Friend, is accepted.

### New Hampshire

*To Brooklyn, N. Y.,* base hospital, Lieut. DANIEL J. SULLIVAN, Manchester.

*To Hoboken, N. J.,* for duty, Lieut. GOODWIN A. JOHNSON, Concord.

### New Jersey

*To Army Medical School* for instruction, Lieuts. SYDNEY CHAYES, Bayonne; JOHN H. E. FUST, Corney's Point; GERALD L. HIGGINS, Jersey City; WILLIAM W. SISSERSON, Westfield.

*To Boston, Mass.,* General Hospital, for instruction in urology and dermatology, Capt. CHARLES R. MITCHELL, Paterson.

*To Camp Custer,* Battle Creek, Mich., base hospital, Lieuts. IRWIN MARKOWITZ, ABRAHAM J. NEWMAN, Jersey City.

*To Camp Devens,* Ayer, Mass., base hospital, Lieut. EDMUND J. DALY, Bayonne.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., base hospital, from Fort Riley, Lieut. BENNETTE W. HOAGLAND, Woodbridge.

*To Camp Lee,* Petersburg, Va., base hospital, from Camp Lee, Lieut. HOWARD S. SMITH, Newark.

*To Camp Sheridan,* Montgomery, Ala., *Camp McClellan,* Anniston, Ala., *Camp Pike,* Little Rock, Ark., for duty and on completion *to his proper station,* Major GEORGE H. LATHROPE, Morristown.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. FRANCIS W. PIKE, Hoboken.

*To Danville, N. Y.,* for duty, Lieut. FRANK J. VAN NOORT, Paterson.

*To Fort Monroe, Va.,* for duty, from Fort Oglethorpe, Lieut. JOHN A. BOTTI, Jersey City.

*To Fort Oglethorpe* for instruction, Lieut. BENJAMIN J. SILVERSTEIN, Newark.

*To Garden City,* Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieut. JOHN F. WEBER, South Amboy.

*To Newport News, Va.,* for temporary duty, from Fort Oglethorpe, Capt. LEONARD F. HATCH, Vineland.

*To New York City,* Bellevue Hospital, for instruction and on completion *to Camp Upton,* Long Island, N. Y., base hospital, Lieut. BERNARD A. O'CONNOR, Harrison.

*To Rockefeller Institute* for instruction and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. BROOKE DODSON, Penns Grove.

*To San Juan, Porto Rico,* base hospital, from Camp Wheeler, Capt. JESSE D. LIPPINCOTT, Newark.

*To his home* and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM L. BULLOCK, Atlantic City.

### New Mexico

*To Camp Cody,* Deming, N. M., for duty, Capt. SILVINS S. CRAIG, Santa Rosa.

### New York

*To Allentown, Pa.,* base hospital, from Fort McHenry, Capt. MORRIS J. KARPAS, Lieut. ROYALL G. CANNADY, New York City.

*To Army Medical School* for instruction, Lieuts. JAMES A. BILELLO, WILLIAM H. COOK, JOSEPH G. STRICKLER, Brooklyn; SAMUEL BARONE, RAYMOND HENSEL, PORTER A. STEELE, Buffalo; EDMUND H. PARIZOT, Cochecton; J. DE RAISMES COMBES, Elmhurst; ROY J. JUHRE, Fredonia; JOHN F. HEALEY, Hornell; FRANCIS G. RILEY, Jamaica, L. I.; MAURICE B. BENDER, LEO. MICHAELS, New York City; LEON C. COTE, Warrensburg.

*To Brooklyn, N. Y.,* base hospital, Capts. SAMUEL F. FISHER, JAMES T. FLANAGAN, Brooklyn; from Camp Beauregard, Capt. MORRIS B. BEECROFT, Brooklyn; from Kelly Field, Capt. JOHN F. W. MEAGHER, Brooklyn. Base hospital, Lieuts. RALPH H. GARLICK, CHARLES E. RYND, Brooklyn; from Cornell Medical College, Lieut. RICHARD A. RENDRICH, Brooklyn; from Camp Upton, Lieuts. GEORGE C. McELVARE, RICHARD F. SEIDENSTICKER, Brooklyn; from Fort Jay, Lieut. ROBERT T. IRVINE, Ossining; from Fort Oglethorpe, ARTHUR J. O'CONNOR, Brooklyn.

*To Camp Cody,* Deming, N. M., to examine the command for mental and nervous diseases, Lieuts. ABRAHAM M. RABINER, Albany; CLARENCE J. D'ALTON, New York City.

*To Camp Custer,* Battle Creek, Mich., base hospital, Lieut. MORRIS JACOFF, Brooklyn.

*To Camp Fremont,* Palo Alto, Calif., for duty, from Presidio, Lieut. EDWIN M. JOHNSON, New York City.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Capt. THOMAS A. ROGERS, Plattsburg; from Camp Greene, Lieut. ARTHUR F. KRAETZER, New York.

*To Camp Hancock,* Augusta, Ga., base hospital, Lieuts. AMOS J. MINKEL, Hamburg; HOWARD D. MacFARLAND, Westernville.

*To Camp Jackson,* Columbia, S. C., for duty, from Camp Jackson, Major WALTER BENSEL, New York.

*To Camp Lee,* Petersburg, Va., base hospital, Capt. WILLIS S. COBB, Corning; Lieut. ANTONIO L. BARONE, Buffalo.

*To Camp Meade,* Annapolis Junction, Md., base hospital, Lieut. ARTHUR L. CHAMBERS, New York City.

*To Camp Merritt, N. J., Camp Dix,* Wrightstown, N. J., *U. S. Filling Station,* Edgewood, Md., *Camp Meade,* Annapolis Junction, Md., *Fort Myer, Va., Camp Devens,* Ayer, Mass., *Camp Upton,* Long Island, N. Y., for inspection, and on completion *to his proper station,* Capt. BRAINERD H. WHITBECK, New York.

*To Camp Shelby,* Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Lieut. ALLEN E. VAN NOSS, New York City.

*To Camp Sheridan,* Montgomery, Ala., base hospital, Lieut. CHARLES LUTZ, New York City.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. WILLIAM ZUCKERMAN, Brooklyn.

*To Camp Stuart,* Newport News, Va., for duty, from Fort Ethan Allen, Major ARTHUR S. MOORE, Middletown; from Camp Greene, Capt. EMIL ALTMAN, New York.

*To Camp Travis,* Fort Sam Houston, Texas, to examine the command for mental and nervous diseases, from Kelly Field, Lieut. AUGUSTUS B. DYKMAN, Riverdale.

*To Camp Upton,* Long Island, N. Y., *Camp Devens,* Ayer, Mass., *Camp Meade,* Annapolis Junction, Md., base hospitals, and on completion *to his proper station,* from Camp Dix, Capt. HOWARD BOVAIRD, New York. *To Camp Upton,* base hospital, from Camp Upton, Capt. WALTER H. VOSBURG, Dunkirk. For duty, from Fort Oglethorpe, Capt. JAMES H. McCORT, Sag Harbor; from Camp Upton, Lieuts.

JOSEPH L. BEHAN, SOLOMON J. SAMBUR, Brooklyn. Base hospital, Lieuts. CESARE MONDINI, Brooklyn, LOUIS L. GOLDBLATT, New York City.

*To Curtis Bay, Md.,* for duty, from Fort Oglethorpe, Lieut. GUNNI J. BUSCK, Westfield.

*To Fort McPherson, Ga.,* for duty, Lieut. SAMUEL ZUCKERMANN, New York City.

*To Fort Oglethorpe* for instruction, Capts. CHARLES H. GALLAGHER, Ithaca; JAMES P. FISKE, New York City; MYRON B. PALMER, Rochester; from Camp Lee, GEORGE D. HAMLEN, New York. For instruction, Lieuts. RAYMOND F. A. KIRCHER, Albany; JAMES T. BOYD, CLARENCE F. FOWLER, JAMES C. SHARP, Brooklyn; BROOKS W. McCUEN, Cohoes; WILLIAM B. GIBB, Haverstraw; THOMAS A. McGRATH, Hoosick Falls; JACOB BRANOWER, LOUIS CARP, MICHAEL E. CAVALLE, KIRBY DWIGHT, FREDERICK W. HOLCOMB, ANTHONY MANGIARACINA, ABRAHAM B. PENSLER, New York City; LAWRENCE E. COTTER, Poughkeepsie; LOUIS E. McCANNA, White Plains; from Camp Beauregard, Lieut. STANLEY S. INGALLS, Parish; from Camp Gordon, Lieut. ALBERT F. A. BARRY, Stony Point; from Camp Lee, Lieuts. NELSON H. HOLDEN, Brooklyn; FRANCIS ARGUS; Buffalo; SIDNEY TRATTNER, THERON C. WALKER, New York City; from duty as a private at Camp Upton, Lieut. EDGAR B. PROUT, New York City; from Fort McHenry, Lieut. LEO GOTTSCHALK, Bronx; from Fort Oglethorpe, HERBERT ADLER, New York.

*To Fort Riley* for duty, from Camp Custer, Lieuts. WILLIAM T. SHIELDS, Troy. For instruction, from Camp Dodge, Lieut. RALPH L. DOURMASHKIN, New York City.

*To Garden City,* Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieuts. HENRY BOLEY, Brooklyn; LLOYD T. McNULTY, Norwood; PAUL S. PERSONS, Ripley; from Fort Oglethorpe, Lieut. HERMAN MARTINSON, New York City.

*To Hoboken, N. J.,* for duty, Major RAYMOND CLARK, Lieut. JAMES L. COBHAM, Brooklyn; from Camp Upton, Lieut. WILLIAM H. SEWARD, Amsterdam.

*To Jefferson Barracks, Mo.,* to conduct a nutritional survey, from Belleville, Ill., Lieut. ALLEN G. T. HIPPS, Brooklyn.

*To Muncy, Pa.,* and *Clifton Springs, N. Y.,* for inspection and on completion *to his proper station,* Major RICHARD H. HUTCHINGS, Ogdensburg.

*To Newport News, Va.,* for duty, Lieut. ARCHIBALD BUCHANAN, Troy.

*To New York City* as instructor in orthopedic work, from New York City, Capt. BRAINERD H. WHITBECK, New York. For temporary duty, Capt. JOHN F. FRASER, New York City. Neurological Institute, for intensive training, Capt. ARTHUR D. DRYFOOS, New York City; Lieuts. HAROLD R. ROBERT, Dannemora: LEONARD S. NOLAN, Syracuse. Base hospital, Lieut. THOMAS E. LAVELLE, New York City; and on completion *to Fort McHenry, Md.,* for temporary duty, from Hoboken, Lieut. THOMAS F. DAVIES, Floral Park.

*To Princeton, N. J.,* Princeton University, for duty, Lieut. PETER P. McGLADE, New York City.

*To Rockefeller Institute* for instruction, and on completion *to Camp Lee,* Petersburg, Va., base hospital, Major THOMAS B. SPENCE, Brooklyn. On completion *to Camp Hancock,* Augusta, Ga., base hospital, Major JAMES H. LAWSON, New York. On completion *to his proper station,* from Camp Greene, Capt. CORDEN T. GRAHAM, Rochester. On completion *to Williamsbridge, N. Y.,* for temporary duty, from Fort Oglethorpe, Capt. WILLIAM J. MEYER, White Plains; Lieut. SEYMOUR G. CLARK, Brooklyn; from Fort Riley, Lieut. THEODORE B. REED, New York. For instruction in laboratory work, Lieuts. ADOLPH G. DE SANCTIS, JACQUES S. UHR, New York City. On completion *to Army Medical School* for duty, Lieut. MAXIMILIAN B. HEMSER, New York City.

*To San Juan, Porto Rico,* base hospital, from Camp Sheridan, Major EDWARD W. PEET, New York; from Fort Oglethorpe, Lieut. ERNEST L. SCHNEFER, Brooklyn.

*To University, Va.,* for duty, and on completion *to Camp Sevier,* Greenville, S. C., base hospital, from Rockefeller Institute, Lieut. HERBERT F. JACKSON, New York.

*To Washington, D. C.,* for duty in the Surgeon General's Office, Major LEWIS A. CONNER, New York City. Government Hospital for the Insane, for intensive training, from Camp Jackson, Capt. GEORGE A. BLAKESLEE, New York.

*To Watervliet, N. Y.,* for duty, from duty as contract surgeon at Watervliet, Capt. FRANCIS J. NOONAN, Troy.

*To Williamsbridge, N. Y.,* for instruction in hospital management, Capt. EDMOND J. BARNES, New York City. For duty, from New York City, Major LEWIS G. COLE, New York City. For duty, Lieuts. FRANK KRUSE, CHARLES C. PANZARELLA, Buffalo; CARL G. SEHWAN, Danville; JACOB SACHA, Rochester.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Major ROBERT W. ANDREWS, Poughkeepsie; Capts. GEORGE S. ALLEN, Clyde; LESLIE M. WILKINS, Dexter; Lieuts. CHARLES S. GOODWIN, Bridgeport; LEO. GOTTSCHALK, SAMUEL SWIFT, New York City.

*Honorably discharged,* Lieuts. PERRY J. MANHEIMS, WILLIAM B. NOYES, New York City.

*Resignations* of Capt. FLOYD A. BENJAMIN, Cherry Creek, and Lieut. LEANDER P. FERNANDEZ, Yonkers, are accepted.

### North Carolina

*To Army Medical School* for duty, Lieut. JOHN E. WINE, Wilmington. For instruction, Lieut. RICHARD B. DAVIS, Weeksville.

*To Camp Greene,* Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. BURTON B. STURDIVANT, Sunburst.

*To Camp Lee,* Petersburg, Va., as divisional tuberculosis specialist, from Camp Lee, Lieut. JOHN DONNELLY, Charlotte.

*To Camp Pike,* Little Rock, Ark.; *Fort Oglethorpe, Ga.; Camp McClellan,* Anniston, Ala.; *Camp Sheridan,* Montgomery, Ala., for duty, and on completion *to his proper station,* Major JOHN T. BURRUS, High Point.

*To Camp Upton,* Long Island, N. Y., for duty, from Camp Upton, Lieut. L. DOWE FLOYD, Cerro Gordo.

*To Fort Caswell, N. C.,* for duty, Capt. ANDREW H. HARRISS, Wilmington.

*To Fort Oglethorpe* for instruction, from Camp Greene, Lieut. HARVEY ROBINSON, Reidsville.

*To Garden City,* Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. JOHN C. DYE, Statesville.

*To San Juan, Porto Rico,* base hospital, from Camp Beauregard, Lieut. ANDREW B. HOLMES, Council.

*Resignation* of Lieut. LEAMAN BAGGETT, Tabor, is accepted.

### North Dakota

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. DICKENSON C. WHEELOCK, Epping.

*To Douglas, Ariz.,* for duty, from Fort Riley, Lieut. CARL VOSS, Hettinger.

*To Fort Leavenworth, Kan.,* Department Laboratory, Lieut BERNARD D. VERRET, Rolla.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieut. JOSEPH A. SMITH, Noonan.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. WILLIAM L. COWPER, Michigan.

### Ohio

*To Army Medical School* for instruction, Lieuts. ROBERT J. JUDKINS, Barnesville; EDWARD P. NEARY, Cleveland; THOMAS F. HIGGINS, Toledo.

*To Brooklyn, N. Y.,* base hospital, from Camp Upton, Lieut. CARROLL H. SKEEN, Senecaville.

*To Camp Beauregard,* Alexandria, La., base hospital, from Camp Shelby, Lieut. ZALMON C. SHERWOOD, Geneva.

*To Camp Cody,* Deming, N. M., for duty, from Kelly Field, Lieut. JAMES A. BELYEA, Toledo.

*To Camp Gordon,* Atlanta, Ga., base hospital, Capt. ALFRED T. COLE, Cincinnati; from Fort Oglethorpe, Lieut. CHARLES R. DEEDS, Dalton.

*To Camp Greene,* Charlotte, N. C., base hospital, Capt. HARRY S. HAYES, Whitehouse.

*To Camp Lee,* Petersburg, Va., base hospital, Lieut. ROBERT A. THORNTON, Columbus.

*To Camp McClellan,* Anniston, Ala., base hospital, Lieut. LESLIE E. LUEHRS, Cincinnati.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Camp Sherman, Capt. ROBERT W. WILLIAMS, Cleveland; Lieut. HENRY M. METCALF, Elyria.

*To Camp Taylor,* Louisville, Ky., base hospital, Lieut. GEORGE A. GORSUCH, Bowling Green.

*To Cincinnati, Ohio,* base hospital, and on completion *to Camp Sherman,* Chillicothe, Ohio, for temporary duty, from Camp Zachary Taylor, Lieut. LAUREN N. LINDENBERGER, Cincinnati.

*To Columbus Barracks, Ohio,* for duty, Lieut. EVERETT T. SKEELS, Akron.

*To Edgewood, Md.,* for duty, Lieut. HAROLD R. NEELAND, Akron.

*To Fort Oglethorpe* for instruction, Capts. WILLIAM W. McMILLAN, Marietta; DANIEL C. MOOR, Toledo; Lieuts. HERBERT A. RODENBAUGH, Barburton; ALBERT P. HOFMANN, ALEXANDER R. JOHNSTON, Cincinnati; PAUL C. GAUCHAT, JAMES R. MOORE, HERMAN SHUBE, Cleveland; VICTOR B. WELLER, Delaware; ADDISON H. HATTERY, Fostoria; FREDERICK M. HOUGHTALING, Huron; CHARLES R. FISHEL, Thurston; from Camp Wadsworth, Lieut. JOHN H. NORRICK, Frederickstown.

*To Garden City,* Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieut. FRANK S. VAN DYKE, Columbus; from Fort Oglethorpe, Lieut. GEORGE W. MANNING, Kelley's Island.

*To Philadelphia, Pa.,* for duty, from Jenkins Arcade, Lieut. GUY H. SWAN, Bellefontaine.

*To Rockefeller Institute* for instruction, and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, Capt. BENJAMIN F. LEHMAN, Cincinnati. For instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieuts. JAY B. RUDOLPHY, Barbertown; ALBERT F. SNELL, Jr., Cincinnati; MAURICE RICHARDSON, Cleveland.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieuts. EDGAR D. ALLEN, Crooksville; WALTER E. DAPP, Youngstown.

*To Washington, D. C.,* for duty, from Army Medical School, Lieut. CHARLES A. S. WILLIAMS, Marietta.

*To their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. ALBERT J. BRAINARD, South Euclid; Lieut. HENRY C. PRILL, Cleveland.

*The resignation* of Lieut. GEORGE R. WISEMAN, Amherst, is accepted.

### Oklahoma

*To Camp Bowie,* Fort Worth, Texas, for temporary duty, and on completion to Oklahoma City, Lieut. WILLIS E. WEST, Oklahoma City.

*To Camp Cody,* Deming, N. M., for instruction, Capt. RALPH V. SMITH, Tulsa. For duty, from Camp Cody, Lieut. CHARLES W. ALEXANDER, Temple; from Oklahoma City, Lieut. GARDNER H. APPLEWHITE, Shawnee.

*To Camp Pike,* Little Rock, Ark., to examine the command for mental and nervous diseases, Lieut. JAMES J. GABLE, Norman.

*To Corpus Christi, Texas,* as commanding officer, from Camp Sheridan, Major FRED H. CLARK, El Reno.

*To Fort Leavenworth, Kan.,* Department Laboratory, Lieut. BARTON H. WATKINS, Gotobo.

*To Fort Oglethorpe* for instruction, Lieut. FRANCIS A. DEMAND, Oklahoma City; from Camp Beauregard, Lieut. GEORGE W. TILLY, Kusa; from Oklahoma City, Lieuts. REUBEN M. HARGROVE, Norman; NOVAL W. CAMPBELL, Poteau.

*To Fort Riley* for instruction, Lieuts. JULIUS W. NIEWEG, Duncan; GEORGIA M. COMBEST, Lamar; ELMER F. GARLINGON, Olustee; from Camp Doniphan, Lieut. R. EARLE SMITH, Gracemont.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieut. WILLIAM B. HARNED, Chattanooga.

*The resignation* of Lieut. JAMES E. PARRAMORE, Antlers, is accepted.

### Oregon

*To Camp Fremont,* Palo Alto, Calif., for duty from Western Department, Lieut. JAMES A. BEST, Pendleton.

*To Camp Lewis,* American Lake. Wash., base hospital, Capt. WILLIAM S. KNOX, Lieut. FLOYD B. LAWTON, Portland.

*To Fort Riley,* base hospital, Lieut. ARTHUR S. ROSENFELD, Portland.

*To report by wire to the Commanding General, Western Department,* for assignment to duty, Lieuts. GORDON MacCRACKEN, Ashland; WILLIAM E. HEDGES, Juntura.

*To San Francisco, Calif.,* for instruction and on completion *to Camp Kearny,* Linda Vista, Calif., base hospital, Capt. HILLIS H. HATTERY, Pendleton. On completion *to Camp Lewis,* American Lake, Wash., base hospital, Lieut. EDWARD F. ZIEGELMAN, Portland.

## Pennsylvania

*To Army Medical School* for instruction, Lieuts. HAROLD H. LAMB, Braddock; HARRY L. BAKER, Catasauqua; MICHAEL R. LONG, Leetonia; RAY R. HETHERINGTON, JOHN H. McCUTCHEON, Philadelphia; GEORGE W. KRICK, Jr., Reading; PHILIP L. COOK, Wyalusing. For orthopedic instruction, Lieut. MAX A. BLUMER, Pittsburgh.

*To Boston, Mass., General Hospital,* for instruction in urology and dermatology, Lieut. JOHN B. HAINES, Philadelphia.

*To Camp American University,* Washington, D. C., for duty from Fort Oglethorpe, Lieut. WALLACE R. McCLELLAN, Garrett.

*To Camp Cody,* Deming, N. M., to examine the command for mental and nervous diseases, Major HORACE PHILLIPS, Philadelphia. For duty, from Kelly Field, Lieut. EMORY L. DRAVO, Warren.

*To Camp Doniphan,* Fort Sill, Okla., to examine the command for mental and nervous diseases, from Camp Beauregard, Capt. WILLIAM W. RICHARDSON, Mercer.

*To Camp Meade,* Annapolis Junction, Md., for temporary duty and on completion *to Camp Greene,* Charlotte, N. C., as division psychiatrist, from Camp Wadsworth, Capt. SAMUEL LEOPOLD, Philadelphia. Base hospital, from Camp Meade, Lieut. SYLVIA J. ROBERTS, Etters.

*To Camp Sevier,* Greenville, S. C., base hospital, from Camp Sevier, Lieut. JOSEPH A. ZOOK, Morgantown.

*To Camp Sheridan,* Montgomery, Ala., base hospital, Lieut. FRANK L. SHENK, Linglestown.

*To Camp Sherman,* Chillicothe, Ohio, from Fort Oglethorpe, Lieuts. ISAIAH C. MORGAN, Edwardsville; GEORGE F. BAIER, Philadelphia.

*To Camp Upton,* Long Island, N. Y., for duty, from Camp Upton, Major HENRY P. BROWN, Philadelphia; Capt. BRANTLY F. PARKER, York.

*To Camp Wheeler,* Macon, Ga., *Camp Sheridan,* Montgomery, Ala., *Camp McClellan,* Anniston, Ala., and *Fort Oglethorpe,* for duty and on completion *to his proper station,* from Fort McPherson, Major WILLIAM W. BABCOCK, Philadelphia.

*To Columbus Barracks, Ohio,* for duty, Lieut. ALEXIS D. SMITH, Philadelphia.

*To Fort Andrews, Mass.,* for duty, from Fort Oglethorpe, Lieut. ADAM S. KEPPLE, Hannastown.

*To Fort Bayard, N. M.,* for observation and treatment, Lieut. GEORGE P. PILLING, Philadelphia.

*To Fort Ethan Allen, Vt.,* for duty, from Fort Oglethorpe, Lieut. JAMES R. GEMMILL, Canton.

*To Fort McPherson, Ga.,* for duty, Capt. HARRY C. WEBSTERVELT, Pittsburgh.

*To Fort Oglethorpe,* for instruction, from Camp Lee, Capt. ELMER G. WEIBEL, Erie; from Camp Meade, Capt. EDWARD McI. HALEY, Blossburg. Base hospital, Lieut. OTHMAR F. BARTHMAIER, Philadelphia. For instruction, Lieuts. THOMAS R. MORGAN, Bellefonte; DON C. FOSSELMAN, Connellsville; WALTER W. SCHMID, Crafton; EDWARD H. McCLISTER, Kittanning; RALPH L. ENGLE, JOSEPH L. MacCABE, CHARLES D. SAUL, THOMAS H. WALKER, Philadelphia; WILLIAM L. BOTKIN, HOWARD S. MYERS, KARL P. WICKERMAN, Pittsburgh; JAMES P. H. RUDDY, Scranton.

*To Garden City, Long Island, N. Y.,* Aviation Section Signal Corps, from Army Medical School, Lieuts. ROBERT E. BARTO, Elizabeth; JAMES C. HAWKINS, McKees Rocks; SYDNEY L. WINGRADE, Philadelphia; ABRAM V. HICKS, JOHN L. STAFFY, Pittsburgh; from Fort Oglethorpe, Lieuts. WILLIAM B. PETERS, Jr., Appalachia; ROSS H. JONES, Coudersport; URBAN H. REIDT, Jeannette; ALOIS F. SEIFRIS, Mars; HERBERT B. SHEARER, Norristown; VICTOR J. B. FRIES, Philadelphia; CHARLES F. NETZEL, Plymouth; JAMES B. McAVOY, South Bethlehem; JOSEPH L. McGINLEY, Wilkes-Barre.

*To Hoboken, N. J.,* for duty, Lieut. HARRY W. MILLIKEN, Sharon.

*To New York City,* Neurological Institute, for instruction, from Fort Riley, Lieut. DAVID B. HAWKINS, Philadelphia; for intensive training, Lieut. WALTER R. KRAUSS, Philadelphia.

*To Philadelphia,* as executive chairman of the Pennsylvania State Committee, Medical Section, Council of National Defense, and on completion *to Fort Oglethorpe* for instruction, Lieut. CHARLES S. MILLER, Philadelphia.

*To Rockefeller Institute* for instruction and on completion *to Fort* Oglethorpe for instruction, Major JAMES P. KERR, Pittsburgh. On completion *to Camp Devens,* Ayer, Mass., base hospital, Lieut. THOMAS A. SHALLOW, Philadelphia. For instruction in laboratory work and on completion *to Army Medical School* for duty, Lieut. MYRON A. ZACKS, Philadelphia.

*To San Juan, Porto Rico,* base hospital, from Camp Greene, Lieut. JOHN J. DONOHUE, Fractville.

*To Washington, D. C.,* for duty, from Philadelphia, Major ISAAC H. JONES, Philadelphia.

*To Williamsbridge, N. Y.,* for temporary duty, on completion of instruction, Lieut. CLAUDE L. BRADFORD, Pittsburgh.

*To the inactive list,* Major JOSEPH McFARLAND, Philadelphia.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieuts. CHARLES C. WALLACE, Josephine; WILLIAM H. McKEEVER, Philadelphia; ERNEST W. DOWNTON, Starrucca.

## Porto Rico

*To San Juan, Porto Rico,* as commanding officer of base hospital, from duty as advisor to the governor of Porto Rico, Major W. F. LIPPOTT, San Juan. Base hospital, Capts. WALTER A. GLINES, LUIS G. DEQUEVEDO, San Juan; Lieuts. DOMINGO A. CRESCIONI, Comerio; FRANCISCO J. M. HERNANDEZ, Juncos; RICARDO MESTRE, FELIX G. DE LA TORRE, Mayaguez; FERNANDO H. JANER, Patillas; CHARLES S. MOSS, Ponce; PEDRO R. CASELLAS, JOSE C. FERRER, PEDRO G. IGARAVIDEZ, San Juan.

## Rhode Island

*To Army Medical School* for instruction, Lieut. JOHN L. HEALY, Newport.

*To Fort Oglethorpe* for duty, from Fort Oglethorpe, Capt. JAMES HAMILTON, Jr., Providence.

*To Garden City, Long Island, N. Y.,* Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. CHARLES M. COLLINS, Providence.

*Honorably discharged* on account of physical disability existing prior to his entrance into the service, Lieut. CARL R. DOTAN, Providence.

## South Carolina

*To Army Medical School* for instruction, Lieuts. CARROLL J. SCURRY, Cross Hill; THURMAN G. WRIGHT, Fairmont.

*To Brooklyn, N. Y.* base hospital, from Williamsbridge, Capt. MORGAN P. MOORER, Georgetown.

*To Camp Lee, Va.,* base hospital, from Boston, Lieut. RALPH H. McFADDEN, Chester.

*To Camp Meade,* Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieut. THOMAS H. SYMMES, St. Matthews.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. HARRISON A. PRUITT, Anderson.

*To Fort Oglethorpe* for instruction, Lieut. REMBERT J. CONEY, Eutawville; JOHN M. BARNWELL, Florence; COLLINS E. SMITH, Ridgeville; WILLIAM R. BLACKMAN, Rock Hill.

*To Garden City, Long Island, N. Y.,* Aviation Section Signal Corps, from Fort Oglethorpe, Lieut, CARROLL S. HOWELL, Marion.

*To Rockefeller Institute* for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. FRANCIS A. COWARD, Columbia.

*To Waco, Texas,* from Fort Riley, Lieut. JAMES H. CRAWFORD, Castlewood.

## South Dakota

*To Fort Leavenworth, Kan.,* Department Laboratory, Lieut. GEORGE A. STEVENS, Sioux Falls.

*To Fort Riley* for instruction, Lieut. WILLIAM J. FERGUSON, Milbank.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieuts. DANIEL D. RABER, Buffalo; HARLEY D. NEWBY, Parker.

## Tennessee

*To Camp Bowie,* Fort Worth, Texas, as division psychiatrist, from Camp Bowie, Lieut. HOWARD M. FRANCISCO, Nashville.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. JOHN E. SILVER, Jellico.

*To Camp McClellan,* Anniston, Ala., base hospital, Lieut. ROBERT L. MOTLEY, Jr., Dyersburg.

*To Fort Oglethorpe* for instruction, Capt. HERBERT H. McCAMPBILL; Lieuts. SAMUEL D. JOHNSON, Knoxville; JOHN C. WITHERINGTON, Munford; JOHN C. WOODS, Newport; BENJAMIN F. LORING, Union City; from Camp Beauregard, Lieuts. JOHN W. FROST, Fruitland; BENJAMIN L. SCHOOLFIELD, Memphis; from Camp McClellan, Lieut. THOMAS M. HARPER, Medina; from Camp Sevier, Lieut. WILLIAM H. DELAP, La Follette.

*To Fort Riley* for duty, from Fort Riley, Major WILLIAM A. HOWARD, Cookeville.

*To Hoboken, N. J.,* for duty from Camp Devens, Capt. HOWARD L. WALKER, Memphis.

*To Markleton, Pa.,* for duty, from Fort Oglethorpe, Lieut. ROBERT PILLOW, Jr., Columbia.

*To New Orleans,* Charity Hospital, for instruction and on completion *to Camp Sevier,* Greenville, S. C., base hospital, Lieut. THOMAS JENNINGS, Peabody.

*To Walter Reed General Hospital,* Takoma Park, D. C., for temporary duty, from Fort Oglethorpe, Capt. CLAUDE A. KRAZIER, Knoxville.

*Honorably discharged,* Lieut. THOMAS A. MITCHELL, Nashville.

## Texas

*To Camp A. A. Humphreys,* Accotink, Va., for duty, from Fort Oglethorpe, Lieut. GEORGE B. GLOVER, Refugio.

*To Camp Bowie,* Fort Worth, Texas, base hospital, Lieut. JOHN G. McLAURIN, Dallas, Texas.

*To Corpus Christi, Texas,* for duty from Fort Riley, Capt. THOMAS P. DOOLE, Eagle Lake; Lieut. GEORGE W. GRISWOLD, Cisco.

*To Fort Benjamin Harrison,* post hospital, Lieut. EDWARD C. BRANNON, Waco.

*To Fort Oglethorpe* for instruction, Lieuts. WILLIAM M. DICKENS, Greenville; CHARLES M. McMILLAN, Plantersville; AUSTIN F. LEACH, Weatherford; from Camp Travis, Lieuts. JAMES W. McKEE, Houston; JOHN J. GILL, Lamasco; BENJAMIN F. GIBSON, Lufkin. From Oklahoma City, Lieuts. CHARLES E. SCULL, San Antonio; DALLAS SOUTHARD, Stamford; CLAUDE E. PIERSALL, Wolfe City.

*To Fort Riley* for instruction, Lieut. LAMARTINE O. DUDGEON, Sweetwater; from Taliaferro Field, Lieuts. V. BASCOM COZBY, Grand Saline; JAMES D. CURRIE, Hico; REESE F. CURRIE, Manchaca; NOAH D. CARTER, Robstown.

*To Garden City, Long Island, N. Y.,* Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. MATTHEW F. KREISLE, Austin.

*To Houston, Texas,* Signal Corps, Aviation School, Lieuts. FRANKLIN B. KING, Lott; DAVID L. LOWRY, Teague.

*To Rockefeller Institute* for instruction and on completion *to Camp Jackson,* Columbia, S. C., base hospital, from Fort Riley, Lieut. JOSEPH J. ROBERTSON, Kingsville.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. LEMM FAULK, Alba.

*Resignations* of Lieuts. CHARLES H. REAGAN, Beeville; THOMAS J. RATLIFF, Colorado, are accepted.

## Utah

*To Camp Logan,* Houston, Texas, base hospital, from Oklahoma City, Lieut. EZEKIEL R. DUMKE, Ogden.

*To report by wire to the commanding general, Western Department,* for assignment to duty, Capt. GUY C. EMERY, Salt Lake City.

*To St. Louis, Mo.,* for duty from Fort Douglas, Capt. ARTHUR A. BIRD, Magna.

## Vermont

*To Garden City, Long Island, N. Y.,* Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. HENRY E. SOMERS, West Derby.

*To Fort Oglethorpe* for instruction, Capt. EDWARD F. MURRAY, Burlington; Lieut. WILLIAM O. HUTCHINSON, Washington.

## Virginia

*To Allentown, Pa.,* base hospital, from Fort McHenry, Lieut. ROBERT F. GAYLE, Richmond.

*To Army Medical School* for instruction, Lieuts. JAMES H. WALTON, Cherrydale; ROLAND E. S. TAYLOR, Dante; JAMES W. CLARKSON, Mount Solon.

*To Brooklyn, N. Y.,* base hospital, Lieut. HUBERT K. TURLEY, City Point.

*To Camp Lee,* Petersburg, Va., base hospital, Capt. EDWARD P. ODEND'HAL, Wytheville.

*To Camp McClellan,* Anniston, Ala., for duty, from duty as a lieutenant in the Medical Corps, Lieut. GUY B. DENIT, Salem.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. THOMAS H. MASSEY, Warm Springs.

*To Corpus Christi, Texas,* for duty, from Fort Riley, Capt. HARRY A. JEFFERSON, Clintonville.

*To Fort Oglethorpe* for instruction, Capts. CHARLES E. SEARS, Airpoint; LEWIS M. ALLEN, Gaylord; Lieuts. ST. CLAIR DARDEN, Branchville; HUNTER McQ. DOLOS, Norfolk; WILLIAM B. McILWAINE, Petersburg; from Camp Lee, Lieut. CLAY M. EASTER, Chincoteague Island.

*To Richmond, Va.,* base hospital, and on completion *to Camp Lee,* Petersburg, Va., for temporary duty, from Camp Lee, Capt. JAMES H. SMITH, Richmond.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Lieut. PAUL C. DAVIS, Roanoke.

*To Washington, D. C.,* for duty, Lieut. WILLIE S. HODNETT, Richmond.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. JOSEPH C. DUNFORD, Portsmouth.

### Washington

*To Camp Fremont,* Palo Alto, Calif., for duty, from Fort Stevens, Lieut. PAUL C. RIDPATH, Spokane.

*To Camp Lewis,* American Lake, Wash., base hospital, Lieut. GUY E. MARCY, Montesano.

*To Fort Riley* for duty, Lieut. CHARLES F. ENGELS, Seattle. For instruction, Lieut. JACOB S. SMITH, Bellingham; from Camp Lewis, Lieuts. CHARLES C. HARBOUGH, Sedro-Wooley; FREDERICK W. WICHMAN, Tenino.

*To report by wire to the commanding general, Western Department,* for assignment to duty, Lieuts. CLARENCE E. WHITNEY, Buckley; CARL L. TAYLOR, Sumner; CLAIR C. WILCOX, Vancouver.

*To Rockefeller Institute* for instruction and on completion *to Camp Meade,* Annapolis Junction, Md., base hospital, from Fort Riley, Lieut. WHITING B. MITCHELL, Sumner.

*To San Francisco, Calif.,* for instruction and on completion *to their proper stations,* from Camp Lewis, Capts. PAUL I. CARTER, Port Townsend; FRANK P. GARDNER, Seattle; WILLIAM B. McNERTHNEY, Tacoma. For duty, from duty as a contract surgeon, Lieut. MARCO M. HANSEN, Seattle.

*Honorably discharged,* Lieut. SHELBY C. SHURICK, Seattle. On account of physical disability existing prior to entrance into the service, Lieut. KENNETH J. HOLTZ, Renton.

### West Virginia

*To Fort Hamilton, N. Y.,* for duty, from Fort Oglethorpe, Capt. DAVID HOTT, Morgantown.

*To Fort Oglethorpe* for instruction, Capt. JOHN E. McQUAIN, Spencer; Lieuts. JOHN S. CAYCE, Ben Bush; BYRON W. STEELE, Mullens; JOSEPH H. FERGUSON, Sherrard; FERDINAND W. WIEHE, Wheeling.

*To Hoboken, N. J.,* for duty, from Army Medical School, Lieut. ALVIN McCLUNG, Pickens.

*To Newport News, Va.,* for temporary duty, from Fort Oglethorpe, Lieut. HARRY L. BEARD, Lewisburg.

*To Rockefeller Institute* for instruction in laboratory work and on completion *to Army Medical School* for duty, Lieut. RALPH LEM. WOODRUFF, Moundsville.

*To Washington, D. C.,* for duty, from Army Medical School, Lieut. DAVID T. WILLIAMS, Martinsburg.

### Wisconsin

*To Boston, Mass.,* General Hospital, for instruction in urology and dermatology, Lieut. JOHN W. HANSEN, Milwaukee.

*To Camp Cody,* Deming, N. M., for duty, from Camp Cody, Lieut EZRA J. MITCHELL, Brodhead.

*To Camp Custer,* Battle Creek, Mich., base hospital, Lieut. MARTIN F. DUFRENNE, Sun Prairie.

*To Camp Doniphan,* Fort Sill, Okla., for duty, from Fort Riley, Lieut. CLARK B. DEVINE, Marshall.

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Allentown, Lieut. LEON G. SMITH, Ellsworth.

*To Cape May, N. J.,* for temporary duty, and on completion *to his proper station,* Major NELSON M. BLACK, Milwaukee.

*To Corpus Christi, Texas,* for duty, from Fort Riley, Lieut. DANA B. DISHMAKER, Kewaunee.

*To Fort Riley* for instruction, from Sheboygan, Wis., Major EDWARD J. BARRETT, Sheboygan.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieut. IRVING VAN V. GRANNIS, Menomonie.

*To Rockefeller Institute* for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, from Fort Riley, Lieut. THOMAS C. CLARKE. On completion *to Camp Sherman,* Chillicothe, Ohio, base hospital, from Fort Riley, Lieut. WILLIAM N. MOORE, Appleton.

*To St. Louis, Mo.,* Washington University, for instruction in urology and dermatology, from Fort Riley, Lieut. OLE A. NELSON, Park Falls.

*To Waco, Texas,* Signal Corps Aviation Camp, from Fort Riley, Caps. FRANK S. TUFFLEY, Boscobel; Lieuts. CHARLES F. REHLING, Fremont; FRANCIS T. H'DOUBLER, Madison; LEONARD J. BACHINSKI, JAMES D. NELSON, Milwaukee; EDWARD C. PFEIFER, Sheboygan Falls; JOHN C. KYLLO, Superior, WILLIAM T. MURPHY, Waukesha.

*To Williamsbridge, N. Y.,* for temporary duty, Lieut. GEORGE N. BRAZEAU, Racine.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. FRANK W. MACKOY, Milwaukee.

### Wyoming

*To Camp Dodge,* Des Moines, Iowa, base hospital, Capt. OLIVER CHAMBERS, Rock Springs.

## Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

### ALABAMA

**Reciprocal Relations.**—The Alabama State Board of Health reports that reciprocal relations have now been established with Arkansas, Georgia, Iowa, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Ohio, Pennsylvania, Tennessee and Virginia.

**Sanitary Work and Infectious Diseases.**—In the zone surrounding the camp at Anniston, March 6, five crews of men operating under the direction of the sanitary unit of the United States Public Health Service started to clean out streams and ditches, make fillings, and to carry out other measures for cleaning up and drying out the territory for the protection against mosquitoes. Sanitary measures are also being taken to prevent malaria in the industrial area in Lauderdale and Colbert counties where government industrial plants are under construction. Dr. Jesse L. Prince, Stevenson, of the federal health department, is in charge of the work, assisted by Dr. Samuel W. Welch, Talladega, state health officer.——The smallpox epidemic at Mobile is now on the wane, and cases of measles are becoming fewer. At Huntsville, a general clean-up of the town is in progress, preparatory to a health survey which is to be made under the direction of the civic league and Dr. Carl A. Grote, Jasper, health officer.

### ARKANSAS

**Sanitary Undertakings.**—The state board of health, March 5, sent out circulars containing regulations of the board of health with reference to the control and treatment of persons having venereal disease. This action was urged by Surgeon-General Blue of the United States Public Health Service. To meet the situation, action, urged by Provost-Marshal-General Crowder, has been taken to vaccinate against smallpox and to innoculate against typhoid fever all men named in the selective draft. The idea is to have the men protected against the diseases named before they enter the military camps.

### CONNECTICUT

**Health Board Matters.**—At Hartford, the city board of health increased the salaries of the superintendent of the board of health from $2,700 to $3,000 and of his assistant, from $1,650 to $1,800, both increases to become effective, April 1.——During February the death rate for the city was 18.9 per thousand of population. During that month there were reported 20 cases of tuberculosis, 20 of diphtheria, 24 of scarlet fever, 7 of chickenpox, 13 of measles, 68 of whooping cough, 2 of erysipelas and 5 of mumps. The school medical inspectors examined 1,587 children and excluded 177.

### FLORIDA

**Miscellaneous.**—In 1917, Florida, with a resident population of about 1,000,000, had a death rate of 514, as against 9.3 per hundred thousand for the previous year. Of the deaths, 143 were due to homicide, 73 were due to railway accidents, 53 to automobile accidents and 3 to street car accidents.——At the annual election of officers of the Anti-Tuberculosis Association at Jacksonville, March 7, Dr. Harry L. Brown was elected president in place of Dr. Louis A. Bize, Tampa, who retired from the organization as vice president. Dr. Joseph Y. Porter also retired as one of the honorary vice presidents.——An appropriation of $10,000 was asked from the city council of Jacksonville to be used by the city to abolish mosquito breeding places. The work is to be done in cooperation with the United States Public Health Service and the American Red Cross.

### GEORGIA

**Abolishing Health Office.**—On account of a large deficit in the city finances the city council of Columbus voted, March 8, to abolish the position of city health officer, which was occupied by Dr. John T. Moncrief. This office involved a municipal expenditure of about $3,000.

**Cooperation with Government Authorities.**—At Atlanta, March 6, city, county and federal health officials met for the purpose of adjusting differences in regard to carrying out health regulations. Among the official persons at the meeting were Dr. Leslie L. Lumsden, Washington, D. C., and Dr. Randolph M. Grimm, Spartanburg, of the United States Public Health Service, who had been engaged in extracantonment work, and John P. Kennedy, city health officer, with other members of the city health administration. By the cooperation of all concerned in the work, duplication of efforts will be avoided, and money saved.

## ILLINOIS

**New Officers.**—At the annual meeting of the Cass County Medical Society, held at Virginia, February 28, the following officers were elected: president, Dr. John G. Franken, Chandlerville; vice president. Dr. George Bley, Beardstown; secretary, Dr. William R. Blackburn, Virginia, and treasurer, Dr. Charles M. Hubbard, Virginia.

**Personal.**—Dr. Guy A. Sloan, Bloomington, has been elected county physician.——Dr. Walter M. Cress, Atkinson, has sold his residence and will go into a sanatorium on account of ill health.——The state civil service commission has announced the appointment of the following medical examiners, Dr. John W. Hutton, Newton; Dr. Omar A. Kell, Salem; Dr. Frank B. Hiller, Pinkneyville; Dr. W. Brown Baird, Mount Carmel, and Dr. Ross L. Moter, Albion.

### Chicago

**Symposium on Angina Pectoris.**—The Institute of Medicine will meet March 28 in the LaSalle Hotel at 8 p. m. to hear a symposium on angina pectoris. The papers will include "Personal Experiences of One of Our Members," "Pathology of Angina" by Prof. E. R. LeCount, "Coronary Thrombosis in Relation to Angina" by Dr. J. B. Herrick, and "Clifford Albutt's Views in Regard to the Etiology of Angina" by Dr. Robert H. Babcock. Fellows of the Institute are privileged to invite guests.

**Health in February.**—During the second month of 1918 there were 2,808 deaths from all causes, as against 3,457 for the same month of 1917. The rate was 14.7 for 1918 and 17.7 for 1917. During the month, there were 4,773 cases of communicable diseases reported, as against 8,159 for the preceding year. Decreases were especially notable in typhoid fever, chickenpox, scarlet fever, diphtheria and pneumonia. There were 159 deaths of children under 2 years of age from diarrhea and enteritis, as compared with 191 for the same period of 1917.

**Lectures on Tuberculosis.**—Under the auspices of the Chicago Tuberculosis Institute, a course of lectures on tuberculosis in relation to modern problems will be given at the City Club during March and April. The first lecture of the course was given March 21 on "The Press and Tuberculosis," by Dr. W. A. Evans. The succeeding lectures will be delivered by Dr. C. C. Stillman on "The Red Cross and Tuberculosis," March 28; "The United Charities and Tuberculosis," Eugene T. Lies, April 4; "The War and Tuberculosis," Dr. George T. Palmer, April 11, and "Occupation for Disabled Soldiers with Special Reference to Tuberculosis," by John E. Ransom, April 18.

## IOWA

**Personal.**—Dr. Daniel J. McCarthy, Davenport, a member of the Red Cross contingent in Roumania, was compelled to leave Jassy on account of the advance of the Germans for Odessa. Arrangements had been made for this mission to return through Austria-Hungary and Switzerland.——Dr. Charles S. Grant, major, M. R. C., has been elected a member of the school board of Davenport.——Capt. John H. Peck, M. R. C., of Camp Dodge has been elected president of the Iowa Association for the Prevention of Tuberculosis.

## KENTUCKY

**Investigation of Milk Prices.**—Owing to the prevailing prices of market milk, it has been stated that a probe will be ordered by the food authorities at Washington, D. C. The retailers have reduced the price paid the producers 2 cents a gallon, but have not reduced the price to consumers.

**Changes in State Board of Health.**—March 5, the state senate passed a bill abolishing the state board of health and recreating it with ten instead of eight members. Under the new measure the governor is to appoint four physicians from the present board, two from the tuberculosis commission, one member of the state board of pharmacy, and two physicians from the state at large. A tenth member is to be named by the board. The bill allows a county or contiguous counties to declare themselves health districts with a full time health officer and laboratory and with the supervision over school, hotel and food inspection. The districts also take over the duties formerly performed by the state tuberculosis commission.

**Farm Colony for Feebleminded.**—Another progressive bill has passed the senate which provides for the establishment of a home and farm colony for feebleminded and epileptic persons. An appropriation of $25,000 for two years is made for the establishment of the colony. The bill provides for a per capita payment of $75 for the maintenance of the inmates, in lieu of the amount now allowed for the home care of pauper idiots. The "committee" system of caring for such wards is abolished. The farm colony is to be under the care of a physician as superintendent who must be an expert, with at least two years' experience in an institution of like nature. His salary is not to exceed $4,000 annually. This bill was introduced as a result of an exhaustive survey by a commission appointed by the governor, which found a deplorable state of affairs existing in the care of the feebleminded of the state.

**General Clinic Organization Proposed.**—In connection with a survey of the Lexington board of charities made under the direction of Mayor Rogers, Miss Byington, a specialist in social work from New York, who is in charge of the survey, recommends the establishment of a general clinic organized with the Good Samaritan Hospital as a basis. She submitted a working plan for such a clinic, which would abolish the office of city physician, and provide that the work, including the medical follow-up work, be performed by a physician in the hospital, with such assistants as might be appointed and with the aid of the Public Nursing Association. To initiate the plan, it is proposed that a committee be appointed consisting of the president of the county medical society, president of the board of health, chief of the staff of the Good Samaritan Hospital, and a physician from the St. Joseph's Hospital, as well as a member of the social welfare committee.

### Louisville

**Control of Slaughter Houses.**—For the first time Louisville has arrived at a working basis for the control of slaughter houses. In the reorganization of the health office, one of the departments established is food and dairy inspection under the supervision of Dr. William E. Gary. A comprehensive ordinance prescribing the sanitary regulations of slaughter houses has been passed, and many houses which are unable to come up to the requirements will be forced to close. Major Lunsford D. Fricks, of the United States Public Health Service, is cooperating with the city health office. This department is specially interested in abating the fly nuisance in summer.

## MARYLAND

**Personal.**—Dr. Thomas H. Brayshaw, who has been confined to his home at Glenburnie, for four weeks from an attack of pneumonia, is improving.

**Hospital for Blind Soldiers.**—The Surgeon-General's Office has announced through the division on woman's war work, committee on public information, its plans for using the Baltimore estate of Mrs. T. Harrison Garrett, tendered to the government several weeks ago for the treatment of maimed or otherwise disabled soldiers. The woman's committee in a statement disclosed the general plans for reeducating the blind among returning troops. The estate comprises 99 acres and will be used as a complete hospital school for the blinded officers and men. There are two houses, one of which will be used for enlisted men and will accommodate 150 persons, and the other will serve as officers' quarters and will afford accommodations for twenty-five men. A swimming pool and gymnasium will be provided at the estate. Women relatives of the men will be asked to participate in the work of the school and will be given an insight into the difficulties and best methods of training the blind.

## MASSACHUSETTS

### Boston

**Prenatal Letters.**—The *Public Health Bulletin* for September, 1917, contained an announcement that the department had prepared a series of nine "Prenatal Letters," one for each month of the pregnant period. These letters are intended for distribution, at monthly intervals, to expectant mothers whose application may be made to the department direct, or may be transmitted to the department through the attending physicians, visiting nurses, etc. Specimen sets of the letters will be gladly sent to any physician on request. The cooperation of all physicians is sought in the circulating of these letters, which are intended to help reduce the high infant mortality rate in Massachusetts, which is about 100 per thousand infants born. Application should be addressed to the Division of Hygiene, State Department of Health, Boston.

## MICHIGAN

**Violation of Quarantine Regulations.**—Dr. R. M. Olin, secretary of the state board of health, has charged that the city of Jackson has modified the quarantine regulations of the state without authority for so doing. As a result of his charge, Camp Custer soldiers have been forbidden to leave trains at Jackson.

**Funds Exhausted.**—At Grand Rapids the county auditors have objected to paying a bill of $5,000 rendered by the city for the care of cases of contagious disease, because of the rapid exhaustion of the $50,000 county fund for this purpose, even before the bill for about 300 smallpox cases was paid. It is said that much money has been expended by the welfare department in the care of tuberculous cases which properly should have come from some other fund. An investigation by the county attorney has been ordered.

**College to be Taken Over.**—It was reported, March 6, that steps were being taken to incorporate the Detroit College of Medicine and Surgery as a part of Detroit's educational system, eventually to become a department of the University of Detroit, which is in contemplation. The matter was brought before the city council, March 12, but no definite action was taken. It is said that the school is in debt to the amount of about $30,000, and that its absorption into the city's educational system is part of the plan to rehabilitate it and put it on a better financial basis.

## MINNESOTA

**Personal.**—Dr. A. E. Shannon was appointed health officer at Bemidji, March 6.——Dr. A. H. Doty, Minneapolis, was acquitted by a jury in the Ramsay County courts, March 6, on a charge of criminal malpractice.——Dr. W. M. Sweeney, local health officer at Red Wing, is disabled by a fracture of the foot which occurred several weeks ago.

**Contagious Diseases and Death Rate.**—Two new cases of smallpox were reported, March 5, from the Red Wing Seminary, making the total number of patients in the city eight, seven of whom are quarantined in the seminary.——One case of diphtheria and one of scarlet fever were added to the number of contagious cases in the city.——In 1917, there were 23,433 deaths in Minnesota, practically half of which were from preventable causes. The death rate, however, was lower than for the preceding year. During recent months, according to a bulletin of the state board of health, cancer has been the cause of more deaths than either tuberculosis or pneumonia.

## MISSOURI

**State Health News.**—March 6, it was reported from Kansas City that two more cases of spinal meningitis were isolated, and further orders were issued regarding the disease. On that day, there were seven cases of smallpox in the city and the members of the contagious disease division of the state board of health were busy vaccinating the members of construction groups in the city. Also, a new case is said to have been found.——Inmates of the Isolation Hospital for Smallpox at Leeds have made complaints about the conduct of the hospital and particularly about the food. A rule was made that soldiers having smallpox would not be received. The government authorities were notified, for they must make provision for soldiers. At St. Louis a physical instructor in one of the high schools developed smallpox, March 7, and a general vaccination in pupils was instituted.——At Louisiana, Dr. Hardin, city health officer, received a report from the state bacteriologist at Jefferson City, March 6, that out of four specimens of water, one was found bad, and the people were advised to continue boiling the water until it proved to be safe.——Five new ambulances were purchased, March 6, for the use of the health department in Kansas City.——At a meeting of the Engineer's Club in St. Louis at the club, March 6, the engineer of the city plan commission declared that the congestion in certain parts of St. Louis was responsible for much ill health and delinquency of children and adults. He described the plan of redistricting, as well as the zoning system in various other cities, and he explained why St. Louis should adopt the zoning system to promote the growth and the health of the city.

## MONTANA

**Hospital Items.**—The campaign for $80,000 for the Bozeman Deaconess Hospital, ended February 16, with a total subscription of $96,144.50.——Mr. R. O. Wilson has resigned as registrar at the state college, Bozeman, to accept a position as business manager of the Murray Hospital, Butte.

**Appropriation for Laboratory.**—The board of county commissioners of Big Horn County has made an appropriation for laboratory equipment for the county health officer, Dr. Wilson A. Russell, Hardin, who has done exceedingly good work in rural school inspection and sanitation during the past year.

**Deaths of Adults from Poliomyelitis.**—A report from Red Lodge, February 18, announces that two men, aged 30 and 28, living on a ranch near that place, died of poliomyelitis. One of the patients died after being brought to Red Lodge. The other presented himself at the office of a local physician shortly after the death of the first patient, who was the latter's employer.

## NEBRASKA

**Smallpox.**—An epidemic of smallpox is reported to be current in Bayard and Gering.——At Kearney, schools, theaters and other places of public meeting were closed on account of the prevalence of contagious diseases, especially smallpox, measles and mumps.

**Base Hospital Mobilizes.**—Major Arthur C. Stokes, of the Medical Corps of the Army, has been ordered to active duty at Omaha, Neb., to mobilize the enlisted personnel of the base hospital for the state university. After the mobilization the base hospital will go to Fort Des Moines, Iowa, for temporary duty and training.

**Control of Social Diseases.**—At Omaha an ordinance has been prepared declaring that an emergency exists in Omaha in connection with the prevalence of social infections, and requires that the diseases be reported. The health commissioner is ordered to isolate the victims for such time as may be necessary. The health officer, Dr. Ralph W. Connell, Omaha, has ruled that in the occurrence of social diseases, men and women must be treated alike, and that they will be held under equal penalties.

## NEW YORK

**Recommendations on Narcotic Addiction.**—The joint committee on public health of the New York Academy of Medicine and of the New York Psychiatrical Society has presented recommendations on the care of the narcotic addiction problem. The committee recommends that the federal government abolish the manufacture of heroin, control and regulate the sale and distribution of opium and cocain and that the attention of the government be limited to these drugs unless occasion seems to demand inspection of others. The investigations of the committee show that the drug habit as a result of illness or operation of mental states is a negligible proportion of the total. About 4 per cent. of cases investigated indicate that the habit is formed through the advice and prescriptions of physicians using the reduction treatment. It is recommended that treatment be given only in properly organized hospitals or under institutional conditions, and for the present that psychopathic hospitals or pavilions be used for this purpose. New legislation is recommended to control drug addiction and the use of drugs by physicians more definitely than does the legislation at present in force. The committee recommends also that a thorough study be made of the extent and causes of drug addiction, including information as to the age, sex, occupation, environment, mental and physical condition of victims, and as to how the habit was formed.

**Miscellaneous.**—On account of a difference of opinion as to appointees between the mayor of Watervliet and the town council, the city has been without a health board for some time. March 7, Deputy State Health Commissioner Matthias Nicoll, Jr., in a letter to the common council urged the appointment of a board in compliance with the law. Dr. John Haswell is the health officer, but has not power to act in certain matters that require the authority of a full board. ——At Little Falls, March 5, the public health nurse reported more work than she could handle and asked for the appointment of an additional school nurse. On account of pollution of the water supply, the health officer advised the boiling of the water. On that date there were no smallpox cases in the city. Over 1,500 persons had been vaccinated during the epidemic.——At Syracuse, March 5, it was proposed that the board of supervisors provide for an extension of the Onondaga sanatorium to accommodate more tuberculous persons, who are said to be a menace to others in their homes, boarding houses and other public places.——March 4, Mayor Stone of Syracuse announced the selection of a special advisory committee for the health bureau. After consultation with the officers of the Academy of Medicine the following were appointed: Dr. William A. Groat, Dr. Edward O. Reifenstein, Dr. Frederick H. Flaherty, Dr. Alfred G. Doust and Dr. J. Mumford Keese.——The residents of Olean were advised by the city health officer, March 6, to boil the water.——At Glens Falls, according to the report of the health officer, there were, in 1917, 343 births and 300 deaths. The total number of communicable diseases during the year was 296. At Buffalo, in February, there were 1,095 and 604 deaths. ——The government is to give attention to the erection of needed houses for Buffalo munition workers, according to Health Commissioner Fronczak, who returned, March 6, from Philadelphia where he attended a meeting on war housing. It was decided that houses of a permanent character instead of barracks should be erected near munition works, and that it would be better to erect houses than to provide additional street cars, the building of which would take as long or longer.

### New York City

**Gifts and Bequests.—**

To Mount Sinai Hospital, New York, $75,000, to be added to a former contribution of $125,000 for the erection of the Lewis Einstein Memorial Pavilion at Mount Sinai Hospital, by the will of Henry L. Einstein.

**Obstetrical Society Resolution.**—At the meeting of the New York Obstetrical Society, February 12, that body in a resolution endorsed the action of the public health committee of the New York Academy of Medicine in instituting an investigation of the mortality associated with childbearing, and hearty cooperation was promised.

**Doctor Charged with Frustrating Draft.**—Dr. Philip G. Becker was arrested, March 15, charged with conspiring to violate the espionage law by giving soldiers drugs so that they would appear seriously ill and be invalidated out of the service. It is alleged that the drugs employed produced in the men attempting to evade service a condition simulating Bright's disease. Becker was released on $10,000 bail.

**Government Takes Over Hudson Street Hospital.**—The Hudson Street Hospital has turned over its wards to the Navy Department for the period of the war. Dr. Hughes Bayton and Dr. Joseph P. Hoguet will continue to head the medical staff of the hospital. There will be room for about sixty-five naval patients and arrangements have been made for the immediate occupancy of the wards by the navy men. The ambulance service of the hospital has been discontinued.

**Ellis Island Ready to Receive Wounded Soldiers.**—The United States Department of Labor has made a definite agreement whereby Ellis Island has been turned over to the Army and Navy. It is the intention of the Navy Department to use the space allotted to it for the accommodation of several thousand sailors pending their assignment to ships, and the War Department expects to use its portion of the space for temporary quarters for wounded men before removing them to permanent hospitals. Part of the property has already been occupied by the military branches of the government.

## PENNSYLVANIA

**Personal.**—It is said that Dr. Edgar M. Green, Easton, a member of the advisory board of the state health department, is mentioned as the probable successor of the late Dr. Samuel G. Dixon, health commissioner.

**Conference of Industrial Physicians and Surgeons.**—The Department of Labor and Industry will hold its Sixth Conference of Industrial Physicians and Surgeons in the hall of the house of representatives at Harrisburg, April 9. At the morning session industrial health hazards arising out of the war emergency will be the subject discussed. The afternoon session will be devoted entirely to the subject of workmen's compensation. The question of hernia in its relation to the compensation law will be discussed thoroughly and the possibility of amendments to the present Pennsylvania workmen's compensation law will be discussed.

### Philadelphia

**Dr. Goepp Resigns.**—After fifteen years of faithful service, Dr. Max R. Goepp, dean of the Philadelphia Polyclinic and College for graduates in medicine has resigned the deanship, but still retains his position on the staff as professor of clinical medicine. Prof. George H. Meeker has been appointed dean of the polyclinic department of the postgraduate school of the University of Pennsylvania.

**Aid Hospital Unit.**—A committee representing the employees of the Frankford Arsenal presented the University Base Hospital Unit No. 20 with $543.39. The money which was turned over to Major John B. Carnett, commander of the unit, was the proceeds of a military ball given by the arsenal employees, February 14. During the last few months the arsenal employees have contributed more than $3,000 to the unit.

**City Plans Mosquito War.**—The city council will be asked by Director of Public Work Datesman to appropriate an additional $20,000 for a campaign to exterminate mosquitoes in the vicinity of the League Island Navy Yard and the Hog Island shipbuilding plant. An appropriation of $10,000 for that purpose has already been made. Director Datesman is especially anxious to have the second appropriation at once, because now is the time to make effective warfare on the mosquito.

**Personal.**—Four prominent medical men of this city have just received signal honors at the hands of the United States government for service in France with the American expeditionary forces. The men to be advanced are Major Richard H. Harte, the surgical head of the United States Base Hospital No. 10, organized by the Pennsylvania Hospital; Major George William Norris, medical director of the same hospital unit; Major Robert G. LeConte, surgical commander of Base Hospital No. 5, Methodist Hospital, and Capt. John H. Gibbon, a surgeon of Base Hospital No. 10.——Dr. Henry D. Jump, the retiring president of the county medical society, was presented with a gavel at the meeting of that society, February 27.——Dr. Henry H. Freund has been appointed acting chief police surgeon to fill the place of Dr. Hubley R. Owen, who is in the military service, on leave of absence from the city. The salary is $4,000.——Drs. R. Ray Willoughby and Louis M. Golden have been appointed assistant medical inspectors of the bureau of health.

## RHODE ISLAND

**Venereal Diseases in Institutions.**—Through the efforts of Dr. John G. O'Meara and others, a bill has been passed by both houses of the legislature amending the act to provide for the supervision, administration and control of penal and charitable institutions. The amendment provides that the penal and charitable commission shall take all steps necessary to protect the inmates of such institutions against all forms of contagious and infectious diseases. Particular emphasis is laid on venereal diseases, which shall be properly treated while the inmates are in the institutions. It is also provided that, at the expiration of their sentences they may be detained until such time as they are free from disease, if, in the opinion of the institution physician, they are still potential carriers of infection.

## CANADA

**Medical Week at Hamilton.**—The period from May 27 to June 1, 1918, will be celebrated as medical week in Hamilton. The Canadian Medical Association, the Ontario Medical Association, the Canadian Public Health Association and the Ontario Health Officers Association will hold meetings at this time. At the meeting of the Canadian Medical Association, Dr. H. Beaumont Small, Ottawa, will preside, succeeding Dr. James McKenty, Winnipeg, resigned. Dr. Lewellys F. Barker, Baltimore, will deliver the address on medicine, and Dr. Charles H. Mayo, Rochester, Minn., will deliver the oration on surgery.

**General News.**—The Aesculapian Club, Toronto, has elected the following officers for the ensuing year: president, Harry B. Anderson; vice president, Richard A. Reeve; secretary, George Elliott (reelected); treasurer, Edmund E. King (reelected); executive committee, Samuel Johnston, Frederick A. Cleland, George H. Bowles and J. Milton Cotton. This year the club donated $200 to the endowment fund of the Halifax School for the Blind.——Last year the deaths in the city of Montreal among children under 5 years of age were almost 1,000 fewer than in 1913, although the population has increased 15,000 during the five years.——The province of Manitoba, with a population of 521,748, shows a decrease in births, marriages, and deaths in 1917 from 1916 as follows: Births decreased 3,102, the total being 14,743; deaths decreased 350, the total being 5,125; marriages decreased 1,092, the total being 4,045.——Dr. Forbes E.

Godfrey, M.P.P., Mimico, Ont., has a bill in the Ontario legislature which provides that the contracting parties to marriage must secure certificates from physicians guaranteeing that they are not afflicted by any incurable disease, before they can be married. It is doubtful, however, that the bill will become law at the present time, as public opinion is not sufficiently educated for it.

**Personal.**—Major Malcolm M. Crawford, surgeon to the Orpington Hospital, England, is home in Toronto on two months' leave of absence.——Dr. Harry B. Anderson, Toronto, is spending a holiday in Florida.——Dr. Murray McFarlane, Toronto, has returned from a holiday in the Southern States.——Dr. John L. Chabot, M.P., Ottawa, has refused the appointment of deputy speaker of the House of Commons, but will second the address in reply to the speech from the throne.——The Military Cross has been awarded the following eight Canadian medical officers for courage and devotion in aiding the wounded under fire and gas: Capts. Thomas Herbert Bell, Winnipeg; John P. S. Cathcart, Pt. Lamberton; Franklin F. Dunham, Emmet A. McCusker, Regina; Arthur Packer, Stanley Ross, William Henry Scott and James Walter Woodley.——Lieut.-Col. P. Walter H. McKeown, Toronto, who has been in command of the Kitchener Hospital, Brighton, England, has been given command of another Canadian hospital in England, replacing Col. Charles F. Wylde, Montreal.——Gen. George A. Stirling, Ryerson, Toronto, is on a trip to the Pacific coast, and when last heard from was in Vancouver, B. C. He will spend some weeks in California and other western points.——Lieut.-Col. Ethelbert B. Hardy, in command of the Toronto Military Base Hospital, has resigned from the presidency of the Great War Veterans' Association.——Capt. Fred C. Wilson, M.D., who has been overseas for twenty months with the Canadian Army Medical Corps, has been invalided home to Canada, after a severe attack of pneumonia.——Capt. Willis C. Connell, M.B., who was back in Canada to finish his medical course, has returned to the front as lieutenant in the Royal Army Medical Corps, and will serve in German East Africa.

## GENERAL

**Public Health Service Legislation.**—On March 14, Representative Medill McCormick of Illinois introduced into Congress a bill (H. R. 10716) to transfer the Public Health Service from the Department of the Treasury to the Department of the Interior. The bill was referred to the Committee on Interstate and Foreign Commerce for report.

**Weekly Health Index.**—The bureau of the census is publishing each week the mortality reports from the largest cities in the United States. For each city the total number of deaths reported, stillbirths excluded, the death rate, the number of deaths under 1 year of age, and the proportion of infant deaths to total deaths, are given. When obtainable, the same data for the previous five years are given, in order to permit comparison. For the week ending March 9, the best rate per thousand is that of Grand Rapids, 8.6, after which come Spokane, Wash., 9.3; Seattle, 10.0; St. Paul, 10.3, and Portland, Ore., 10.7. The highest records are Birmingham, Ala., 25.8; Baltimore, 25.0; Washington, D. C., 23.6; Dayton, Ohio, 22.6; Richmond, Va., 22.3, and Memphis, Tenn., 22.0.

**International Surgical Society.**—Dr. W. W. Keen requests The Journal to announce that, at a meeting of the International Surgical Society held in Paris, Nov. 3, 1917, by the delegates from Belgium, France, Great Britain, Serbia and the United States, it was agreed that the International Surgical Society should be dissolved after the publication of the volume of transactions of the meeting held at New York, April 14, 1917. Any money remaining after the publication of this volume is to be divided pro rata among the members. Each member of the Austro-Germanic group will receive his share, but the amount belonging to members from other nations is to be applied to some object of scientific reparation in Belgium. It is proposed after the war to create a new organization on a similar basis, to be called the Inter-Allied Surgical Society.

**Saving One Hundred Thousand Babies.**—As announced by the federal children's bureau, the campaign to save 100,000 babies and children under 5 years of age during this, the second year of the war, will be inaugurated by a national weighing and measuring test beginning April 6, of which mention has been heretofore made. That each state may have knowledge of just how many children are expected to be saved within its borders during the year, the bureau has established the quota of each on the basis of the number of children under 5 years as shown by the census of 1910. In a bulletin recently issued, the exact number assigned to each state is given in a tabulation, and though the quota may be criticized as it is applied to some states on account of the variation in death rates in the states, yet it is believed that the figures are as fairly proportioned as possible.

## FOREIGN

**National Medical Congress in Mexico.**—The fifth national Mexican medical congress was held at Puebla in January, the first for several years, on account of the unsettled condition of the country. Among the twenty-four subjects chosen for discussion were prophylaxis of blindness, induced premature delivery, the foods used by the native Mexicans, treatment of Mexican typhus, and prophylaxis of syphilis, pyorrhea, and of diseases of domestic animals liable to be contagious to man. The military medical department was represented by Dr. A. Butron y Rios, who delivered an address on the relations of the Red Cross to the army medical department and the military authorities, in times of both peace and war. The Mexican Red Cross was officially organized in 1910, and he outlined plans for its further development. Dr. F. Zarraga presided at the congress; Dr. R. E. Cicero served as secretary general. The other members of the executive board were Drs. G. Mendizabal, S. Garcia, J. Villareal, J. Gonzalez, F. Banda, M. G. Zavala, J. Terres, and the treasurer, Prof. R. Medellin.

## CORRECTION

**Malposition of the Descending Colon.**—In the article on this subject by Dr. A. B. Cooke, in this issue of The Journal, page 842, the illustrations and legends are transposed.

## CUBA LETTER

Havana, March 14, 1918.

### The Milk Problem

The end of Spanish rule in Cuba marked the beginning of a vigorous sanitary campaign to eradicate the terrible evils of yellow fever, malaria, smallpox, etc. A few years later the Republic of Cuba was one of the healthiest countries in the world, and the national board of health could proudly announce that yellow fever and malaria were no longer endemic diseases in the island. But if Cuba and the Cubans are proud of their sanitation, if it is true that a wonderful improvement has been achieved in a few years, it is true too that there is a great deal yet to do. Havana and the leading cities of Cuba are certainly marvels of cleanliness, but it ought to be remembered that the riches and wealth of a country are not in the cities; it is in the country and among the countrymen of Cuba that hygiene and hygienic methods are still very faulty; modern methods have not yet reached many places in the island.

The milk supply, a matter of vital interest in all countries, is deficient in Cuba to a great extent. We believe that the dangers of milk are not in the amount of water added to it by conscienceless merchants but in the amount of bacteria conveyed to the milk through improper milking with soiled hands and into soiled containers, and by the transportation to the cities in open wagons or on horseback in the very high temperature prevailing in Cuba. We do not hesitate to say that milk under such conditions is the best culture medium for all kinds of bacteria.

Some years ago the board of health started to punish milkmen whose milk showed the addition of water or of foreign ingredients. Everybody thought that very soon the milk would be pure and wholesome, but it has not been so. The merchant that adulterates his milk does not care if the board of health inspector confiscates all his supply of one day; next day he will add more water and double his earnings, provided, of course, the inspector does not strike his place again.

This problem of the milk is a problem of education in the country, teaching the countryman to be clean and to do things as cleanly as possible; it is necessary to establish competition and compel the milkmen and dairymen to build up-to-date stables and to use modern methods of transportation with refrigeration. The children, the future generation of men, need pure milk, and this article of food, so utterly necessary, must not be the subject of exploitation and excessive profit; punishment will never be too severe for those who poison the little ones.

Recently two young Cubans, Drs. Ramos and Bluhme, established a laboratory to modify milk according to medical formulas. The dairies and laboratories are models of their kind, and a wonderful and well deserved success has been attained. But we must say that the cost of the milk from this laboratory is prohibitive for the poor.

On the other hand, the authorities must instruct the public on the dangers of using just any milk, especially for children; the consumer must be taught to inspect the wagon and the bottles and the man who brings his supply of milk; we have seen some of these milk wagons and their drivers so dirty and foul that we really wondered if there was any human being who could drink milk handled in such a manner.

The problem of the milk is not an easy one to solve. It will take years of hard struggle, but the battle must be fought.

We are paying for milk 25 and 30 cents a quart, and we think that we deserve clean milk for that price.

## PARIS LETTER

Paris, Feb. 21, 1918.

### War Tremors

At one of the recent meetings of the Société de neurologie, Drs. Henry Meige and Mme. Bénisty presented a number of patients afflicted with tremors, and emphasized particularly the clinical characters which permit of a differentiation between tremors of organic origin and those of a neuropathic or emotional origin. Among the organic, they insisted on the morphologic and physiologic objective characters of the parkinsonian type, of which they presented a characteristic example consecutive to traumatism. They also showed cases of nervous tremors the result of wounds or of concussion, and also cases of tremors antedating the war, occurring among emotional subjects. They distinguish, besides true tremor, clonic movements which are sometimes confounded with the latter, and which are the result of certain lesions of the peduncular protuberance. In the clinical diagnosis it is essential to examine with care the seat and the form of the tremor. When it is confined to the fingers and is fine and rhythmic, it is nearly always of organic origin. One frequently sees a nervous tremor involving only the flexors and extensors of the wrist, or the pronators and supinators without any involvement of the fingers. When studying a tremor it is essential to determine by manual palpation the sensations experienced while mobilizing parts of the limb. The waxy flexibility, *flexibilité cirreuse* of Parkinson's disease, is clearly distinct from the cog wheel resistance, *résistance à crans,* perceptible in the majority of nervous tremors, and evidenced by a succession of contractions and relaxations, more or less brusque, occurring at regular intervals.

#### EVOLUTION OF TREMOR

The evolution of a tremor is also of diagnostic value. It may be (1) progressive, localized at first in one member or in part of a member, but progressively involves one or more of the other members. Parkinson's disease belongs in this class. Or the tremor may be (2) retrogressive, generalized at first but tending gradually to become localized in one member or part of a member. This evolution is characteristic of tremors of neuropathic origin. There is further (3) the migratory tremor, whose localization varies, as do likewise its extent and time of appearance. The migration of the tremor may occur spontaneously. It can be rendered more apparent by changing the position of the member, or if one or more parts or segments are immobilized.

#### HYPERTONICITY WITH TREMOR

Meige and Bénisty also called attention to the necessity of morphologic examination, which enables one to appreciate the state of permanent hypertonicity of certain persons with tremor, a phenomenon to whose existence in Parkinson's disease Paul Richet and Meige have previously called attention, and which may also be seen in paratonic subjects. It is evidently a manifestation of *déséquilibration motrice congénitale.* Dr. Tinel, chef de clinique à la Salpêtrière, stated that he had observed several cases of neuropathic tremor of a member since this condition had been cured by intense faradic reeducation. He has also noted the migration of certain tremors. The neuropathic tremors are at the same time real, involuntary, persisting during sleep and even under the influence of chloral, but, nevertheless, perfectly influenced by reeducation. There exists in these cases a state of neuromuscular hyperexcitability associated with a persistent emotional state.

### Intestinal Parasitism in the Troops

Dr. de Vézeaux de Lavergne recently reported to the Société médicale des hôpitaux de Paris the results he obtained from examination of 200 healthy men at the front and of men who were slightly ill, for the purpose of determining what intestinal parasites are present in these men. His findings may be thus summarized: 1. He never found ova of the ancylostoma. 2. Among 100 soldiers living in the trenches there were found 73 carriers of trichocephalus, 7 carriers of trichocephalus and ascaris, and 8 carriers of ascaris. The total percentage of 88 parasite carriers is comparable to the figures reported of helminthiasis in miners. 3. Among the men living behind the front lines, in the cantonments, there were found 63 per cent. of carriers of trichocephalus and no ascaris. 4. The number of trichocephalus ova found among the well varied from one to five per field. 5. Eosinophilia was never present in any of the trichocephalus carriers, no matter how large a number of parasites were present. On the other hand, eosinophilia was always present among the ascaris carriers; the proportion varied from 4 to 9 per cent. 6. The pathogenicity of these parasites appears to be very limited. The results of the examination made of persons only slightly ill, who were cared for in the ambulances at the front or even in the regimental infirmaries, were as follows: In ten cases of nonbloody diarrhea, unaccompanied by fever, with neither dysentery bacilli nor ameba found in the stools, the ova of parasites were extremely numerous. In eight cases trichocephalus ova were found, from fifteen to twenty per field. In two cases of diarrhea, labeled "rebellious diarrhea with colic," a number of ascaris ova were present. These patients were cured by thymol, calomel and santonin. Finally, among fourteen patients with *courbature fébrile,* the only sign appearing to be fever, remittent in character, a considerable number of trichocephalus ova were found. Thymol seemed to act favorably in these cases.

### New Food Regulations

The commissioner of foods has published a decree regulating the manufacture, the sale and the consumption of certain food commodities. The decree deals with (1) the manufacture, the sale and the consumption of bread; (2) a new regimen imposed on the pastry bakers, the biscuit bakers and the confectioners; (3) a regulation imposed on hotels, restaurants and all establishments open to the public; (4) the details of application of the new measures adopted. Henceforth, it is forbidden to manufacture, sell or place on sale, in any form whatever, fresh or dried pastry, pâté crust, or biscuits, as well as confectionery, (*confiserie*) or fruit sweetmeats (*fruits confits*). It is also forbidden to manufacture any chocolate other than the chocolate commonly sold in tablets, in sticks, etc., and containing not more than 36 per cent. of cocoa. In the hotels, restaurants, cafés, etc., it is forbidden to serve or to consume a whole list of certain foods, among which may be mentioned, notably, butter, milk, cream, sugar, and cheese containing more than 36 per cent. of fat. Furthermore, in these establishments meals may be served only from 11 to 2:30, and from 6:30 to 9:30.

### Personal

The Académie des Sciences recently elected two national correspondents for the sections of anatomy and zoology. M. Vayssière, professeur à la Faculté des sciences de Marseille, was elected to take the place of the late M. Renaut, and M. Cuénot, professeur à l'Université de Nancy, was elected to take the place of the late Maupas, the naturalist.

### The American Red Cross and the Society of Men of Letters

Every one knows that the American Red Cross is spending hundreds of millions of dollars, which are in large part furnished by the subscriptions and donations of American friends of France. They have supported the French military activities by the establishment of hospitals and ambulances, by sending surgical instruments, and by the organization of canteens and shelters in certain situations. They also have provided means to receive and care for orphans and children of refugees and repatriates; they have aided in rebuilding ruined cities, in reconstructing and again making useful agricultural districts, and, finally, they have inaugurated a more methodical and more effective campaign against tuberculosis.

Acting in behalf of the French writers, who are all particularly interested in the rapid reconstruction of all the creative forces of our country, the Société des gens de lettres tendered a reception recently in its quarters at Rougemont to the directors and chiefs of services of the American Red Cross. The delegation, which was in charge of Mr. Homer Folks, director of the civilian work of the American Red Cross, consisted of Major J. H. Perkins, commissioner for France; Ralph J. Preston, delegate commissioner; W. S. Patten, director of the service for military affairs; H. O. Beatty, director general; Alexander Smith, food commissioner; Livingston Farrand, former president of the University of Colorado, now president of the American Commission of the Rockefeller Foundation for the Control of Tuberculosis, etc. All the members of the board of the Society of Men of Letters assisted at this reception. The president, M. Georges Lecomte, welcomed the delegates and spoke of the reasons why French literature must be profoundly sympathetic with the work that is being done by the American Red Cross and give full recognition to the devoted men and the generous donors whose valuable cooperation has made it possible to carry on this work successfully. Then, after stating that the delegation from the Red Cross was composed of representatives of the highest American individuality, prominent physicians and surgeons, professors from the most celebrated universities of the United States, and social organizers and workers, he expressed the hope that the bonds of literature and science uniting the intellectuals of the two republics would lead to still closer union between the Americans and the French. Homer Folks, in replying, gave expression to the sentiments of esteem and affectionate admiration with which the American Red Cross associates its efforts with those of France in this time of great trial.

## LONDON LETTER

London, Feb. 26, 1918.

### Organized German Brutality to Prisoners

A government report on the treatment of British prisoners of war during their transport from France and Belgium to Germany during the period from August to December, 1914, has just been published. It is based on the carefully collected evidence of forty-eight officers and seventy-seven noncommissioned officers and men. In almost every case the treatment of the British prisoners was barbarous, but the most striking fact is that this treatment was deliberate and carried out by order. The few instances of humanity shown "force into all the greater relief . . . a remarkable record of organized cruelty." For that cruelty the German Imperial Government was responsible. The principal means used were: 1. Careful neglect to give medical treatment to wounded prisoners (during journeys that lasted from two to five days). 2. Overcrowding of officers and men—wounded and unwounded—usually in uncleansed horse and cattle trucks. 3. Nonprovision of sanitary accommodation. Elementary requirements of decency and cleanliness were constantly refused. 4. Deliberate deprivation of food and water. The German Red Cross nurses habitually declined to supply the British prisoners. 5. Differential treatment of British and French prisoners with the object of degrading the British. At all stages of the journey British prisoners were displayed to the execration of the crowd. There are many examples of other acts of brutality, the commonest being the striking of and the spitting on officers and men and the theft of their belongings. One officer was compelled by a German nurse to walk naked from his stretcher to the station buffet (used as a hospital) a distance of 100 yards, which he did after a sentry called up by the nurse had forcibly removed his only covering, a blanket, and had given him "one or two gentle prods" with his bayonet.

The behavior of the civilians was worse even than that of the military. The report summarizing, with much moderation, an overwhelming mass of evidence, says: "On all journeys without exception, whenever the train stopped—and halts were always long and frequent—a dense and highly hostile crowd was found on the platform, who surged round the carriages and trucks containing prisoners, threatening them with knives and revolvers and insulting them with the grossest of abuse. German officers often took an active part on these occasions." One scene in particular, at Aachen, September 2, is described by several witnesses. Here a mob of drunken Uhlans and railway employees was deliberately incited against the prisoners by a German colonel. Their behavior became so threatening that the train was saved from being rushed by the crowd only by being moved out of the station. Well dressed women were constantly prominent in these scenes, and often at wayside stations, rows of schoolchildren would be found drawn up, chanting choruses of abuse. In the long record of cruelty toward suffering and defenseless men, one kind of exception stands out. In several cases, though by no means in all, the guards in charge of the prisoners showed them what kindness they could, usually by procuring food and water. In some instances the food thus smuggled in was all that the prisoners got. The men who did these acts were nearly all in humble positions.

A party of British wounded was gathered at Mons and taken to the station where German cavalry, just arrived, were drawn up in two lines. The wounded were made to march through the lines, and were subjected to gross insults and ill treatment. Curses were hurled at them, the Germans spat on and kicked them. The men were struck with sabers and bayonets. Many men with crutches had these kicked from under their arms, and when they fell, the crutches were used to beat them. German officers with their men encouraged them, even to the extent of cursing them in German and English and in taking part in these cowardly assaults. In another case German soldiers prodded with bayonets and urinated on prisoners of the medical corps.

To physicians the cruelty of the German Red Cross nurses will be particularly revolting. At every railway station there was an elaborate installation of food and drink and medical appliances presided over by women wearing the Red Cross uniform. These showered attention on the German wounded, and would give food and drink to the French prisoners. For the British they had nothing but foul abuse or worse. "We saw some German Red Cross nurses," says one prisoner; "the only thing I remember about them is that some of them spat in our faces." When asked by a wounded officer for a glass of water one of these "ladies" burst out laughing and said, "Nothing for you English." They would show food to the starving prisoners and then remove it, calling the attention of the crowd and observing that it was "not for the swine." They would bring water and soup in cans and pour it out on the platform in front of the Englishmen. The women were extraordinarily venomous in preventing anything from reaching the prisoners, and their display of spite, their heartless cruelty, their profusion of gross insults were barbarous beyond all words. One officer tells how a woman of the Red Cross brought him a glass of water, spitting in it first. On rare occasions it would happen that a German officer would order one of these women to bring something for the prisoners, which she would do most unwillingly. At Coblenz a Red Cross woman, deceived by his red trousers, given him at a French hospital, which he happened to be wearing, handed a British officer a sandwich. She soon discovered her mistake and was careful to warn her companions. This persistent degradation of the Red Cross, universal emblem of charity in warfare, caused the deepest possible impression on the British prisoners.

It must be borne in mind that all this occurred early in the war, and has been reported only now because the evidence could not be taken until the prisoners had returned home. Since that time the treatment of British prisoners in Germany, though leaving much to be desired, has improved, for a very good reason. At the time of the atrocities the Germans were winning and did not contemplate the prospect that the British would have in their hands more prisoners than they were able to take from "the contemptible little army."

### The Health of the Troops

In speaking on the army estimates in the House of Commons, Mr. Macpherson, undersecretary for war, gave some astounding figures on the purchases during 1917. Among the medical ones were 67,000,000 bandages, 2,000,000 ounces of quinin, 1,500,000 doses of antitoxin, and 4,700,000 pounds of cotton. He paid a tribute to the devotion of the Medical Corps. The very large number of casualties in this branch of the service in the commissioned ranks showed that it did not shirk its responsibilities or dangers. In the Napoleonic wars the percentage of deaths from disease was 97, and from death on the battlefield, 3. Even as late as the South African campaign there were 67,000 cases of disease admitted to hospital and over 8,000 deaths. Four times as many men died from disease in South Africa as there were cases in France up to the beginning of November last. Although, in a stationary army, epidemics of disease are most liable to break out, skill and medical science, care and forethought have made the incidence of disease in the British forces in France less than in the history of any other army in the world. In other theaters of war, such as Saloniki, conditions are not so satisfactory. In Macedonia in summer the climate is one of the most pestilential in the world, and malaria there is of the most malignant type. But the results of the hygienic measures taken have been remarkable. The amount of sickness in the Saloniki army in 1917 was reduced to two thirds of what it was in 1916, and the death rate to one third of that in 1916. The success and gallantry of the Army Medical Service has given it a place in the army which it has never held before. It has now been arranged that the term Lieutenant-General and Major-General shall be applicable to a surgeon serving with the forces. To no one should greater credit for the success of this branch of the service be given than to Sir Alfred Keogh.

### Infant Mortality During the War

Contrary to what might be expected, infant mortality during the war has diminished. In the year 1914, which may be regarded as prewar, the rate for England and Wales was 105 deaths under 1 year per thousand births. In 1915 the rate rose to 110, which was probably due to the dislocation of habits produced by the war. But this rise was followed in 1916 by a fall to 91, the lowest figure ever recorded, the nearest approach being 95 in 1912. This remarkably good figure is generally attributed to the prosperity of the working class in consequence of high wages, diminution of employment, and a liberal scale of allowance for the families of soldiers. However, the figure has risen to 97 during 1917. This is probably due principally to some diminution of prosperity in consequence of the constant increasing cost of the necessities of life.

## *Association News*

### THE CHICAGO SESSION

### Section on Miscellaneous Topics to Consider Reeducation and Rehabilitation of Disabled Soldiers

At its recent meeting the Council on Scientific Assembly arranged for meetings of the Section on Miscellaneous Topics, the subject to be taken up being the reeducation and rehabilitation of the disabled soldiers. Major Frank Billings, head of this division in the Surgeon-General's Office, has accepted the chairmanship of the section. The subject is one of great importance, especially to medical men. Further announcement will be made later.

### Special General Meeting

In addition to the patriotic meeting which will be held on Thursday evening, June 13, and which will be addressed by men prominent in public affairs, there will also be a general meeting on Wednesday evening, June 12, at which eminent physicians who have been active in the medical military service of our nation and its allies will take part.

### Section Meeting Places

The tentative arrangements for places of meeting are as follows:

Section on Practice of Medicine.—Banquet Room, Hotel Morrison.

Sections on Ophthalmology and on Laryngology, Otology and Rhinology.—Grand Ball Room and Red Room, respectively, Hotel La Salle.

Sections on Nervous and Mental Diseases and on Dermatology. — Ball Room and English Room, respectively, Blackstone Hotel.

The remaining Sections will be grouped, meeting in the Auditorium Theater, the Auditorium Hotel and the Congress Hotel. The theater will house in its main auditorium, the Section on Surgery, General and Abdominal, and in two smaller halls, the Sections on Genito-Urinary Diseases and on Gastro-Enterology and Proctology.

In the Auditorium Hotel, the Ball Room will be the meeting place of the Section on Pathology and Physiology, the Ladies' Parlor the meeting place of the Section on Pharmacology and Therapeutics, and the Section on Preventive Medicine and Public Health will meet in the banquet hall.

In the Congress Hotel, the Elizabethan Room will be the meeting place of the Section on Orthopedic Surgery and the Gold Room, the Section on Obstetrics, Gynecology and Abdominal Surgery; the Florentine Room, the Section on Diseases of Children, and the Green Room, the Section on Stomatology.

The Hotel Sherman will be the general headquarters where will be housed the Registration Bureau, the Information Bureau, the American Medical Association Branch Post-Office, as well as the Scientific and Commercial Exhibits.

In next week's issue the accommodations offered by these and the other hotels of Chicago for those who attend the annual session will be announced.

## *Marriages*

Mary Huntting Robinson, M.D., late of Hackett Medical College, Canton, China, to Mr. Henry L. Lechtrecker of Rockville Center, Long Island, N. Y., at Ithaca, N. Y., January 1.

Lieut. Jacob Ralph Brobst, M. R. C., U. S. Army, Bloomsburg, Pa., on duty at Camp Devens, Ayer, Mass., to Miss Grace Zerher of Bloomsburg, Pa., at Ayer, Mass, February 27.

Lieut. Milton Valentine Miller, M. C., N. A., Columbia, Pa., of the One Hundred and Eighth Machine Gun Battalion, to Miss Claire Richards of Philadelphia, February 19.

William Franklin Coburn, M.D., Rhinebeck, N. Y., to Miss Nora Caroline Heinke of Bremen, Ind., March 1.

Samuel Mathewson D. Marshall, M.D., to Miss Ruth Heisler, both of Milford, Del., February 28.

William Arthur Strole, M.D., Norfolk, Va., to Miss Marie Kelly of Baltimore, February 27.

Earle Augustus Martin, M.D., to Miss Helen M. Wilmer, both of Cincinnati, March 6.

James Chasey, M.D., to Miss Lillie J. Heidl, both of Long Branch, N. J., February 24.

## *Deaths*

**Richard Hunt Brown, M.D.,** Chicago; College of Physicians and Surgeons, Chicago, 1891; aged 55; a Fellow of the American Medical Association; associate professor of clinical laryngology, rhinology and otology in his alma mater; attending surgeon to the West Side Dispensary, ear, nose and throat department; a specialist on diseases of the ear, nose and throat; formerly professor of toxicology and materia medica in Northwestern College of Pharmacy; fell unconscious afterward swimming in the Central Y. M. C. A. pool, March 12, and died shortly afterward, from heart disease, it is believed.

**Com. Remus Charles Persons, Medical Director, U. S. Navy** (retired), Washington, D. C., New York University, New York City, 1872; aged 67; a Fellow of the American Medical Association; entered the Medical Corps of the Navy, March 5, 1872, and was retired, Dec. 28, 1912; in charge of the Naval Hospital, Cavite, and later ordered to duty on the U. S. S. *Baltimore,* and fleet medical officer of the Asiatic station; after in command of the Naval Hospital at Mare Island, Calif., and at Philadelphia; died in Columbus, Ga., March 3, from cerebral hemorrhage.

**Seabury Bowen, M.D.,** Fall River, Mass.; Bellevue Hospital Medical College, 1867; aged 77; a member of the Massachusetts Medical Society; formerly corresponding secretary for the Massachusetts State Board of Health; city physician of Fall River from 1871 to 1875; a trustee of the State Workhouse of Bridgehampton from 1875 to 1882; a member of the staff of the Fall River Union Hospital ever since its establishment; died at his home, March 2, from heart disease.

**John George Blake, M.D.,** Boston; Harvard Medical School, 1861; aged 80; a member of the Massachusetts Medical Society; visiting physician to the Boston City Hospital; consulting physician to Carney and St. Elizabeth's Hospital, and director of the South End National Bank; a surgeon of Volunteers during the Civil War; died at his home, March 4.

**William Joseph Gremley Dawson, M.D.,** Eldridge, Calif.; New York University, New York City, 1867; aged 72; a Fellow of the American Medical Association; superintendent of the California Home for Feebleminded Children since 1902; died at his home, March 4.

**Homer L. Clark, M.D.,** Washington, Pa.; University of Maryland, Baltimore, 1885; aged 54; a well-known newspaper writer; at one time president of the Washington School Board; is said to have committed suicide by strangulation at the Dixmont (Pa.) Hospital for the Insane, February 25.

**Luther Titus Palmquist, M.D.,** Chicago; Barnes Medical College, St. Louis, 1911; aged 37; formerly a Fellow of the American Medical Association; formerly a practitioner of Sioux City, Iowa; died at his home, March 7, from tuberculosis.

**George Earl Hull, M.D.,** Mantua, Ohio; Cleveland-Pulte Medical College, Cleveland, 1901; aged 39; a member of the Ohio State Medical Association; died in Grace Hospital, Cleveland, March 1, from paralysis.

**Walter Alva Mewborn, M.D.**, Bells, Texas; Vanderbilt University, Nashville, Tenn., 1881; aged 59; formerly a Fellow of the American Medical Association; died at his old home in Macon, Tenn., March 1, from peritonitis associated with carcinoma of the stomach.

**Eli Percival Flint, M.D.**, Rockville, Conn.; Yale University, New Haven, Conn., 1879; aged 68; a Fellow of the American Medical Association, and secretary of the Tolland County Medical Society; health officer for the town of Vernon; died at his home, January 31, from pneumonia.

Died in the Service

Capt. Clarence D. Bradley, M.D., M. R. C.,
U. S. Army, 1880-1918

*(See The Journal, Feb. 23, 1915, p. 556.)*

**William Butler Prather, M.D.**, Seale, Ala.; Atlanta (Ga.) Medical College, 1874; aged 71; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama; died at his home, February 19, from cerebral hemorrhage.

**Eugene Chase Peck, M.D.**, Hyde Park, Mass.; University of Vermont, Burlington, 1869; aged 72; formerly a member of the Massachusetts Medical Society; captain of United States Volunteers during the Civil War; died at his home, February 2, from cerebral hemorrhage.

**Lieut. Frank Harris Gardner, M.D., M. R. C., U. S. Army**, Brooklyn; Jefferson Medical College, 1916; aged 28; on duty at the Government Reservation, Hoboken, N. J.; formerly on duty at Fort Oglethorpe, Ga.; died at the home of his aunt in Brooklyn, February 24, from pneumonia.

**Harry Varley Bingham, M.D.**, Madison, N. J.; New York Homeopathic Medical College, New York City, 1905; aged 41; formerly a member of the staff of the Middletown State (N. Y.) Homeopathic Hospital; died in a sanatorium in Morristown, N. J., February 24.

**Ora N. Latham, M.D.**, Bolivar, N. Y.; University of Maryland, Baltimore, 1882; aged 62; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; died at his home, February 14, from heart disease.

**James H. Lampton, M.D.**, Louisville, Ky.; University of Louisville, Ky., 1865; aged 62; formerly a member of the Kentucky State Medical Association; for many years a practitioner of Springfield, Ky.; died at his home, February 25, from tuberculosis.

**Albert Joseph Ainey, M.D.**, Brooklyn, Pa.; Yale University, New Haven, Conn., 1867; aged 80; formerly a member of the Medical Society of the State of Pennsylvania; a veteran of the Civil War; died at his home, February 22, from cerebral hemorrhage.

**William F. Mills, M.D.**, Worcester, Mass.; Rush Medical College, 1887; aged 61; formerly a practitioner of South Bend, Ind., and physician of St. Joseph County; died in St. Johnsbury, Vt., February 15, from cerebral hemorrhage.

**Joseph Francis Gill, M.D.**, Madison, Wis.; Rush Medical College, 1886; aged 59; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; died at his home, February 24, from pneumonia.

**James Taylor Henry, M.D.**, Bentonville, Ark.; University of Nashville, Tenn., 1873; aged 70; a Fellow of the American Medical Association; physician and surgeon to the Eagle Lumber Company; died at his home, February 27.

**J. P. Sparrow, M.D.**, Oak Dale, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; aged 65; for nearly twenty years a practitioner of Hannibal, Mo.; died at his home, February 23, from pneumonia.

**David James Odell Truitt, M.D.**, Pocomoke City, Md.; University of Maryland, Baltimore, 1857; aged 81; contract surgeon in the Army during the Civil War; died at his home, February 22, from heart disease.

**Y. P. Barton, M.D.**, Cushing, Texas; Memphis (Tenn.) Hospital Medical College, 1903; aged 39; a member of the State Medical Association of Texas; died at his home, about February 20, from septicemia.

**John Hartridge Livingston, M.D.**, Jacksonville, Fla.; University of Maryland, Baltimore, 1878; aged 57; a member of the Florida Medical Association; died at his home, December 22, from cerebral hemorrhage.

**Francis Bilderback, M.D.**, Salem, N. J.; University of Pennsylvania, Philadelphia, 1870; aged 72; a member of the Medical Society of New Jersey; died at his home, February 23, from pneumonia.

**Harvey Newton Fox, M.D.**, Fresno, Calif.; Miami Medical College, Cincinnati, 1866; aged 77; formerly a practitioner of Tipton, Ind.; died at the home of his son in Fresno, from heart disease.

Died in the Service

Lieut. Frank Harris Gardner, M.D., M. R. C.,
U. S. Army, 1890-1918

**Leonard P. Waterhouse**, Spokane, Wash. (license, Washington, 1890); aged 85; a practitioner since 1855; first coroner of Spokane County, Wash.; also a druggist; died at his home, February 28.

**Celia Williams Taylor Goodman, M.D.,** San Diego, Calif.; University of Michigan, Ann Arbor, 1880; aged 58; a Fellow of the American Medical Association; died at her home, January 27, from erysipelas.

**Elmer William Reinhart, M.D.,** Muskegon, Mich.; Starling Medical College, Columbus, Ohio, 1884; aged 55; also a graduate in theology; died at his home, February 10, from cerebral hemorrhage.

**Alfred M. Townsend, M.D.,** Kenoma, Mo.; Ensworth Medical College, St. Joseph, 1893; formerly a member of the Missouri State Medical Association; died at his home, February 24.

**Horace Ladd, M.D.,** Philadelphia; Jefferson Medical College, 1848; formerly a member of the Medical Society of the State of Pennsylvania; aged 91; died at his home, February 24.

**John Hutchens, M.D.,** Cheshire, N. Y.; University of Buffalo, N. Y., 1871; aged 68; a member of the Medical Society of the State of New York; died at his home, February 23.

**William Bixby Hopkins, M.D.,** Cumberland, Wis.; Bowdoin Medical School, Brunswick, Me., 1881; aged 63; a Fellow of the American Medical Association; died at his home, February 11.

**Americus Miesse, M.D.,** Lima, Ohio; Cincinnati College of Medicine and Surgery, 1871; aged 69; died at the home of his daughter in Sidney, Ohio, February 26, from cerebral hemorrhage.

**Peter Livy Schuyler, M.D.,** Glendale, Calif.; University of Michigan, Ann Arbor, 1862; aged 87; for thirty-five years a practitioner of Evansville, Ind.; died at his home, February 23.

**Azuba Doty King, M.D.,** Des Moines, Iowa; State University of Iowa, Iowa City, 1876; aged 81; a member of the Iowa State Medical Society; died at her home, March 8.

**Benjamin Franklin Hamilton, M.D.,** Roseville, Ill.; Medical College of Ohio, Cincinnati, 1867; aged 79; died in the Burlington Hospital, December 18, from senile debility.

**Howard Fackenthal, M.D.,** Easton, Pa.; University of Pennsylvania, Philadelphia, 1876; aged 64; died in his apartments in Easton, February 25, from heart disease.

**Louis Jeschinsky, M.D.,** Mount Vernon, N. Y.; University of Halle, Germany, 1869; aged 74; died in the Westchester County Hospital, East View, N. Y., February 21.

**Peter Bakke, M.D.,** Grantsburg, Wis.; University of Minnesota, Minneapolis, 1892; aged 52; died in St. Luke's Hospital, St. Paul, February 27, from heart disease.

**Irving W. Norris, M.D.,** Corunna, Mich.; Michigan College of Medicine and Surgery, Detroit, 1901; aged 52; died suddenly at Sault Ste. Marie, Mich., February 26.

**Jesse C. Eldridge,** Chattanooga, Tenn. (license, Tennessee, 1889); aged 71; a veteran of the Civil War; died in a sanatorium in Chattanooga, February 26.

**Leonard F. Henley, M.D.,** Lakeland, Fla.; Atlanta (Ga.) Medical College, 1888; aged 69; died at his home, December 27, from pernicious anemia.

**W. P. Harris,** Centerville, Ohio (license, Ohio, years of practice, 1896); aged 80; died in Centerville, January 30, from cerebral hemorrhage.

**Noah Elliott,** Columbus, Ohio (license, Ohio, 1896); aged 92; a colored practitioner; died at his home, February 27, from senile debility.

**Henry S. Willard, M.D.,** Manhattan, Kan.; University Medical College, Kansas City, Mo., 1892; aged 50; died at his home, February 23.

**Giuseppe Ferro, M.D.,** New York City; University of Palermo, Sicily, 1876; aged 69; died at his home, February 10, from myocarditis.

**William Henry Gifford, M.D.,** Cleveland; Hahnemann Medical College, 1891; aged 48; died at his home, February 20, from pneumonia.

**Lancaster F. Scott, M.D.,** Chicago; Bellevue Hospital Medical College, 1882; aged 67; died at his home, March 4, from gastric ulcer.

**Fletcher F. Anderson, M.D.,** Atlanta, Ga.; Hospital Medical College, Eclectic, 1909; aged 52; died at his home, February 22.

**Leonard Kelly, M.D.,** Olyphant, Pa.; Bellevue Hospital Medical College, 1866; aged 75; died at his home, February 27.

# The Propaganda for Reform

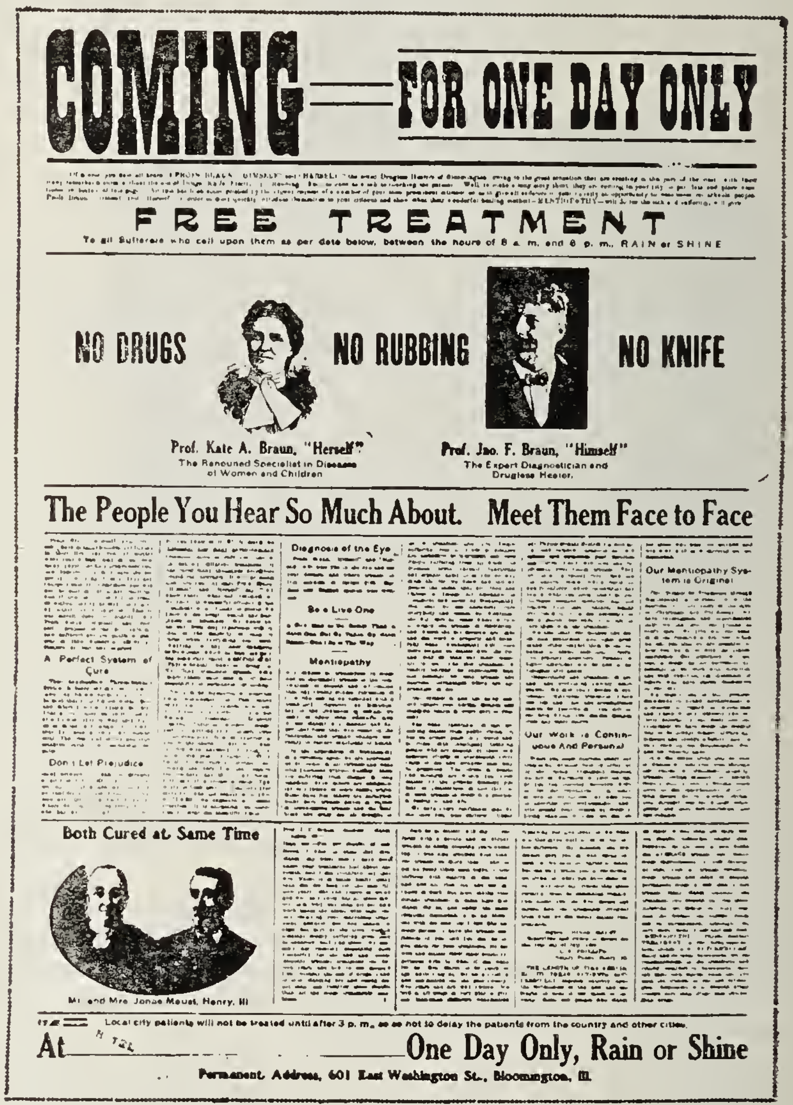
IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

## JOHN F. AND KATE A. BRAUN—QUACKS

### A Brief History of Some Persistent Fakers of the "Divine Healer" Type

From the publishers of the *News-Times* of Goshen, Ind., THE JOURNAL received the following inquiry:

> "We have received from 'The Christian Health Institute,' of Peru, Ind., a 25-inch display advertisement, setting forth the healing powers of one 'Bonita,' an individual who claims an ability to cure a wide range of bodily ills without the use of medicine or instruments.
>
> "'Bonita' is scheduled to appear in Goshen on February 21, but as we have for several years past maintained an attitude of hostility toward fake medical practitioners, when we know them to be such, the advertisement of this outfit will not appear in our paper, even though we hold a check to cover cost of same, unless you are prepared to give it a clean bill of health.
>
> "If you have any information concerning 'Bonita' please let us have it."


COMING—FOR ONE DAY ONLY

FREE TREATMENT

To all Sufferers who call upon them as per date below, between the hours of 8 a. m. and 8 p. m., RAIN or SHINE

NO DRUGS NO RUBBING NO KNIFE

Prof. Kate A. Braun, "Herself"
The Renouned Specialist in Diseases of Women and Children

Prof. Jno. F. Braun, "Himself"
The Expert Diagnostician and Drugless Healer.

The People You Hear So Much About. Meet Them Face to Face

A Perfect System of Cure

Don't Let Prejudice

Diagnosis of the Eye

Be a Live One

Mentiopathy

Our Work is Continuous And Personal

Our Mentiopathy System is Original

Both Cured at Same Time

Mr. and Mrs. Jonas Mouat, Henry, Ill

Local city patients will not be treated until after 3 p. m., so as not to delay the patients from the country and other cities.

At ________ One Day Only, Rain or Shine

Permanent Address, 601 East Washington St., Bloomington, Ill.

Greatly reduced reproduction of one side of a placard used by the Brauns in 1908. The original measured 24 inches by 18 inches. At that time the Brauns were using their own names.

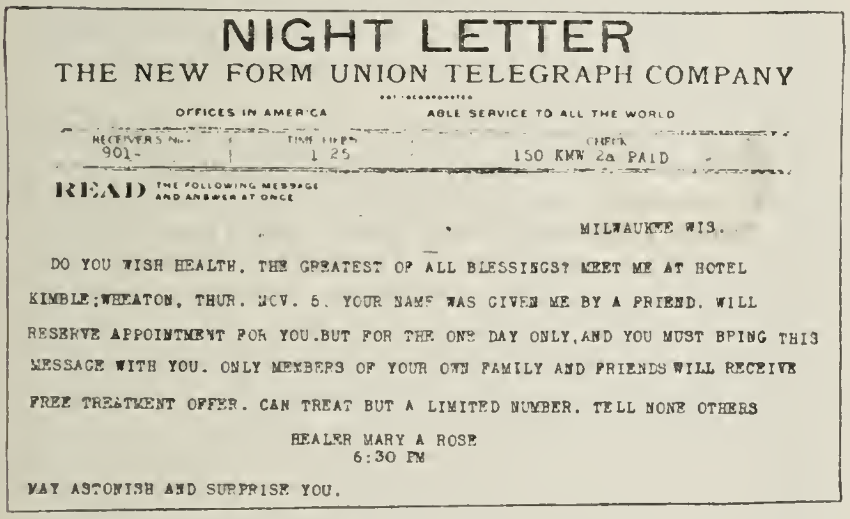
As the Propaganda Department files failed to show any record either of the "Christian Health Institute" or of "Bonita," an investigation was made. As a result, it appears that "Bonita" and the "Christian Health Institute" are the latest recrudescence of the John F. Braun's brand of quackery.

PROFS. BRAUN—HIMSELF AND HERSELF

The history of Braun and his wife, Kate A. Braun, makes an interesting chapter in the annals of quackdom. In 1898, Braun who was then a photographer at Red Bud, Ill., took a "course" in magnetic healing. Soon after embarking on this enterprise the Illinois State Board of Health issued an authorization for his prosecution and for a while Braun discontinued his "practice." Later he seems to have practiced in Sparta and then in Nashville, Ill. In August, 1903, he was prosecuted at Nashville and was fined $100 and costs and, on his failure to pay, was sent to jail. He appealed but later paid his fine before the case came to the higher court. In March, 1904, the federal authorities began actions against Braun for sending obscene letters through the mails. He was eventually fined $500 and, on failing to pay, was confined in the St. Clair County Jail for six months. In October, 1905, he appeared at Nokomis and Hillsboro, Ill., where suit was promptly begun against him by the State Board of Health and he was again sent to jail. In January, 1906, he was sentenced to the county jail at Hillsboro, Ill., for thirty days for violating the Medical Practice Act. All this time Braun and his wife operated chiefly under their own names as "Prof. John F. Braun, Himself and Prof. Kate A. Braun, Herself."

In October, 1909, the federal government issued a fraud order against the Brauns (who were then working from Bloomington, Ill., Indianapolis and Greenfield, Ind.) for obtaining money through the mails by means of false and fraudulent methods. As recorded in the memorandum to the Postmaster-General, the scheme consisted in advertising and selling an alleged treatment for the cure of all diseases without the use of drugs, surgery or even seeing the patient. The "treatment" was claimed to be by telepathy. Investigation proved that the "scheme was devised and operated for the sole purpose of defrauding the sick and afflicted." At the same time the Brauns were indicted on criminal charges and Braun was sentenced to a year and a day in the Leavenworth Penitentiary. The case against Mrs. Braun was *nolle prossed* because of the large number of children she had.

After getting out of prison, Braun seems to have done business for a while under the alias "Rev. D. R. Schiller" with headquarters at Rockford, Ill. In January, 1913, Schiller was mobbed at Jerseyville, Ill., because, after advertising that his "treatments" were "free" he refused to treat two patients who lacked money. The papers, in reporting the case at the time, said that Schiller had sold over a hundred "blessed" handkerchiefs to patients in Elgin, Ill. The handkerchiefs were to be placed on the affected portions of the anatomy and were supposed to effect a cure!



NIGHT LETTER
THE NEW FORM UNION TELEGRAPH COMPANY
OFFICES IN AMERICA ABLE SERVICE TO ALL THE WORLD

| RECEIVER'S No. | TIME FILED | CHECK |
|---|---|---|
| 901- | 1 25 | 150 KMW 2a PAID |

READ THE FOLLOWING MESSAGE AND ANSWER AT ONCE

MILWAUKEE WIS.

DO YOU WISH HEALTH. THE GREATEST OF ALL BLESSINGS? MEET ME AT HOTEL KIMBLE;WHEATON. THUR. NOV. 5. YOUR NAME WAS GIVEN ME BY A FRIEND. WILL RESERVE APPOINTMENT FOR YOU.BUT FOR THE ONE DAY ONLY,AND YOU MUST BRING THIS MESSAGE WITH YOU. ONLY MEMBERS OF YOUR OWN FAMILY AND FRIENDS WILL RECEIVE FREE TREATMENT OFFER. CAN TREAT BUT A LIMITED NUMBER. TELL NONE OTHERS

HEALER MARY A ROSE
6:30 PM

MAY ASTONISH AND SURPRISE YOU.

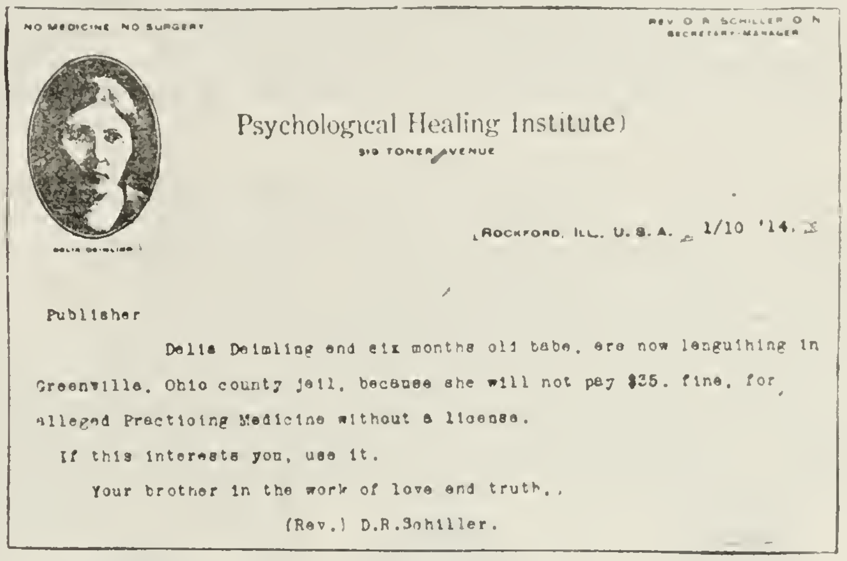
One scheme used by the Brauns for getting victims was to send out an imitation telegram to individuals whose names they had obtained offering free treatment; needless to say the "free treatment" cost money. Above is a miniature reproduction of one of the fake telegrams.

In March, 1913, Braun, as "Schiller," was on trial at Marion, Iowa, on the charge of violating the Medical Practice Act. The jury quickly brought in a verdict of guilty.

In June, 1913, the Indiana papers recorded the arrest of "Schiller" at Greencastle, Ind., where he was doing a thriving business. He was not only fined but also was made to refund all of the money he had taken from people of that community.

In November, 1913, we find "Schiller" pleading guilty to the charge of practicing medicine without a license in Ionia, Mich. He was placed on probation for two years after promising to give up quackery and return to his home in Rockford, Ill.

In January, 1914, Kate A. Braun appears in the lime-light again under one of her numerous aliases, this time as "Delia Deimling." She was arrested at Greenville, Ohio, on the charge of violating the Medical Practice Act. The newspapers said that "Delia Deimling," while advertising that she would take nothing for her services until a cure had been effected, had been taking money and that some of her dupes were responsible for her arrest. She was sent to the local county jail in default of a $300 bond for her appearance. This was on Jan. 9, 1914. On January 10, Braun, under his alias "Rev. D. R. Schiller," was sending out the following letter to such newspaper publishers as had participated in the profits of the Braun quackery:



NO MEDICINE NO SURGERY

REV D R SCHILLER D N
SECRETARY-MANAGER

Psychological Healing Institute
310 TONER AVENUE

DELIA DEIMLING

ROCKFORD, ILL. U. S. A. 1/10 '14.

Publisher

Delia Deimling and six months old babe, are now languishing in Greenville, Ohio county jail, because she will not pay $35. fine, for alleged Practicing Medicine without a license.

If this interests you, use it.

Your brother in the work of love and truth,.

(Rev.) D.R.Schiller.

In June, 1914, the federal government again intervened and extended the fraud order that had been issued in 1909 to cover the new names under which John F. Braun and his wife, Kate A. Braun, were then operating from Rockford, Ill. Some of these names were (1) "The Psychological Healing Institute," (2) "Rev. D. R. Schiller," (3) "Hulda De Muth," (4) "Delia Deimling" and (5) "Madame De Muth Deimling."

On Nov. 3, 1914, the Rockford, Ill., *Star* had an item about "D. R. Schiller, the Toner Street healer." to whom it referred as "the manufacturer of divine balm and blessed handkerchiefs." It seems that Schiller had come back to Rockford after a trip to Janesville with a supply of whiskey in his pockets and a not insignificant amount of the same substance in his anatomy. After supper he started to "clean out" a local barber shop against whose owner he had long nursed a grudge. The cleaning out process was accomplished by means of bricks and a revolver. Braun ("Schiller") was lodged in jail and before he had a chance to get out was taken in charge by the United States authorities who had indicted him and his wife on charges of fraud.

At the trial of the Brauns before Judge Landis a touch of lightness was given by the evidence of a farmer who wanted to get into the "healing business" and had applied to the Brauns for a job. Braun, it seems, insisted that his assistant should have a beard, an appendage to which the farmer's "best girl" objected. The district attorney presented in evidence a letter from Braun to the would-be assistant, reading:

> "Yes, by all means, raise that Van Dyke for I would not think of placing you in office without it. It will make you look ten years older. That counts for much in this business. Never mind what your girl says about it, for you must choose between the girl and the job. The more you force it the sooner the position will be open to you. Mioz wants to come back but I will stick to the proposition I made to you, provided your physiognomy will be in proper shape to look the patients in the eye and see how much money they have in their pockets. Yours,
>
> Rev. Dr. Schiller, Himself."

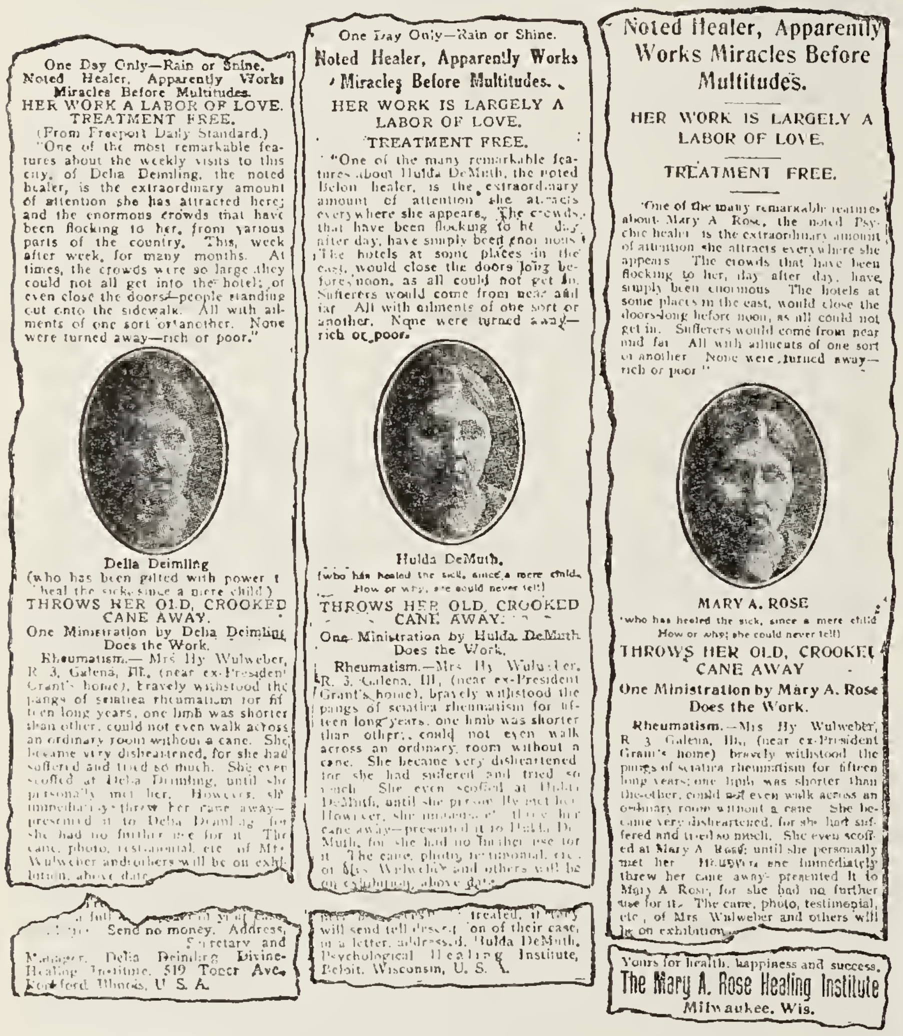
One of the witnesses who appeared for the government was a merchant from Appleton, Wis., who testified that he had paid Braun $10 for an "absent treatment" and a "blessed handkerchief." After discovering that Braun was a faker he refused to accept the handkerchief and demanded that his money be refunded. Braun very pertinently replied, by mail:

> "If I should return your money, every cheap screw in the country would demand a refund."

As a result of this trial, John F. Braun on Nov. 12, 1914, was sentenced to the federal penitentiary for four years, in spite of the plea of his attorney, George W. Popham of Chicago, that Braun had admitted his guilt and had promised on his release to seek legitimate means of a livelihood. Kate A. Braun was acquitted on the grounds that she had been influenced and coerced by Braun and also because she was the mother of ten children.

In October, 1916, the Ohio newspapers reported that "Mary A. Rose" of Peru, Ind., was arrested in Springfield, Ohio, charged with practicing medicine without a license. "Mary A. Rose" was one more alias of Kate A. Braun. She pleaded not guilty and was released on $100 bail. When the case was called Mrs. Braun failed to appear and her bond was forfeited.

Braun was released from the United States Penitentiary at Leavenworth, Dec. 10, 1917, after serving only slightly more than three of his four years sentence. Now, in 1918, it seems that Braun is operating his schemes under still another name—"Bonita."



One Day Only—Rain or Shine.
Noted Healer, Apparently Works Miracles Before Multitudes.
HER WORK A LABOR OF LOVE.
TREATMENT FREE.
(From Freeport Daily Standard.)

"One of the most remarkable features about the weekly visits to this city, of Delia Deimling, the noted healer, is the extraordinary amount of attention she has attracted here; and the enormous crowds that have been flocking to her, from various parts of the country. This, week after week, for many months. At times, the crowds were so large they could not all get into the hotel; or even close the doors—people standing out onto the sidewalk. All with ailments of one sort or another. None were turned away—rich or poor."

Delia Deimling
(who has been gifted with power to heal the sick since a mere child)
THROWS HER OLD, CROOKED CANE AWAY.
One Ministration by Delia Deimling Does the Work.

Rheumatism.—Mrs Hy Wulweber, R 3, Galena, Ill., (near ex-President Grant's home), bravely withstood the pangs of sciatica rheumatism for fifteen long years, one limb was shorter than other, could not even walk across an ordinary room without a cane. She became very disheartened, for she had suffered and tried so much. She even scoffed at Delia Deimling, until she personally met her. However, she immediately threw her cane away—presented it to Delia Deimling for she had no further use for it. The cane, photo, testimonial, etc of Mrs Wulweber and others will be on exhibition, above date.

[illegible] Send no money. Address, Secretary and Manager, Delia Deimling Divine-Healing Institute, 519 Tocer Ave., Rockford, Illinois, U. S. A.

One Day Only—Rain or Shine.
Noted Healer, Apparently Works Miracles Before Multitudes.
HER WORK IS LARGELY A LABOR OF LOVE.
TREATMENT FREE.

"One of the many remarkable features about Hulda DeMuth, the noted Beloit healer, is the extraordinary amount of attention she attracts everywhere she appears. The crowds that have been flocking to her day after day, have simply been enormous. The hotels at some places in the east, would close the doors long before noon, as all could not get in. Sufferers would come from near and far. All with ailments of one sort or another. None were turned away—rich or poor.

Hulda DeMuth.
(who has healed the sick, since a mere child. How or why, she could never tell!)
THROWS HER OLD, CROOKED CANE AWAY.
One Ministration by Hulda DeMuth Does the Work.

Rheumatism.—Mrs Hy Wulweber, R. 3, Galena, Ill, (near ex-President Grant's home), bravely withstood the pangs of sciatica rheumatism for fifteen long years, one limb was shorter than other, could not even walk across an ordinary room without a cane. She became very disheartened for she had suffered and tried so much. She even scoffed at Hulda DeMuth, until she personally met her. However, she immediately threw her cane away—presented it to Hulda DeMuth, for she had no further use for it. The cane, photo, testimonial, etc., of Mrs. Wulweber and others will be on exhibition, above date.

[illegible] treated, if they will send full description of their case, in a letter, addressed, Hulda DeMuth, Psychological Healing Institute, Beloit, Wisconsin, U. S. A.

Noted Healer, Apparently Works Miracles Before Multitudes.
HER WORK IS LARGELY A LABOR OF LOVE.
TREATMENT FREE.

"One of the many remarkable features about Mary A. Rose, the noted Psychic healer, is the extraordinary amount of attention she attracts everywhere she appears. The crowds that have been flocking to her, day after day, have simply been enormous. The hotels at some places in the east, would close the doors long before noon, as all could not get in. Sufferers would come from near and far. All with ailments of one sort or another. None were turned away—rich or poor."

MARY A. ROSE
(who has healed the sick, since a mere child. How or why, she could never tell!)
THROWS HER OLD, CROOKED CANE AWAY
One Ministration by Mary A. Rose Does the Work.

Rheumatism.—Mrs Hy Wulweber, R 3, Galena, Ill., (near ex-President Grant's home) bravely withstood the pangs of sciatica rheumatism for fifteen long years; one limb was shorter than the other, could not even walk across an ordinary room without a cane. She became very disheartened, for she had suffered and tried so much. She even scoffed at Mary A. Rose, until she personally met her. However, she immediately threw her cane away—presented it to Mary A. Rose, for she had no further use for it. The cane, photo, testimonial, etc., of Mrs Wulweber and others will be on exhibition.

Yours for health, happiness and success.
The Mary A. Rose Healing Institute
Milwaukee, Wis.

Photographic reproductions (reduced) of three advertisements issued by Braun advertising Kate A. Braun under some of her aliases. As "Delia Deimling" the Brauns operated from Rockford, Ill., under the name of "Delia Deimling Divine Healing Institute"; from Beloit, Wis., they worked as the "Hulda De Muth Psychological Healing Institute," and from Milwaukee they conducted the "Mary A. Rose Healing Institute." Mrs. Braun, it will be noticed, went by all three of these names—and several others.

It is pertinent to add that the *News-Times* of Goshen, Ind., after hearing from the Propaganda Department, refused the advertisement of "Bonita." The people of Goshen and vicinity are to be congratulated on having a newspaper that holds the public health in higher esteem than the dollars of the quack.

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Rats.—As a not inconsiderable feature of war economy and for the saving of food products especially, the Department of Agriculture calls attention to the loss of foodstuffs through the agency of rats amounting, as estimated, to over $200,000,000 annually. The systematic destruction of rats is urged on every one, and in a campaign for this purpose small posters are being distributed by the department setting forth the loss of food through rats and offering to supply practical methods for their destruction.

# Correspondence

## "SWOBODA'S 'CONSCIOUS EVOLUTION'"

*To the Editor:*—In the history of medicine and surgery, especially of the Egyptians and the old Hellada, exercise or physical culture went hand in hand with the healing arts for centuries up to the present so-called modern education. As believers in healthy, strong, proper living and of all systemic efforts of development of our bodies and minds, you cannot blame us if we always welcome your articles in the Propaganda for Reform department justly attacking quackery, pseudo-science, *et tuti quanti*. In the last issue you gave us the best in regard to the humbugs in advertising of so-called systems of gymnastics, home physical culture, etc. Swoboda's "Conscious Evolution," his daring and all his nonsense with all the refinement for selling was known to us for years and since 1890 as he started to "humbug" the others in Omaha, as the active member of our gymnastic association of Sokols. He soon found out that he could not stay with us and went finally to Chicago, Washington and New York. Right here he connected his advice of a medical character, on the mail-order plan, with a "Course" or six lessons of simple exercise, free calisthenics, as he learned them in our gymnasiums or he is selling, for $20, our groups of selected exercises which have been used in our schools since 1862 as his "original wonderful discovery." We have exposed this and similar concerns in our paper many times and congratulate you on your article in the same direction. Will you be kind enough to allow us to translate the article on this Swoboda business, which was accepted even in the advertising columns of the best of our magazines, not only to the detriment of the pocketbooks of their readers, but also with all the dangers of quackery to their health.

Dr. J. Rudis-Jicinsky.

Editor, *Sokol Americky*, Chicago.

## HENRY BACHMAN STEHMAN

*To the Editor:*—In The Journal, February 23, you published an obituary of Dr. Henry B. Stehman of Los Angeles. It was very brief, and I fear that you did not do him justice. May I add an appreciation:

Dr. Henry Bachman Stehman was a modest gentleman and yet a great man whose career as a citizen, physician and philanthropist was unique. His life calendar was brief: Born 1852; graduated Lebanon Valley College, 1873, receiving there his A.M. later; Universities of Leipzig and Brussels, 1873-1875; M.D., Jefferson, 1877. Internship in Blockley Hospital; married Miss Elizabeth Miller, 1881; superintendent, Presbyterian Hospital, Chicago, 1884, and retired by sickness, 1899. Moved to Pasadena. There he worked, handicapped by physical suffering, and died its most useful citizen.

He was a man of vision, and whatever he undertook he did. He had a constructive mind, a genius for organization, which found scope in two hospitals, in a great church building in Pasadena, and finally in a monument to his zeal for service, La Vina, a sanatorium for the tuberculous.

As a hospital manager he was superb, and the Presbyterian received through him many gifts—endowments of beds, rooms and wards, and bequests of large amount.

He chiefly designed the interiors of the numerous buildings of the Pasadena Hospital, and assisted in their construction. He sought and secured large gifts to this hospital.

La Vina was his greatest work. On a farm near Pasadena have arisen some eighteen buildings for 100 patients. The farm and all the buildings were the willing gift of those who believed in the work and in him.

It was his ambition to make a haven for at least a few of the many consumptives who walk the streets as long as they can—and walk in loneliness. And this he nobly did.

For ten years, amid an exacting practice, he gave himself to this service as a labor of love, refusing all material rewards—even declining gifts for his personal comfort.

For eleven years he was a successful teacher in Rush College, finally as assistant professor of gynecology. He was an expert diagnostician and a resourceful surgeon. He had the fine art of helping the sick without irritating them.

He had a genius for raising money for a good cause, and did it without annoying people. He seldom asked for money; rather his friends enthused with him over what money could do for a good cause.

His religion he took more seriously and with less parade than any other man I ever knew. His relations with others were kindly, unselfish and helpful. His purposes were too serious for him to waste energy over trifles (which he took rather humorously). The strength of his unobtrusive personality, like a rich perfume, touched the spirits of those about him for their comfort and strength.

His life was consecrated to the weal of the sick and needy of all classes, of all religions and no religion. He respected the sincere opinions of others; he was beloved of all who knew him and of him; and in his final agony he had the hopes and prayers of the whole community.

Norman Bridge, M.D., Pasadena, Calif.

## A PLEA FOR A RATIONAL SYSTEM OF INSTRUCTION IN ANATOMY

*To the Editor:*—During the past three months, while conducting a course for military surgeons at the Post-Graduate Medical School and Hospital dealing with the surgery of nerves and tendons, I was struck by the students' ignorance of the simplest elements of anatomy. Their ignorance was all the more surprising because they represented an unusually intelligent, alert group of men, many of whom were surgeons of standing. It was interesting to see how they welcomed a chance to study anatomy when presented in a simple form, and how easily they acquired a practical working knowledge of all the important tendons and peripheral nerves during the two weeks of the course. On talking the matter over with them I came to the conclusion that the method of teaching anatomy current in our medical schools is to a large extent responsible for their anatomic ignorance. As one man put it, "I was compelled to digest 1,500 pages of Gray's Anatomy in eight months, and my anatomic digestion has suffered ever since."

The teaching of anatomy in the medical school should, to my mind, not rest in the hands of a specialist versed only in the science of anatomy; but the teacher should be a man who, in addition to his anatomic knowledge, is skilled in the application of anatomic data to practical medical problems. The medical student, with rare exceptions, is to be trained not as an anatomist but as a physician, and only the physician can have a sufficiently broad point of view to realize which anatomic facts are essential and which are to be considered encumbrances. For the anatomist, particularly one interested in the comparative study of vertebrates, each detail of the skull bones has an intense significance. A scientist of this type ought to be associated with every medical school as a leader of research. For the student, however, the exact configuration of the bones of the skull is as nonessential as a knowledge of the sutures of the bones of the turtle's skull. Emphasis of a nonessential of this type serves to distract his attention from those important data which he should have at his fingers' tips during his entire medical life. Because of this lack of emphasis, all anatomy becomes jumbled up in his mind, and he forgets the important together with the unimportant.

As one glances at the huge volumes which at present represent our knowledge of human anatomy—the detailed system of Poirier and Charpy, the eight volume edition of Rauber and Kopsch, or even the somewhat more modest English and American anatomies—one must realize that only by the most careful and critical sifting can the essentials be presented in cogent, logical form to the medical student. Instead of this, however, we use Gray as a textbook, and our best quiz masters stimulate a false pride among their students in making them vie with one another in their ability to recite the huge volume by heart. Naturally, knowledge rammed down by such a method is bound to produce the indigestion of which my postgraduate student complained.

Heterodox as these views may sound to some, they will, I feel sure, find response not only among the afflicted medical students but also among teachers of anatomy who, largely because of a lack of a suitable textbook, find it difficult to cope with the problem of presenting anatomy in such a way as to make it interesting and assimilable.

It is particularly to these teachers that I appeal, to those men who, appreciating the value of an anatomic knowledge in the accurate practice of medicine, wish to give their students the thorough equipment indispensable for their future work.

Might it not be possible with their cooperation to evolve a textbook of anatomy which should be thorough and yet omit the unimportant, clear and yet not too detailed, a book which the average medical student could absorb fully and retain as a basis for his future diagnostic and therapeutic work? A book of this type should not, of course, attempt to replace the complete system of anatomy, which should be present as a reference work on every student's shelf.

Leo Mayer, A.M., M.D., New York.

## CONTRIBUTIONS FOR BELGIAN AND FRENCH PHYSICIANS

*To the Editor:*—I beg to acknowledge further contributions of money for the aid of the civilian physicians in Belgium and France as they may be able to return to their devastated homes; and also of instruments which will be of great use to them, for they will have absolutely nothing left. The Germans have stolen it all. The door is still open for others to help.

W. W. Keen, M.D.

1729 Chestnut Street, Philadelphia.

### SUBSCRIPTIONS IN CASH

| | |
|---|---|
| Dr. Sanford Blum, San Francisco | $ 5 |
| Dorchester Medical Club, Dorchester Mass. | 10 |
| Lewellys F. Barker Society for the Study of Medicine, Fairmont, W. Va., through Dr. J. W. McDonald | 10 |
| Mr. Joseph G. Rosengarten, Philadelphia, a tribute to Madame Depage | 100 |
| | $125 |

### INSTRUMENTS

Miss Louise Herring, Philadelphia, a fine medicine case nearly 100 years old; Dr. McDonald Watkins, Natchez, Miss.; Dr. E. F. Meschter, Olean, N. Y.; Dr. Edgar F. Kiser, Indianapolis; Dr. F. B. Fuller, Pawtucket, R. I.; Dr. A. C. Jordan, Pine Bluff, Ark.; Dr. Harold B. Wood, Charleston, W. Va.; Dr. B. G. R. Williams, Paris, Ill.; Dr. W. A. Rowell, Trinity Center, Calif.

In addition to this Messers Charles. Lentz & Sons not only have put in order and carefully packed all of the instruments forwarded, but in the last case they contributed a large number of instruments from their own stock.

# Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

## CLAUDIUS' STAIN FOR PROTOPLASM AND CILIA OF BACTERIA

*To the Editor:*—In The Journal, March 2, 1918, p. 661, Abstract 92, mention is made of Claudius' staining technic for bacteria. Can you furnish me with the technic?

Lieut. V. M. Jared, M. R. C., Base Hospital, Fort Riley, Kan.

*To the Editor:*—I am very much interested in the brief reference on the staining of protoplasm for bacteria, abstracted from *Hospitalstidende*, as given in The Journal, March 2, 1918, p. 661. As I do not have access to the journal in question, I should be pleased to learn of the details of the method of staining referred to.

Henry Albert, M.D., Iowa City, Iowa.

Answer.—The fixation is done by heat in a sterilizer. The flame is lighted after the specimen has been placed in the sterilizer, and the temperature is gradually brought up to 110 C. The specimen is laid on a piece of filter paper, and another is placed over it. The sterilizer must be dry, as any steam would destroy the specimen. The fixation takes about half an hour; the specimen is taken out when 110 C. is reached. Once cooled, the stain is applied at once. The stain consists of 20 c.c. of a 1 per cent. aqueous solution of chromic acid into which are stirred 0.5 c.c. of freshly prepared anilin water and 10 drops of glacial acetic acid. The anilin water is made by stirring one part of anilin into 25 parts water and filtering through a moist filter. The specimen is placed in the staining fluid, on a glass cuvette with an oval bottom, and the whole is set aside for half an hour at room temperature, and then rinsed with water and dried in the air. The stain on the back of the cover glass is wiped off with a towel. This is easily done if a little anilin is placed on the towel. The specimen is examined with an immersion lens and powerful light and entirely open condenser. These specimens do not keep well, as they grow in time less distinct.

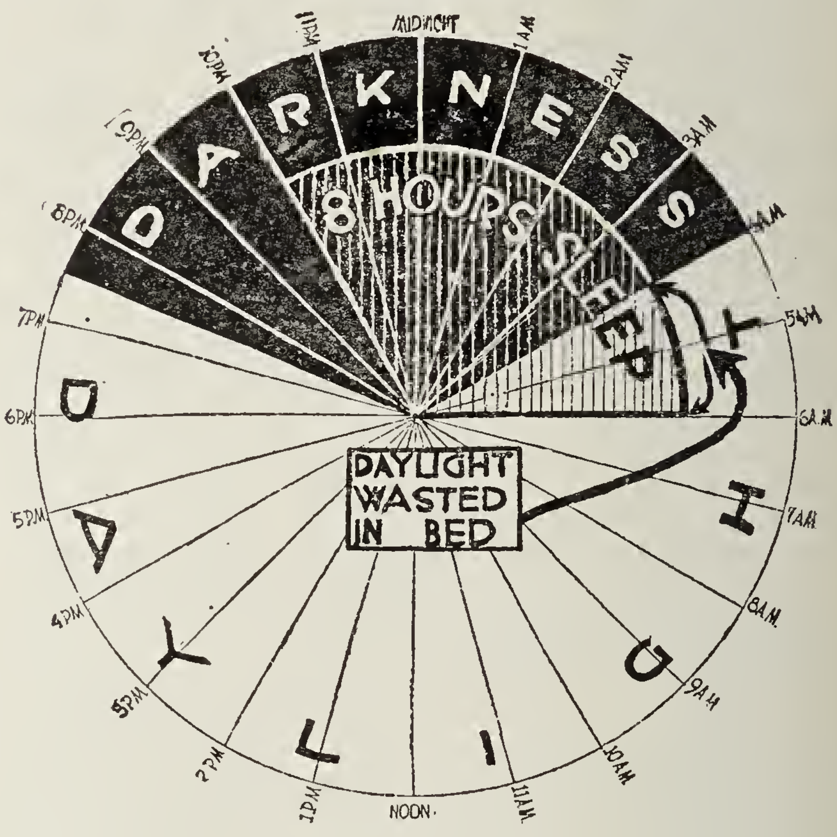
The cultures used must not be over 8 days old; Claudius prefers solidified serum (as for diphtheria) to agar. A small drop of ordinary water is placed on the thin, flamed slide, and an extremely small amount of the material is transferred to the drop of water with the tip of a fine platinum needle, and the whole is stirred well and spread over an area of several centimeters in the center of the slide. When the glass is clean and free from grease, the emulsion of the bacteria lies in a thin, scarcely visible layer wherever it is carried with the needle. The cilia show up distinctly against the glass, which takes a bluish or violet tint. The stain adheres firmly to the glass, forming a colored film on it. This molecular precipitation is the essential element in the technic. Not only the slide itself but also its holder take the stain, so that it looks as if originally stained glass had been used. The stain at first is of the tint of the chromic acid solution, but in the course of five or ten minutes it changes to a smoke color which gradually blends into a bluish black. The bacteria show a gray nucleus, surrounded by the unstained protoplasm, from which project the likewise unstained cilia. The aspect is as different, he says, from the ordinary photomicrograph of a bacterium as the roentgen picture of a hand differs from an ordinary photograph of it. As the strong light from the microscope condenser falls on the unstained parts, the nucleus is seen surrounded with a shining medium, the protoplasm and cilia, which look like the light phenomena, the lines of force, in the electrostatic field of a very high potential. Claudius adds that it is most remarkable how the protoplasm allows the stain to pass through to the nucleus without taking up any of it itself, when even the mirror-smooth glass takes the stain to an intense degree. This technic, he says, has proved invariably successful in his hands, and he has grounds for thinking that it is going to prove useful in other fields of bacteriologic microscopic technic.

## SAVING DAYLIGHT

*To the Editor:*—At the risk of showing what you may consider lamentable ignorance, I wish to have explained the advantages of "Saving Daylight." In The Journal's editorial March 2, 1918, you say, "The daylight saving plan has, from a health standpoint, everything in its favor and nothing against it." I have asked a number of our physicians here and they are quite as much in the dark as I am.

M. R. W., Reno, Nev.

Answer.—Senator Calder on April 17, 1917, introduced a bill drafted by the National Daylight Saving Association which provides for setting forward the clock by approximately one hour for the whole country during the summer months. The bill was adopted unanimously by the Senate but, due to what the *Survey* has termed "guerrilla methods of committee procedure," it failed in the House. On March 14 of this year the newspapers reported that, after Representative Madden had blocked the passage of the bill, the chairman of the Rules Committee of the House had declared that if further obstructive tactics were used to postpone action on the measure, a special rule would be reported out for its immediate consideration. On March 15 the House passed the bill by a vote of 252 to 40. The House bill differs from the original bill in that the daylight-saving period is extended from five months to seven months. The Senate concurred in the amendment, and on Tuesday, March 19, the amended bill was signed by the President. Under the bill the clocks of the country will be put forward one hour at 2 a. m. on the last Sunday of March of each year and put back one hour at 2 a. m. on the last Sunday in October. The accompanying chart (reproduced from the Chicago *Herald*) shows that one of the two hours of daylight which most people spend in bed during summer months will be made available for use at the other end of the day. When the new law is in force, instead of becoming dark at 7: 30 p. m. (clock time), it will not become dark until 8: 30 p. m. (clock time). This means that for the majority of city dwellers an extra hour of recreation-time is transferred from artificial light to daylight. This means a saving of illuminants, a widened opportunity for outdoor sports, less eye-strain because of the lessened use of artificial illumination and the by no means negligible advantage, under present conditions, of greater opportunities for work on "war gardens." The daylight saving plan has been adopted by Great Britain, France, Italy, Holland, Denmark, Norway, Sweden, Portugal, Germany and Austria. A social worker in London reports that as a result of the law "in the height of the summer it was thought a Saturday afternoon holiday had been added to each day." Furthermore, the police reports show that the tendency to spend the extra hours out of doors, together with the fact that it is easier to maintain order in daylight, had greatly improved the moral tone of the community. The cities of Cleveland and Detroit, which locally adopted the daylight saving plan by working under Eastern time in place of Central time, are reported to have saved about $200,000 each in the consumption of illuminants. The Cleveland Chamber of Commerce also reported that the change resulted in 2,000 more men playing baseball and 1,000 more persons playing tennis each evening. The daylight saving plan has been strongly supported by leading commercial organizations, by the American Federation of Labor and the principle is said to have been endorsed by the President himself more than a year ago. In Germany the illuminating companies have petitioned the government to rescind the law there in force because their incomes have been seriously diminished.



When the clock is set ahead, the dark sector will extend from 8:30 p. m. to 5 a. m.

## MELUBRIN

*To the Editor:*—1. What is Melubrin? 2. What is its therapeutic use and dosage? 3. Is there a satisfactory substitute for it?

Paul D. Espey, M.D., Xenia, Ohio.

Answer.—1. New and Nonofficial Remedies, 1918, p. 276, states that Melubrin is the sodium salt of 1-phenyl-2,3-dimethyl-5-pyrazolon-4-amino-methan-sulphonic acid and that it is closely related to antipyrin.

2. Melubrin acts as an antipyretic and analgesic. It is said to be useful in painful affections, such as sciatica and other neuralgias, and as an antipyretic in various febrile affections. It is said to have effects similar to salicylates in acute rheumatism. The dose is from 1 to 2 gm. It is claimed that as much as 10 gm. may be given daily.

3. Acetanilid or antipyrin will probably answer all purposes. Sollmann (Manual of Pharmacology, 1917, p. 471), in discussing the "coal-tar antipyretics," says, "Practical experience has shown that acetphenetidin, acetanilid and antipyrin are the most useful representatives of the group, and that all the others may well be spared."

## Medical Education and State Boards of Registration

### COMING EXAMINATIONS

Arizona: Phoenix, April 2. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

Colorado: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, May 6. Sec., Dr. G. A. Batten, Box 375, Honolulu.

Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigby.

Illinois: Chicago, March 25-26. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Minnesota: Minneapolis, April 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

Nevada: Carson City, May 6. Sec., Dr. S. L. Lee, Carson City.

New Mexico: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

Oklahoma: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

### South Carolina June Examination

Dr. A. Earle Boozer, secretary of the State Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, June 12-14, 1917. The examination covered 15 subjects and included 105 questions. An average of 75 per cent. was required to pass. Of the 47 candidates examined, 28, including 1 osteopath, passed, and 19 failed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Atlanta Medical College | (1915) 76.7; (1917) | 75.1, 75.6, 76.1. |
| Loyola University | (1916) | 75.6 |
| University of the City of New York | (1885) | 79.7 |
| Women's Medical College of the N. Y. Infirmary for Women and Children | (1899) | 75 |
| Jefferson Medical College | (1917) | 80, 82.5 85.7. |
| Medical College of the State of South Carolina | (1917) | 75, 75, 75.1, 75.1, 76.2, 76.6, 77.5, 77.7, 78.1, 79.4, 80.4, 81.4, 81.6, 84.2, 84.5, 85.9. |
| Medical College of Virginia | (1917) | 84.2 |
| FAILED | | |
| Birmingham Medical College | (1908) 71.1; (1915) | 64.7 |
| Atlanta Medical College | (1914) 69.9; (1915) 64.9; (1917) | 70.6, 71.9 |
| Southern College of Medicine and Surgery | (1914) | 68.7 |
| University of Georgia | (1914) | 69.2 |
| University of Oklahoma | (1915) | 66.7, 66.7 |
| Medical College of the State of South Carolina | (1917) | 70.5, 73 |
| Meharry Med. Coll. (1907) 59.4; (1909) 70.1; (1914) *; | (1916) | 74.9 |
| Memphis Hospital Medical College | (1911) | 60 |
| University of Tennessee | (1905) | 44.4 |
| Vanderbilt University | (1916) | 55.2 |

* No grade given.

### Missouri September Examination

Dr. George H. Jones, secretary of the Missouri State Board of Health, reports the oral and written examination held at Kansas City, Sept. 24-26, 1917. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 16 passed and 4 failed. Ten candidates were licensed through reciprocity. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Bennett Medical College | (1915) | 80.8 |
| Chicago College of Medicine and Surgery | (1917) | 87 |
| Hahnemann Medical Coll. and Hosp. of Chicago | (1916) | 85 |
| Northwestern University | (1917) | 84.1, 86.9 |
| Rush Medical College | (1916) | 81.1 |
| University of Illinois | (1917) | 90.2 |
| University of Kansas | (1917) | 84.5 |
| Harvard University | (1917) | 92.7 |
| National University of Arts and Sciences | (1917) | 78.1 |
| St. Louis College of Physicians and Surgeons | (1910) | 75.1 |
| University Medical College of Kansas City | (1913) | 75 |
| Meharry Medical College | (1917) | 75.1, 75.1 |
| University of West Tennessee | (1915) | 75.1 |
| Vanderbilt University | (1899) | 75 |
| FAILED | | |
| Meharry Medical College | (1915) 71.9; (1917) | 69.9, 72 |
| University of West Tennessee | (1915) | 69.9 |

| College | Year Grad. | Reciprocity with |
|---|---|---|
| LICENSED THROUGH RECIPROCITY | | |
| George Washington University | (1912) | Dist. Colum. |
| Howard University (1910) West Virginia | (1915) | Kansas |
| Jenner Medical College | (1907) | Illinois |
| Rush Medical College | (1915) | Illinois |
| University of Kansas | (1916) | Kansas |
| Eclectic Medical University | (1906) | Kansas |
| St. Louis University | (1909) | Illinois |
| Meharry Medical College | (1913) (1916) | Tennessee |

### Rhode Island September Examination

Dr. Byron U. Richards, secretary of the Rhode Island State Board of Health, reports that 3 candidates were licensed at the special examination held Sept. 26-27, 1917. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Johns Hopkins University | (1916) | 88.5 |
| Harvard University | (1915) | 87.1 |
| Cornell University | (1915) | 91.4 |

### Idaho October Examination

Dr. Charles A. Dettman, secretary of the Idaho State Board of Medical Examinations, reports the written examination held at Pocatello, Oct. 2-4, 1917. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined, of whom thirteen, including 2 osteopaths, passed, and 3, including 1 osteopath, failed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| George Washington University | (1911) | 85 |
| Atlanta College of Physicians and Surgeons | (1910) | 81 |
| Chicago College of Medicine and Surgery | (1912) | 82 |
| Chicago Homeopathic Medical College | (1904) | 80 |
| College of Physicians and Surgeons, Chicago | (1895) | 83 |
| Northwestern University | (1898) | 85 |
| National University of Arts and Sciences | (1917) | 81 |
| Long Island College Hospital | (1899) | 80 |
| Western Reserve University | (1917) | 86 |
| Chattanooga Medical College | (1906) | 75.5 |
| Tennessee Medical College | (1901) | 75 |
| FAILED | | |
| Hospital College of Medicine | (1907) | 73 |
| Eclectic Medical University | (1917) | 69.9 |

### Porto Rico October Examination

Dr. M. Quevedo Baez, secretary of the Board of Medical Examiners of Porto Rico, reports the practical and written examination held at San Juan, Oct. 2, 1917. The examination covered 10 subjects and included 123 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 14 passed and 6 failed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Leland Stanford Junior University | (1917) | 84.7 |
| Chicago College of Medicine and Surgery | (1917) | 78.1 |
| Loyola University | (1915) 77; (1916) 77; 1917) | 76, 82.8 |
| University of Illinois | (1917) | 75 |
| University of Maryland | (1916) 85; (1917) | 75 87.4 |
| University of Michigan Medical School | (1917) | 81.7 |
| University and Bellevue Hosp. Med. Coll. | (1917) | 85.8 |
| Medical College of Virginia | (1917) | 81.8, 82.5 |
| FAILED | | |
| Chicago College of Medicine and Surgery | (1917) | 65.7, 68.2 |
| Loyola University | (1916) 65.8; (1917) | 66.2 |
| Physio-Medical College of Indiana | (1908) | 55 |
| Meharry Medical College | (1917) | 69.6 |

### Connecticut Homeopathic Examination

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports one candidate licensed since Aug. 1, 1917, and also the written examination held at New Haven, Nov. 13, 1917. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| N. Y. Homeo. Med. Coll. and Flower Hosp. (1916) 80; | (1917) | 90 |

| College | Year Grad. | Reciprocity with |
|---|---|---|
| LICENSED THROUGH RECIPROCITY | | |
| Hahnemann Med. Coll. and Hosp. of Chicago | (1906) | Illinois |
| | (1908) | Mass. |
| New York Homeo. Med. Coll. and Hospital | (1905) | New York |
| Hahnemann Med. Coll and Hosp. Philadelphia | (1886) | Mass. |
| | (1894) | California |

# Book Notices

The Organs of Internal Secretion: Their Diseases and Therapeutic Application. A Book for General Practitioners. By Ivo Geikie Cobb, M.D., M.R.C.S. Cloth. Price, $2. Pp. 228. New York: William Wood & Co., 1917.

The aim of this book is twofold: (1) To be "a guide to other practitioners as to the rôle which the ductless glands play in promoting bodily health," and (2) "to point out those morbid states of health in which organic extracts may be utilized with success." The glands written about at some length are the thyroid and parathyroid, including, of course, the subjects of hyperthyroidism and thyroid deficiency; the pituitary body; the suprarenals; the pancreas; the sexual organs and their internal secretion, and the internal secretions of digestion. There is a chapter on the therapeutic application of hormones, and one containing conclusions and a bibliography. Other glands, organs and tissues are referred to in the text (the liver, spleen, thymus, brain, cord, gastric mucosa, etc.), but are not given as much prominence as some of the others. The pineal gland is not mentioned.

From a literary point of view the book is readable. It would have been gratifying if the volume really presented to the general practitioner the "salient facts" gathered from "lengthy works" dealing "with ductless glands and their secretions," which include "the results of laboratory research in detail." This, unfortunately, is not the case. It appears a random compilation of statements from a limited number of authors. Any one who has read critically the physiologic evidence of the larger works referred to in the author's bibliography should be able to write with greater accuracy on the physiology and therapy of these glands, especially if he has kept in touch with what has appeared on the subject since the books were published—a huge responsibility which devolves on the man who desires accurately to inform his busy fellow practitioners. Others have accepted the responsibility in full, and their conclusions as to the present value of opotherapy have been less optimistic but more accurate.

Hormone therapy just now is a thing to conjure with. If much of the current "drug therapy is empirical," and if "much of such treatment would be quite useless were it not accompanied by the hope and faith of the patient" (p. 213), why is the same statement not applicable to Cobb's cures of "neurasthenia following a severe abdominal operation," after considering the syndrome, by oral administration of pituitary extract (p. 6), or other cases of neurasthenia in which dry suprarenal extract administered orally is indicated, or to those cases in which "it is sometimes of service to use what Leonard Williams calls a 'mitrailleuse,' i. e., a preparation containing the extracts of many glands. Such a one is hormatone, and it is claimed that its exhibition is followed by marked benefit in many indefinite conditions" (p. 12). Indeed, some, no doubt, would like to know why "extracts of brain and spinal cord, of the pancreas and liver, of the testes and seminal vesicles are of much help in fattening up patients" (p. 14). Are hormones responsible? Or is it faith and hope? Or would franklinism, roentgen rays, massage, psychanalysis, absent treatment by "Christian Science," each singly or combined as a "mitrailleuse," do quite as well? May it not be due to the "hyperalimentation" by feeding a great deal of food in a powdered form? But then, the "mitrailleuse" is frequently indicated in convalescence, as after pneumonia (pp. 13 and 14) and for supposed "hypoendocrinism"—in the "functional neuroses" (p. 211). Even "cases of acromegaly have been reported as cured, or much relieved, by preparations containing thyroid, sexual glands, spinal cord, etc., presumably by restoration of the hormonic balance produced by the antagonistic extracts" (p. 206). It is the shotgun prescription in the twentieth century under a new guise!

Space does not allow complete critical analysis of this curious book. Attention will be called to a few of the errors of fact and logic:

Every one believes that there is a relative and absolute diminution of both colloid and iodin in exophthalmic goiter; still Cobb asserts (p. 48) that "iodine is excessive in the colloid in Grave's disease." Furthermore, as long as the author does not give proof of the view that we are dealing with several different hormones of the thyroid gland, how can any one conceive of the presence of symptoms of hypersecretion and hyposecretion in one individual at the same time, or, as the author states in quoting the views of Léopold-Lévi and H. de Rothschild, that characteristics of "thyroid excess and thyroid deficiency . . . may be present successively or even concurrently in the same patient" (p. 71)? When the author writes that hypersecretion and hyposecretion of the thyroids "are present, but not necessarily at the same time," he implies that they can be present at the same time. Such statements call for an explanation. And the practitioner who reads would like to know what form of opotherapy is used to remedy this synchronous excess and deficiency of thyroid secretion.

It seems that the author is not familiar with the use of pituitary solution as an antidiuretic in cases of diabetes insipidus (palliative measure). Furthermore, quite a number of physiologists and not a minority of clinicians are satisfied that pituitary solution is no more a galactagogue (Gaines) than is thyroid (p. 86). Waiving these possibly disputed points, it has been known since 1898 (Compte) and abundantly verified since then that the pituitary gland undergoes a hyperplasia during pregnancy and no "hypoplasia," as Cobb asserts. In fact, the enlargement of this gland during pregnancy may result in symptoms of raised intracranial pressure (Fisher: *Brit. Jour. Ophth.*, 1917, **1**, 593-599).

Passing now to the suprarenal gland, we find the author's knowledge of the physiology of this organ markedly deficient (p. 118). He seems not to know that death in animals consequent to the removal of the suprarenals is due chiefly, if not entirely, to the removal of the cortex of this gland and not to the removal of the medulla, which gives rise to epinephrin.

The tonus theory espoused by Cobb is of historical interest. As Swale Vincent wrote recently of the medulla and its epinephrin: "It is difficult to adduce any satisfactory evidence that the secretion of the chromophil tissue is of any service whatever in the normal state of the animal." We do know at present that the cortex of the suprarenal is necessary for life. The muscular asthenia of Addison's disease is comparable to the muscular asthenia in animals which die following the removal of the cortex of the suprarenal, and not the medulla with its epinephrin. Regarding the action of the latter on the heart, Cobb states on page 98 that it "increases the rapidity of the heart's action"; on page 118 that it "causes slowing of the pulse when injected"; on page 192 again that it "causes a rapid rise in the pulse rate."

According to Cobb, the hormone of the pancreas is concerned with the prevention of an undue amount of glucose from accumulating in the blood. Because of this error he hopelessly confuses the various glycosurias that result from hyperglycemia (epinephrin, puncture glycosuria) with pancreatic diabetes and diabetes mellitus. Whereas most investigators admit that in the latter there is partly overproduction of glucose and a failure of storage of glucose, the essential trouble in these conditions is a failure of oxidation of the sugars. Common to puncture diabetes, epinephrin glycosuria and pancreatic diabetes or diabetes mellitus is solely the hyperglycemia and glycosuria. The supposed lack of balance between the suprarenals and pancreas as a cause of pancreatic diabetes has been, like other cases presumably due to lack of balance between antagonistic glands, from the first an ingenious hypothesis, without the slightest experimental evidence in its support.

No mention is made of the Allen treatment in diabetes mellitus, the most satisfactory we have and based on a theory supported by experimental evidence on lower animals and practical results on human beings. To be sure, the Allen treatment does not involve the feeding of organ extracts singly or combined. However, when therapeutic measures, such as bile salts, calcium salts, parathyroid extract, and faradism and galvanism applied to the sympathetic of the neck, are mentioned in cases of exophthalmic goiter (p. 50), the most hopeful form of treatment in diabetes certainly deserves mention, especially when Cobb himself says (p. 145), "It must be confessed that there is an opening for any form of treatment which will make the lot of the diabetic an easier one." Feeding of preparations of the pancreas, even when the latter are made from the islets themselves, have been notoriously ineffective in ameliorating the symptoms of diabetes except in those instances possible in which whole pancreas preparation has been given to replace loss of the external secretion. As a matter of fact, the disease usually becomes worse. Every practitioner has a right to ask, therefore, why no more than a passing reference has been made to Allen's work, such as appears on page 220, and to his later work on human patients, which receives no consideration at all.

Space does not allow a discussion of the supposed physiologic value that "liver extracts are supposed to possess." Not that Cobb subscribes to all or any of the statements. But why, it may be asked, should the book contain statements prefaced by "it has been stated," "hepatic extract has been employed," etc., when the author should know that there is no scientific evidence in favor of this particular form of medication? Why should the general practitioner become familiar with these misguiding statements?

Cobb does, however, advise the use of the various preparations of secretion. In an article, "Has Secretin a Therapeutic Value," by Carlson, Lebensohn and Pearlman (The Journal, Jan. 15, 1916, p. 178), it was indubitably shown that active secretin is not efficacious when given by mouth, and that the "presence of secretin or prosecretin cannot be demonstrated in the commercial preparations 'Secretogen,' 'Elixir Secretogen' and 'Duodenin.'" In the case of "Secretogen," which Cobb mentions specifically, it was shown that "intravenous injection of 100 times the therapeutic dose reveals occasionally an insignificant trace of secretin."

Clinical Cardiology. By Selian Neuhof, B.S., M.D., Visiting Physician, Central and Neurological Hospital. Cloth. Price, $4. Pp. 302, with 247 illustrations. New York: The Macmillan Company, 1917.

Neuhof has attempted to put into small compass the essentials of the etiology, pathology, symptomatology, diagnosis and treatment of diseases of the heart. He has succeeded wonderfully well. He has shown a wise discrimination in deciding both what should be omitted and what included. There is a good epitome of the essentials of physical diagnosis, a concise summary of the general plan of treatment. Pathology is treated rather scantily. Symptoms, diagnosis and prognosis are handled in a brief but generally satisfactory manner. The main value of the book is its first nine chapters. Here are discussed the later views as to the anatomy and physiology of the heart, together with the subjects of the polygraph, electrocardiograph and roentgen ray. Here also are considered the cardiac irregularities. While these chapters, naturally, are largely of the nature of compilation, one clearly recognizes that the author has more than a mere book knowledge of his subject and that he is practically acquainted with the working of these instrumental aids to diagnosis. More than that, he has an opinion of his own on many of the moot questions of cardiology and is clearly of an investigatory turn of mind. This combination of the investigator and the student of medical literature with the practical clinician who is familiar not only with the bedside features of cardiac disease but also with the more refined means of instrumental diagnosis is what makes the book a live and stimulating one. There are points on which the reader might raise the question of doubt; there are errors of typography and some rather faulty English; but the merits so far outweigh these minor defects that we can strongly recommend the book to the student and general practitioner. It is well and instructively illustrated.

The Third Great Plague. A Discussion of Syphilis for Everyday People. By John H. Stokes, A.B., M.D., Chief of the Section of Dermatology and Syphilology, the Mayo Clinic, Rochester, Minn. Cloth. Price, $1.50 net. Pp. 204, with illustrations. Philadelphia: W. B. Saunders Company, 1917.

The author has put the important facts in our knowledge of syphilis into form for the lay reader. He considers all of the aspects of the disease as it affects the individual in his personal and in his social life. The work is easily read and worthy of the purpose for which it was prepared.

# Social Medicine, Medical Economics and Miscellany

### The Economic Problem of Crippled and Disabled Men

The economic rehabilitation of crippled and disabled men in military service is now and will continue to be one of the great problems of the war. The Red Cross Institute for Crippled and Disabled Men is already providing care for a number of civilian cripples, and a painstaking study of their needs is being made with a view to meeting future conditions. The experiment had for its primary object the cooperation of the institute with the cripples themselves, with a view to finding out what attempts they were making to readjust themselves to the demands of industry, and is described by a member of the staff (Faries, J. C.: The Economic Consequences of Physical Disability, a Case Study of Civilian Cripples in New York City, Publication 2, Red Cross Institute for Crippled and Disabled Men). Investigators secured data on 361 cases of injury to upper and lower limbs resulting in the loss of one or more members, and the statistics they obtained form the basis of the report. A large part of the data were secured from the records of the New York State Industrial Commission, which stated the nature of the man's injury, the amount of his wages at the time of his accident, and the amount of compensation awarded. One of the most important facts brought out by the investigation was that a man's return to industry depends largely on the kind of surgical attention he receives. That return may be hastened by a skilful operation or greatly delayed by a bungling one, in which the patient may be left with a clumsy and bulging stump, or with the nerves of the stump exposed, or with bone splinters, or ankylosed fingers that destroy the usefulness of the hand. These facts were confirmed by the records of twenty New York hospitals, as well as by the stories of the cripples themselves. Undoubtedly any institution that hopes to reeducate the crippled and the disabled and to fit them for self-support must have the cooperation of skilled orthopedists. Another fact revealed by the investigation was that men with artificial legs stand a much better chance of finding employment than men who are without them, or who use crutches. Many employers, it seems, who object to crutches, have no objections to artificial limbs. The great difficulty, however, is that a really efficient hand and arm is so expensive that few of the wage-earning class can afford one. The report points out that the institute should be familiar with the best prosthetic appliances obtainable, and recommends that a museum for the display of such devices be added to its equipment. Out of the 361 cases investigated, 129 men were found in need of reëducation either for their old trades or for new occupations. After careful inquiry, however, less than half of these appeared to be hopeful candidates for such training as the institute could give.

The problem which the institute has been established to solve is being handled on a large scale in New Zealand by a special department of the government, which undertakes to find suitable employment for the returned soldier and otherwise to assist the process of his readjustment to civilian life. Preference in employment is given by all departments of the government to all returned men. The same policy is pursued by the local labor offices, while the railway department undertakes to provide for its own former employees returning disabled from the front. This work has been highly successful, possibly on account of the fact that, at present, there is a great demand for labor in New Zealand. On the other hand, the results of efforts to reeducate disabled men have not, as yet, been particularly encouraging, according to a report based on material obtained from the Returned Soldiers' Information Department of New Zealand (McMurtrie, D. C.: Memorandum on Provision for Disabled Soldiers in New Zealand, Public 3, Red Cross Institute for Crippled and Disabled Men). A number of technical schools and colleges have offered courses of practical training for disabled men, but with a few exceptions, the attendance of the classes has been irregular and the progress poor, in spite of the maintenance allowance granted by the government to all men attending classes and making satisfactory advancement. Considerable effort has been made to induce the government to establish reeducational schools for the men, but the plan is not favorably regarded by the minister in charge of the Returned Soldiers' Information Department. He is quoted as doubting the success of the scheme because of the probable distaste of the men for the necessary restraints of institutional control. The natural desire of the men to return at once to productive labor, as well as their desire of independence from control, doubtless accounts, in a large measure, for the indifferent results the government has obtained from its efforts at reeducation.

### Child Labor and Child Welfare in South America

Argentina has a child labor law requiring a permit for children under a certain age before they engage in industry. This permit, according to Edward N. Clopper of the National Child Labor Committee (*Survey*, Jan. 5, 1918) is an improvement over any permit used in the United States. It is in the form of a booklet that contains the name and address of the bearer, a description, his certificate of age, his record at school, his certificate of physical fitness, and the signature of the official granting the permit; also the law governing the employment of minors, and a record of all the positions held by the bearer, with dates, names of employers, character of service rendered, wages earned and other information, making it a source of the industrial history of the child as well as of important statistical information.

Uruguay, he says, is one of the most progressive countries. There they have the eight-hour day for adults, and only 4 per cent. of the scholastic population is illiterate. With a population of a million and a half there are 1,000 schools with an enrolment of 100,000. Attendance is compulsory; medical inspection has been highly developed and embraces examination and vaccination of pupils and teachers; school construction and school hygiene and programs are properly supervised with reference to the welfare of the pupils.

Bogota, Colombia, has school medical inspection annually, in charge of three physicians who keep a record of examinations and recommend measures to promote hygienic conditions.

In Chile the most effective child welfare work is carried on at Santiago, where a welfare society has established milk stations, retreats for mothers with new-born children during convalescence, a system of distributing clothing to those in need, and mothers' consultations for prenatal care for prospective mothers, with financial assistance, where necessary. As a result of the work of the society since its organization sixteen years ago, the death rate of infants under 1 year has been cut from between 34 and 39 per cent. to 8.4 per cent. This work cost during 1917 about 170,000 pesos (dollars), of which 70,000 pesos were contributed by the government.

### Malaria Control

A reduction in the incidence of malaria and in the economic losses it entails was the object of a series of demonstrations in malaria control, conducted in 1916 by the United States Public Health Service in cooperation with the International Health Board (Public Health Bulletin 88: Malaria Control, A Report of Demonstration Studies Conducted in the Urban and Rural Sections, by R. C. Derivaux, H. A. Taylor and T. D. Haas). The demonstrations took place in southeastern Arkansas, where mosquitoes abound, and farming and lumber enterprises have, at times, been abandoned because of the havoc wrought by malaria among the workers. Here, three species of *Anopheles* were identified as carriers of malaria: *Anopheles quadrimaculatus* Say, *Anopheles punctipennis* Say, and *Anopheles crucians* Wiedemann.

During the season of active mosquito propagation, the chosen districts were systematically examined by the sanitary inspector, and a chart was kept recording the monthly incidence of malaria as affected by the antimosquito operations. The campaign involved the drainage of wet areas, the filling of pits, the oiling of pools, and the removal of obstructions from ditches whose waters fairly swarmed with larvae and pupae. The result was a decided reduction in the malaria rate from May to December.

Two different types of localities were selected for the investigation—a small town, where the work of clearing and draining was supplemented by the use of oils and larvicides, and a group of plantations, where studies in the efficacy of house screening and of quinin in immunizing and sterilizing doses were conducted. In one series in which 237 persons were given quinin for immunization, there was a reduction of 64.45 per cent. in the incidence of malaria. In a group of sixty-nine carriers to whom quinin was given for sterilization, the reduction amounted to 95.17 per cent.

The bulletin is freely illustrated, and is accompanied by many charts and tables dealing with every statistical phase of the investigation.

## Medicolegal

### Approval of Claim for Treating Abscess After Thirty Days from Accident

(*In re McCaskey* (*Ind.*), *117 N. E. R. 268*)

The Appellate Court of Indiana, Division 1, holds that, under the provision of the workmen's compensation act of that state, which requires an employer to furnish a physician only during "the thirty days after an injury," a physician was entitled to have his claim for $50 for services approved by the industrial board in a case in which an employee was accidentally struck in the forehead with a sledge hammer, February 17, and continued his work in the belief that he had received no physical injury until and including March 18, when in the evening he was taken with a violent pain in his forehead and on the following day the physician was called, who diagnosed the trouble as an abscess in the right frontal sinus, drained the sinus, and continued his treatment for about ten days. The court says that, under the facts of this case, the employee would have been entitled, at common law, in an action for damages for his injuries based on negligence, as one of the elements of his damage, to the expense he incurred for medical and surgical services necessary to the proper treatment of such injuries. By the act involved, the legislature expressly recognizes a portion of such services as a proper element of compensation to an injured employee. The language of the statute, and justice and reason alike, authorize the conclusion that the services of an attending physician for which compensation was intended was a service to be rendered after there was an actual known physical injury, and hence when, as in this case, the undisputed facts show an accident to an employee in the presence of his employer, the immediate effects of which are not such as to indicate to either employer or employee any disability within the meaning of the statute or any injury requiring the services of an attending physician as provided therein, and such physician is, at the time, neither asked for or called by the employee, nor furnished by the employer, and it turns out later that the injury resulting from such accident is more serious than was at first thought, and is in fact such as results in a disability of the employee within the meaning of the statute, the thirty-day period during which the employer must, under the statute, furnish an attending physician, begins to run when the disability to the employee within the meaning of the statute develops from such injury. It follows that under the facts certified to the court in this case by the industrial board, such board is, by the statute, given authority to approve the physician's claim, and, assuming that the facts above indicated are undisputed, this court would say as a matter of law that said claim should be allowed. However, the question of when an injury occurred, like any other question of influence in determining whether a claim should be allowed by the industrial board, is, ordinarily, a question of fact to be determined by such board from all the evidence before it; and its determination thereof, when it has any evidence for its support, will be conclusive on this court.

### Roentgenographic Pictures in Book as Evidence—Damages for "Blues"

*(Chicago, R. I. & G. Ry. Co. vs. Smith (Tex.), 197 S. W. R. 614)*

The Court of Civil Appeals of Texas, in affirming a judgment for $10,000 damages for personal injuries, in favor of plaintiff Smith, holds that there was no error in permitting the plaintiff to introduce in evidence, in connection with the testimony of a physician, certain roentgenographic pictures of the bones of the normal foot found in the medical work known as "Treatment of Fractures," by Scudder. The court says that on the cross-examination of the physician he stated that the plates or photographs introduced were to his knowledge correct pictures of normal arches of the feet. He further testified that the book containing the plates was a standard work, accepted by the medical profession generally. It further appeared from the record that the condition of the plaintiff's feet, both before and after the injury, was shown by the evidence. In this state of the record, the plates were certainly not immaterial or irrelevant. Their correctness was established by the evidence of the physician, and, while the predicate for their introduction in evidence was not laid prior to their introduction, this objection was removed by proper subsequent proof.

On the witness stand the plaintiff stated that the condition of his foot affected his mind, the way being that he got awfully blue at times, when he saw that he could not do as he used to do, and get about as he would like to, and hold the positions that he would want to. It was contended that if he was correct in his statement that his attacks of "blues" and his occasional morbid mental conditions were due to the injury to his feet, still such effects of an injury could not form the basis of a recovery, or enter into the estimate of the damages, according to the rule which prevails in the United States courts. But the court does not agree with that contention. It says that some of the lower federal courts have held that mortification or distress of mind from the contemplation of one's crippled condition, and its effect on the esteem of his fellows, which is held to be mental pain, separable from the physical suffering caused by the injury, is too remote, indefinite and intangible to constitute an element of damages in such case. But the statement of the plaintiff clearly did not bring this case within that rule. He made no reference whatever to the esteem his fellows would place on him, or to the mortification attending the realization of the fact that he was maimed, crippled and disfigured, but stated that his mental condition, which he described as "the blues," was the result of the thought that he could not, since the accident, "get about" and do as he would like to, and hold the positions which he would want to hold. As an element of damages this came within the rule announced in the case of *M., K. & T. Ry. Co.* vs. *Miller,* 25 Tex. Civ. App. 460, 61 S. W. 978, in which a writ of error was denied by the Supreme Court of Texas.

### Acute Nephritis and Other Diseases as Injuries by Accident

*(United Paperboard Co. vs. Lewis (Ind.), 117 N. E. R. 276)*

The Appellate Court of Indiana, Division No. 1, affirms an award in favor of claimant Lewis, who, while in the employ of the company, on the breaking of an iron pipe, became overheated in flushing hot steam pulp into the sewer with hot water from the exhaust of an engine, and then, on his way home to dinner began to chill, and continued to chill for several days, and acute nephritis manifested itself. The court says that the workmen's compensation act of Indiana makes provision for the payment of compensation for personal injury or death by accident to an employee, arising out of and in the course of his employment. Repeated efforts have been made to define an "accident" as used in similar acts in various jurisdictions, but the definitions are not uniform. One frequently approved defines an accident to be "an unlooked for mishap, an untoward event which is not expected or designed." The courts have also differed as to whether a disease following an employment should be considered an injury by accident within the meaning of such acts. In the various decisions on this subject it is generally recognized that diseases are of two classes: first, the so-called industrial or occupational diseases, which are the natural and reasonably to be expected results of a workman's following a certain occupation for a considerable period of time; second, diseases which are the result of some unusual condition of the employment. The first class is illustrated by lead poisoning and the second by pneumonia following an enforced exposure. As a rule, such industrial or occupational diseases are not considered as injuries by accident and in the absence of special statutory provision compensation is not allowed therefor. On the other hand, it is generally accepted that a disease, which is not the ordinary result of an employee's work, reasonably to be anticipated as a result of pursuing it, but contracted as a direct result of unusual circumstances connected therewith, is to be considered an injury by accident, and comes within the provisions of acts providing for compensation for personal injury so caused. In this case the industrial board may have very properly found that the breaking of the pipe created an unusual condition under which the claimant was required to work at the time in question, resulting in enforced exposure. In such event, any disease, of which such exposure was shown to have been the cause, might properly be said, under the rule stated, to constitute a personal injury by accident, and to come within the provisions of the workmen's compensation act of this state. It may be well to observe that the courts are practically unanimous in holding that the words "by accident arising out of and in the course of the employment," as used in workmen's compensation acts, should be given a broad and liberal construction in order that the humane purpose of their enactment may be realized. Their meaning, when so used, has been frequently considered in various jurisdictions having such acts, and it is generally accepted that an injury is received in the course of the employment when it comes while the workman is performing the duty for which he is employed, and it arises out of the employment, when there is apparent to the rational mind, on a consideration of all the circumstances, a causal connection between the conditions under which the work was required to be performed and the resulting injury. The evidence in this case furnished a sufficient basis for finding a causal connection between the conditions under which the work was required to be performed and the resulting injury. The contention that the claimant brought on the chill by voluntary exposure was without merit. If such fact were conceded, it could not defeat his right to compensation, even if it could be said that such exposure was an act of negligence which contributed to his injury. Mere negligence is not a ground of defense to a claim for compensation under the act in question, and there was no suggestion of wilfulness. Nor was the fact that the claimant did not chill until he had ceased work and left the company's premises of any consequence under the attendant facts.

### Power of Assistant Engineer and Others to Employ Physicians

*(Carson vs. Chicago, M. & St. P. Ry. Co. (Ia.), 164 N. W. R. 747)*

The Supreme Court of Iowa reverses a judgment obtained by the plaintiff for medical services and hospital care for a colored laborer employed by the defendant, who was badly cut one rainy day when he had laid off from work and gone to a village. The case turned largely on the question of the power of the assistant engineer in charge of the work being done by the defendant to employ a physician. The company's regularly employed surgeon was absent when the physician was engaged, and, without reviewing the evidence, the court says it is of the opinion that it was sufficient to have warranted the jury in finding that the assistant engineer had authority to engage the physician's services, had the man been injured while in the line of his employment. Surely ratification of his action in repeatedly taking employees to physicians other than those regularly employed by the company, by compensating them for services so rendered, was evidence that he had authority so to do. But no authority had been expressly conferred on the assistant engineer to employ a physician in behalf of the defendant, or to authorize him to engage the services of the plaintiff or procure the care of the patient at the hospital; nor, as the court thinks, had such authority been impliedly conferred on the assistant engineer by virtue of his position.

There is nothing in the designation "assistant engineer" warranting the inference of large discretionary powers in representing the company. Indeed, the name suggests limited, rather than general, powers, The circumstance of being "assistant" imports subordination to another, and puts all on inquiry as to the scope of his activity in helping another or others. The duties of an assistant ordinarily are circumscribed. Authority to employ a physician is not to be inferred from the mere fact that an employee is a roadmaster, or is a conductor, or is a foreman, or is a yardmaster, or is a station master, or is a general surgeon. One court held that this is true also of a division superintendent. But as to this there is some conflict in the authorities.

This court has no difficulty in reaching the conclusion that the assistant engineer was without authority to employ a physician to treat or operate on an employee injured while not engaged in the line of his duty or service and within the scope of his employment. The company was under neither a legal nor a moral obligation to care for him, or to see to the healing of his wounds. Though the wound may have been such as to require immediate attention, the injury was not suffered while he was engaged in the service or in the performance of a duty for the defendant, and therefore the authority of another employee to render assistance by securing medical attention could not be implied. If it could be said that the wound was such as involved an emergency and required immediate attention, the situation was not such as that authority of the defendant's subordinate officers or employees, such as foreman or assistant engineer, to employ medical aid, would be implied. This happens only when the employee is injured in the actual service or in the performance of some duty for the master. No duty to provide for medical aid could have been implied, save from the circumstance that the emergent injury occurred in effectuating the purpose of the party held liable, or because of other interest, and this court has found no case to the contrary.

It was argued that the physician was not required to ascertain at his peril whether the employee was injured while actually engaged in the line of his employment; but it is elementary that those dealing with agents are bound to know the extent of the agent's authority. If they do not know, they must ascertain at their peril. On the other hand, the principal is not charged with knowledge of anything the agent may do in excess of his authority, and is not bound thereby, save on ratification, unless the party dealing with the agent has been misled to his injury by the principal having clothed the agent with apparent or ostensible authority to do the things he has done in excess of authority.

# *Society Proceedings*

## COMING MEETINGS

American Medical Association, Chicago, June 10-14.

Alabama State Medical Association, Birmingham, April 16.
Am. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
American Gastro-Enterological Association, Atlantic City, May 6-7.
American Gynecological Society, Philadelphia, May 16-18.
American Orthopedic Association, Washington, D. C., April 22-23.
Arizona Medical Association, Phoenix, April 25-26.
Arkansas Medical Society, Jonesboro, May 7-9.
Association of American Physicians, Atlantic City, May 7-8.
California State Medical Society, Del Monte, April 16-18.
Connecticut State Medical Society, Hartford, May 15-16.
Georgia State Medical Association, Savannah, April 17-19.
Iowa State Medical Society, Fort Dodge, May 8-10.
Kansas Medical Society, Kansas City, May 1-3.
Louisiana State Medical Society, New Orleans, April, 16-18.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25.
Michigan State Medical Society, Battle Creek, May 7-9.
Mississippi State Medical Association, Jackson, May 14-15.
Missouri State Medical Association, Jefferson City, May 6-8.
Nebraska State Medical Association, Omaha, May 7-9.
North Carolina State Medical Society, Pinehurst, April 16-18.
Oklahoma State Medical Association, Tulsa, May 14-16.
South Carolina Medical Association, Aiken, April 16-18.
Tennessee State Medical Association, Memphis, April 9-11.

## ASSOCIATION OF MILITARY SURGEONS OF THE U. S. ARMY IN FRANCE

*Meeting held in Paris, Feb. 5, 1918*

### Relief of the Constriction of Wounds by Incision

Prof. A. Depage, Brussels: When we find ourselves in the presence of a flesh wound from a bullet, with punctiform orifice, we consider it useless in most cases to incise, the opening healing as a rule spontaneously, without showing any complications. We have, however, found exceptions in wounds from a gun fired point blank or at a short distance, such wounds being sometimes in pressing need of incisions. In fact, in these cases the projectile almost always causes a tearing of tissues, a veritable laceration, with an area of attrition more or less deep, in danger of mortification; it would be imprudent not to take measures of relief. We relieve by incisions also when the bullet has severed an important artery and when an aneurysmal hematome has manifested itself. Here, however, the greatest precautions and the avoidance of any carelessness are necessary. Cases of this kind are among the most serious, and should be undertaken only by an expert surgeon, very sure of himself. He should make the ligature of the two vascular or arterial ends, if the joining is possible. When a large artery is cut and the nutrition of the member is in danger, he can with great advantage use Tuffier's paraffined tube.

Big severed nerves form another class of wounds in which we incise immediately. We cannot insist too much, from the moment the patient arrives in the hospital, on the examination of the motor and sensory functions, in the region of the nerve supposed to be injured. The course to follow is summed up by the laying bare of the nerve, the suturing of the two ends, and the placing of the sutured nerve in the neighboring muscular tissue.

Fractures caused by bullets require in general an incision. The operation necessary depends more on the complications just cited than on the fracture itself.

In wounds from artillery projectiles, the conditions are not the same; wounds from bursting shells or bombs are much more serious and are practically always infected, and for this reason require more treatment. Only the small splinters the size of a grain of wheat are left in the flesh, especially if there are a great many of them. All the projectiles of more important dimensions are extracted, and the wound is treated according to the superficiality or depth of the lesion.

Subcutaneous setons, suppurating comparatively little, do not imperatively require incision. However, it is better to have recourse to it, because of the frequent presence of shreds of clothing in the wound, and we know the importance of these as germ vehicles. If circumstances permit, we extract the foreign matter *en masse* through the healthy tissue, and we make the suture at once.

If the wound is slight with subcutaneous course, the extraction of the projectile is in order. However, if the course is no more than 2 or 3 cm., we do not incise. We extract the foreign body with the shreds of clothing by means of a simple curet. If the course is longer, we treat it as a seton.

In deep setons, and penetrating wounds with the projectile included, the question is no longer debatable: incision is necessary in every case.

#### OBJECT OF TREATMENT

An incision, by opening wide the injured area, relieves the compression of the tissues, constricted by the aponeurotic covering, and helps the secretions. The surgeon who does the work aims to avoid serious septic complications and to encourage conditions favorable to healing and to suturing. To attain this double object, there must be eliminated from the wound, not only the infected foreign bodies (splinters, shreds of clothing, etc.), but also the contaminated tissues, such as injured or mortified flesh, favoring the spread of germs. Let us notice in this respect that the area of attrition, of cellular stupefaction, is not limited to the tissues that have been directly in contact with the projectile, but extends to a depth of from 0.5 to 1 cm., sometimes even to 2 cm. The vitality of these tissues is affected and there is a great advantage in not allowing them to remain for any length of time with elements less affected or completely unaffected. Subsequent progress of the wound and its rapid cure depend on the promptness of the first treatment and the care in its administration.

### TECHNIC OF EXCISION OF DEAD TISSUE

Certain surgeons have recommended the removal of the traumatic matter *en masse* as one would take out a tumor. The length, depth and direction of the wound being exactly ascertained at need by the introduction of a metal conductor, and the wound being completely isolated from the field of operation, they circumscribe the opening with an oval incision, of which the large axis corresponds to the direction of the wound. They cut successively the skin, cellular tissues, the aponeurosis and the muscles, constantly keeping in healthy tissue, in such a way as to limit the area that surrounds the entire wound. Then they remove *en masse* the injured tissue, being careful to keep the healthy from the contaminated. The suture may follow immediately.

Such a complete operation would constitute without doubt an ideal method of treatment, if the traumatic sources were definitely limited and if we could cut into the flesh without considering the organs it surrounds. But it is needless to say that these conditions do not exist when it is a question of deep and extended lesions. It is better then to reserve this process solely for superficial and short wounds of which it was a question before.

The only incision truly rational consists in a wide opening of the seat of the wound, such as is practiced by the great majority of surgeons. Two things are necessary: the incision and the excision of tissues.

*Incision.*—Before proceeding to the excision of dead tissue, the surgeon must find out, as accurately as possible, the shape of the wound by different anatomic methods. They are indicated in the following manner:

1. For the setons, orifices of entrance and exit.
2. For the lesser wounds, the orifice of entrance, on the one hand, and the situation of the projectile as determined by the roentgen ray, the fluoroscope or the electric vibrator, on the other.

The form of the channel being determined, the incision must be made so as to permit a perfect access to the wound, without any further damage anatomically. According to our experience, the direction of the incisions must vary according to the part wounded and to the nature of the wound:

(*a*) In wounds of the arm, forearm and lower third of the leg, transverse incisions are inadmissible because of the danger of cutting important organs; longitudinal incisions alone are allowed. Whether it is a question of the lesion of a single aspect, or whether both the anterior and posterior aspects have been simultaneously affected, these incisions will always be sufficient to permit of complete excision of dead tissue.

The anterior aspect of the leg requires likewise a longitudinal incision, with this restriction, however, that in its upper third, a wound of the anterior tibial artery may demand a transverse cutting of the muscle.

(*b*) Wounds of the thigh (anterior and posterior surface), the popliteal space and the calf, wounds in seton and simple penetrating wounds, involving both aspects, must in general be treated by incisions parallel to the axis of the member. A transverse incision would not in this case offer any advantage, and would be of such a nature as to occasion very serious damage. Two longitudinal incisions, one in the anterior and the other in the posterior surface, will always permit of a wide approach to the seat of the wound.

In the case of a seton or deep penetrating wound, taking in only one aspect, longitudinal incisions would no longer suffice. The muscular masses are too thick to give access to the deep parts of the wound. It is important, however, that the latter should be deeply incised in order to avoid accidents of gas infection, especially to be feared in great muscular masses. Under these conditions, one will often be led to make a transverse incision, cutting all the organs or a part of the organs interposed between the cutaneous surface and the deep wound: on the anterior face of the thigh, the anterior muscle is incised, also the vastus externus, and perhaps the tendons of the fascia lata; on the posterior face, the biceps and the semimembranosus on the thick of the calf, the twin muscles; and on the posterior surface of the arm, the triceps.

It goes without saying that the transverse incisions must concern only the muscles and the aponeurosis, and respect the nerves and the vessels.

After the excision of dead tissue, it is well when possible to reestablish the continuity of the severed muscles, with catgut stitches in U form, with the object of reuniting the two ends, suturing at least partially the aponeurosis and the skin. The transverse incision thus made leaves no functional trace, on condition, of course, that the suture holds.

If there is any doubt on the subject of the cleanliness of the deep wound, the suturing of severed muscles may be postponed two or three days. By this time the surgeon will be sure of the nature and degree of the possible infection.

Under certain circumstances, when the excision is done late, and there is already a deep infection, immediate suture of the muscular ends must be given up.

*Excision of Tissues.*—If it is a question of superficial seton, the free edges of the two orifices are resected and these are reunited by cutting the intervening bridge of tissues, so as to transform the course of the wound into a groove. Then, with a pair of heavy scissors, the injured tissues are completely removed from the surface of the groove.

In case of a slight wound or a deep seton, one begins also by resecting the free edges of the orifices of entrance and exit for a distance of from 1 to 2 cm., circumscribing one of these orifices by an elliptic incision.

Each incision is enlarged according to the directions just given, so as to open the wound by one or by two incisions, according as to whether there is or is not an orifice of exit.

The superficial aponeurosis is incised on the same amount of surface as the skin. To follow then the course of the wound in its depth, precautions must be taken against introducing a conductor, such as a grooved probe, which might easily be lost in the muscular tissues. I think that the best way to reach the depth of the wound is to lift the edges of the muscles with two forceps, following the direction of the wound, and to resect the injured parts. If at any time one loses the direction, which happens often in the deeper parts of the wound, a gloved finger introduced into the opening will find it again without difficulty. It is important to notice that the cut muscles contract, and in the course of the work of cleaning, the ends must be looked for in order to excise the injured parts.

The injured muscles must be resected on all the surface of the wound up to the healthy tissue. This is recognized by its contractibility and by its redness, which contrasts with the dull color of the bruised flesh.

The incision in the course of its progress leads to the foreign body, which is extracted with the shreads of clothing. When the surface is largely exposed, it is well to irrigate the wound with neutral solution of chlorinated soda or with warm physiologic sodium chlorid solution, which shows up the bruised and wounded parts.

Concerning fractures, the question of removing bone splinters has been often discussed; surgeons are not yet agreed on this point. Some find it better to remove all splinters by the subperiosteal method; others cling to the idea that only those splinters that are free should be removed. The problem is difficult to solve, as only time and experience will bring us to a conclusion. This is my idea in this respect: If the wound is such that immediate suture may be attempted, I take out the fragments. If, on the contrary, it is evident that the suture cannot be made, by reason of the extent of damage, I do not remove any splinters in the course of the operation, considering it preferable to let those splinters affected by necrosis eliminate themselves spontaneously as fast as the growth progresses. This process has the great advantage of not being followed by a pseudarthrosis and of shortening noticeably the first operation, a thing to be taken into account when it is a question of a serious fracture, and the patient is in a state of shock.

### SUTURE OF WOUNDS

When we incise a wound to prevent infection, we must at the same time try to put it in a state most favorable to a suture.

This may be done immediately after the excision of dead tissue: immediate suture, or within the first five or six days; by delayed primary suture, in which case it is executed, as in the immediate suture, by the simple approximation of the edges, or finally, the suture may be made after sterilizing the wound with neutral solution of chlorinated soda: secondary suture. The latter is done the eighth day, after the wound is covered with granulations. This necessitates always the freshening of the edges, and it is that which distinguishes it from the preceding sutures.

In immediate suture, the treatment varies according to the seat of the lesion: (*a*) For articular wounds, immediate suture is in order, unless the bony lesions are too extensive. (*b*) For wounds on the head, face, feet or hands, the richness of venous blood and lymphatic fluid allows the surgeon to make the immediate suture in perfectly systematic fashion. (*c*) For flesh wounds and fractures, indications for the immediate suture are very relative, but surgeons are inclined more and more to generalize them. The suture must be made within twelve hours after the wound has been inflicted and only when the surgeon can watch it during at least fifteen days. It offers, as special advantage, automatic reparation of the torn tissues, but the infections that it occasions are always rapid and serious diffuse phlegmonous infections or gas gangrene.

STATISTICS OF SUTURES

| | Total No. | Complete Success No. | Complete Success Per Cent. | Partial Success No. | Partial Success Per Cent. | Failure No. | Failure Per Cent. |
|---|---|---|---|---|---|---|---|
| 1.—Immediate Sutures— | | | | | | | |
| Head, face, hands, feet, large articulations | 491 | 473 | 96.3 | 8 | 1.6 | 10 | 2.1 |
| Without bone lesion | 66 | 62 | 95.9 | .. | ..... | 4 | 6.1 |
| With bone lesion | 79 | 71 | 89.8 | 1 | 1.2 | 7 | 9.0 |
| Flesh wounds | 380 | 319 | 83.9 | 24 | 6.3 | 39 | 9.8 |
| Fractures: Femur | 4 | 4 | 100.00 | .. | ..... | .. | ..... |
| Other bones | 26 | 20 | 76.92 | 3 | 11.54 | 3 | 11.54 |
| 2.—Delayed Primary Sutures—(done within the first six days) | | | | | | | |
| Head, face, hands, feet | 18 | 18 | 100.00 | .. | ..... | .. | ..... |
| Flesh wounds | 222 | 207 | 93.2 | 8 | 3.6 | 7 | 3.2 |
| Fractures: Femur | ... | ... | ..... | .. | ..... | .. | ..... |
| Other bones | 20 | 16 | 80.00 | 4 | 20.00 | .. | ..... |
| 3.—Secondary Sutures— | | | | | | | |
| Head, face, hands, feet | 64 | 58 | 90.6 | 4 | 6.2 | 2 | 3.2 |
| Flesh wounds | 845 | 724 | 85.6 | 70 | 8.00 | 51 | 6.4 |
| Fractures: Femur | 39 | 30 | 76.9 | 7 | 17.9 | 2 | 5.2 |
| Other bones | 102 | 92 | 90.00 | 3 | 3.00 | 7 | 7.00 |

Delayed primary suture is especially adapted to flesh wounds and open fractures. It is done after bacteriologic tests, made in the following way: (*a*) At the first dressing (from twelve to twenty-four hours after excision of dead tissue) we make a culture test by direct examination. (*b*) At the second dressing (from thirty-six to forty-eight hours after excision of dead tissue) we take a new culture. If the first culture does not show the presence of streptococci, and if the microbic enumeration does not go beyond one microbe to two fields, we make a suture. We never suture if the enumeration at the second dressing shows a rising in the microbic curve, even if the microbes are not streptococcic. The delayed primary suture rarely results in failure, involving serious accidents. It offers the inconvenience of requiring two operations; but the second is of minor importance.

Secondary suture is reserved for wounds nonsuturable during the first days because of too much torn tissue or some threatened infection. It offers the great advantage of giving perfect security, but it retards the cure and never gives so complete an anatomic restitution as the preceding sutures. We use it regularly when the microbic curve keeps below one microbe to four fields in two successive examinations, and the culture discloses no streptococci. The deplorable results obtained in those cases have allowed us to establish fairly exact rules on the treatment of wounds, for and against, by suturing.

The accompanying table gives statistics of sutures made in our hospital from May, 1916, to November, 1917. A large part of the failures are due to streptococci in the wound.

## Chest Wounds

**Professor Tuffier**, Paris: These injuries were received at the front, and all were due to firearms. They were of different types of severity, and in different portions of the lung. Those nearest the root of the lung were the most difficult to deal with. In the majority of cases, some foreign body was buried in the pulmonary tissue, usually pieces of shell, etc., with particles of clothing. The lung tissue is not as susceptible to infections as other tissue. I have never seen a case of gas bacillus infection of the lung, or a case of tetanus after a pulmonary injury. This is to be attributed to the very active blood supply, and the presence of oxygen in the tissues I have heard of exceptional cases, but have never seen one. The patients were roentgenographed, and the foreign body located. The chest was often opened for severe hemothorax. A severe hemothorax in the pleura will not absorb without fever (secondary infection), etc., and it is much better to open the chest and remove the blood.

In cases without distressing symptoms, I wait until the fifth or sixth day before operating, but in severe cases with extreme hemothorax, when the heart is crowded to the opposite side and with dyspnea, I believe it safer to operate at once than to wait. Before opening the chest, if not in the region of the wound, the most accessible point, particularly in cases of hemothorax, should be selected, as this may be confined to the posterior region, and the opening may be anterior. A portion of the rib is resected and strong traction made on the margins of the wound. This will usually give an accessible field. After the removal of the foreign body, the hemorrhage should be controlled, and the parietal pleura closed. It is especially desirable to have the pleura closed. All wounds are closed primarily, by first closing the parietal pleura, the latter being essential. The lung soon expands when the pleura is closed, and assumes its normal function. In some cases it is necessary to make more than one opening in the chest wall, as there may be multiple injuries of the chest. In some very severe cases of chest injury, the patients now appear to be normal. Local anesthesia is employed first, followed by a general anesthetic. There does not seem to be much cause for alarm with regard to the anesthetic, as all these patients recovered. The operations in the chest are almost as successful as those within the abdomen, and the same principles of surgery are followed.

There are fewer cases of infection now, than at the beginning of the war, and the results are much better, as a result of the improved methods of transportation of the wounded. In the early days of the war we used many horse ambulances, and did not have equipped hospital trains, and many of the wounded did not arrive at the hospital until twenty-four or thirty-six hours after the injury was infected. All wounded patients should be treated as soon as possible.

The hospital of Professor Depage is situated in Lepenne. It is on that small portion of Belgian territory unoccupied by the enemy, and is situated just beyond the shell fire range. The surgical work done in this hospital is considered by all surgeons to be probably the best of any work done in Europe. It is the Mecca for surgeons. The first question that comes to the surgeon's mind is "Why so few infections, and such good results?" The answer is, "His hospital is close to the line. He receives his patients early, two or three hours after injury. The patients have not passed through two or three dressing stations. The wounds may be contaminated, but not infected. It is the condition in which the patient is received, and his splendid surgical work of experience, that give the result."

It is the opinion of the French, British and Belgian surgeons that the earlier the patients are operated on, the better the result. They now have had three and a half years' experience in military surgery, and if they were again to arrange their hospital system, I think it would be different. I would suggest that the American medical corps take advantage of our experience, and I think it would be wise if our base hospitals were divided into an operating hospital and a base, the operating hospital to be located as near the line as thought safe. Here the operating could be done, and the patients remain for a time. This would be different from the ordinary casualty clearing station. The hospital should have 500 or 600 beds, so that the patient may remain there for several days after the operation. It has also been proved that patients removed shortly after operations do not do as well as those who are allowed to remain for a time. That is, the hospital should be divided into an operating hospital and a base, all under one control, with the surgical operating staff all at the advanced hospital.

### DISCUSSION

It was the opinion of the surgeons present that the British system had too many dressing stations. One or two could be done away with to advantage. And their bases are too far from the line. The fewer times the wounds are dressed before the final operation, the better, and the sooner after the injury the patient is operated on, and wounds closed, the better the result. From the foregoing the following conclusions were offered:

1. A well organized operating hospital should be located as close to the front as thought safe, and in a position to be evacuated quickly if necessary.
2. This hospital should be equipped with operating facilities, and in charge of the operating portion of the staff.
3. The hospital should have a sufficient number of beds, so that the patient may remain several days following an operation.
4. The base hospital and the advanced operating hospital should be managed as one, and the patients evacuated from the advanced to the base, with their surgical records, and kept under the care of the same unit.

## *Current Medical Literature*

### AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Insanity, Baltimore

January, 1918, **74**, No. 3

1 Principles of Diagnosis in Psychiatry. E. S. Abbot.—p. 369.
2 Study of Neuroglia in Case of Sarcoma of Brain. C. Ricksher.—p. 381.
3 *Clinical and Anatomic Analysis of Two Cases of Multiple Sclerosis. L. G. Lowrey.—p. 395.
4 Problem of Individual Patient in Large Hospitals. W. A. White.—p. 405.
5 Prevention of Insanity and Degeneracy. C. W. Burr, Philadelphia.—p. 409.
6 Extra Asylum Psychiatry. L. P. Clark, New York.—p. 425.
7 *Does Paretic Gold Sol Curve in Psychiatric Cases Always Indicate Syphilis of Nervous System? P. G. Weston, Warren, Pa.—p. 431.
8 Revelations of Unconscious in Toxic (Alcoholic) Psychosis. C. C. Wholey, Pittsburgh.—p. 437.
9 Malingering. Problematical Case. W. C. Sandy, Columbia, S. C.—p. 449.
10 Occupational and Industrial Therapy. How Can this Important Branch of Treatment of Our Mentally Ill Be Extended and Improved? L. V. Briggs, Boston.—p. 459.

3. **Analysis of Cases of Multiple Sclerosis.**—A man whose trouble began with a "shock" at the age of 26, who had numerous convulsions through a period of years and whose neurologic symptoms varied from time to time, showed at necropsy an area of gliosis in the left parietal lobe, together with patchy gliosis in the cord. His condition had been diagnosed syphilitic dementia, brain tumor, multiple sclerosis and epilepsy. A girl of 19, previously immoral, was found to have spinal fluid changes such as are found in neurosyphilis (except that the Wassermann test was negative), together with marked and varying neurological symptoms. The necropsy showed a meningitis of mild grade, together with an extremely pronounced multiple sclerosis. Lowrey says that the relationship between the neurosyphilis (?) and the sclerosis is obscure. They may stand in the relation of cause and effect, or they may be coincident, or both meningitis and sclerosis may be due to some other cause. Two unusual combinations of lesions are presented: (*a*) large focal lesion of cortical gray matter in multiple sclerosis; (*b*) combination of meningitis and multiple sclerosis.

7. **Does Colloidal Gold Curve Indicate Syphilis?**—In the course of 1,500 routine examinations of spinal fluid (Wassermann reaction, globulin tests, cell count and colloidal gold reaction) Weston found that the fluid from three patients, who had no history of syphilis and no positive Wassermann reactions and two negative syphilitic tests, caused a precipitate of colloidal gold in the paretic zone.

### American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

February, 1918, **77**, No. 2

11 Evolution of Male Midwife, with Some Remarks on Obstetric Literature of Other Ages. H. D. King, New Orleans.—p. 177.
12 Should Uterus Be Removed When it Becomes Imperative to Interrupt Pregnancy? E. Marvel, Atlantic City, N. J.—p. 186.
13 Use of Chloroform in Labor. I. L. Hill, New York.—p. 188.
14 Retained Secundines; Study of Etiologic Factors. J. E. Davis, Detroit.—p. 192.
15 *Methods for Overcoming Mechanical Obstructions to Pregnancy. R. T. Morris, New York.—p. 208.
16 Version; Report of Two Hundred Cases Since September, 1916. I. W. Potter, Buffalo.—p. 215.
17 Management of Labor in Narrow Pelvis. E. G. Zinke, Cincinnati.—p. 221.
18 Case of Gangrene of Uterine Fibroid Following Parturition; Panhysterectomy. R. Waldo, New York.—p. 230.
19 Osteoma of Descending Ramus of Pubes and Ascending Ramus of Ischium Obstructing Pelvic Outlet; Pregnancy. Removal of Osteoma. J. N. West, New York.—p. 232.
20 Case of Pregnancy with Unusual Complications. M. A. Tate, Cincinnati.—p. 235.
21 Ten Years' Experience with Early Mobilization after Abdominal Pelvic Operations. D. W. Tovey, New York.—p. 237.
22 Uncinariasis in Pregnancy. G. F. Wilson, Charleston, S. C.—p. 247.
23 *Rationale of Roentgen Therapy and Radium in Uterine Hemorrhage. J. A. Corscaden, New York.—p. 250.
24 Large Pedunculated Cavernous Angioma of Liver Reaching Down into Pelvis and Causing Obstetric Difficulty. I. C. Rubin, New York.—p. 273.
25 Complete Pelvic Obstruction Due to Fibromyomas as Cause of Puerperal Psychoses. H. P. DeForest, New York.—p. 276.
26 Pathology and Surgical Treatment of Gonorrheal Infection of Female Generative Organs. J. W. Kennedy, Philadelphia.—p. 282.
27 Pathology and Treatment of Peritoneal and Pelvic Tuberculosis. H. A. Duncan, Philadelphia.—p. 288.
28 Modification of Technic of Cesarean Section with Hysterectomy. E. A. Schumann, Philadelphia.—p. 297.
29 *Pregnancy in Cases of Tuberculosis of Lungs. J. Walsh, Philadelphia.—p. 292.

15. Abstracted in The Journal, Oct. 27, 1917, p. 1467.

23. **Roentgen Therapy and Radium in Uterine Hemorrhage.**—Comparing the roentgen ray and radium, Corscaden says, that radium is preferable in practically all cases except in younger women, in whom small repeated doses may be desired. While the actual amount of time consumed in treatment is about the same in both, that devoted to the roentgen ray is spread over from six to ten weeks, while the radium is finished in twenty-four hours. Usually a whiff of nitrous oxid has to be given for the insertion of the radium. Since practically all older women should be curetted to exclude carcinoma, both procedures are carried out at the same time. Uterine hemorrhage from almost any cause may be stopped by the intra-uterine application of radium, and the hemorrhage from disturbed menstruation with or without fibromyoma may be controlled by the roentgen ray. Also, practically all fibromyomas will shrink to a satisfactory degree after roentgen therapy. Practically no harm results from roentgen therapy in these cases. All cases of hemorrhage from a grossly normal uterus in women of 38 or over should be treated by roentgen therapy after carcinoma has been ruled out. In younger women roentgen therapy should be used as a late resort. In cases of uterine hemorrhage associated with fibromyoma of the uterus, roentgen therapy is the proper treatment, if symptoms from mechanical causes are absent and the woman is 38 or over.

29. **Pregnancy in Cases of Tuberculosis of Lungs.**—Walsh had thirty-eight patients in all stages of the disease. They had, after recognition of their tuberculosis, 50 children. Of the 38 mothers, 5 are dead. In 27 the disease was recognized and treated before pregnancy and in the majority before marriage. These 27 had 39 children; 16 were early, 4 moderately advanced, and 7 far advanced cases of tuberculosis. Of these 27, 2 died (7 per cent.), 1 about three months, the other about one year after delivery; the former patient, a far advanced case, became pregnant about four years after treatment; the latter, an early case, one year after. The remaining 25 are apparently as well as before pregnancy, though 3 have had 3 children and 6 have had 2 children. The pregnancies occurred one to twelve years after treatment, the average being four years. In 11 the disease was recognized during pregnancy, one being early, 5 moderately advanced and 5 far advanced. Of these 11, 3 died (27 per cent.), one of these 3 being first seen five days before delivery, 1 twelve days, and 1 two months. In other words, there was no chance for treatment of the first 2 and very little for the third. All three were far advanced cases. Of the remaining 8, 2 far advanced cases seen for the first time at the fifth month, are still under treatment. One was a primipara, the other a sextipara, the latter from her history having had tuberculosis even before the birth of the first child. The remaining 6 came through successfully and are still alive after periods of time varying from three months to thirteen years, the average being two years. On the basis of this experience Walsh advises that active cases of tuberculosis should be advised against marriage; quiescent cases especially after treatment and education bear the duties of marriage sufficiently successfully that if they wish to marry they may be allowed to do so. Quiescent cases becoming pregnant, if put on a rigid régimé, may be expected to come through the pregnancy with but little, if any, advance of the tuberculosis. Active cases becoming pregnant run definite risk, yet the operations for abortion, especially those associated with sterilization, have a mortality making the continuation of the pregnancy more desirable.

### American Journal of Orthopedic Surgery, Boston

February, 1918, **16**, No. 2

30 *Nutrition and Vitality of Tendon in Tendon Transplantation. A. Steindler, Iowa City, Iowa.—p. 63.
31 Arthroplasty: Experimental and Clinical Methods. N. Allison and B. Brooks, St. Louis.—p. 83.
32 Arthroplasty with Aid of Animal Membrane. W. S. Baer, Baltimore.—p. 94.
33 Tubercle of Tibia; Its Normal Development and Pathology. F. G. Hodgson, Atlanta, Ga.—p. 116.
34 *Orthopedic Centers of Great Britain and Their American Medical Officers. R. B. Osgood.—p. 132.

30. **Nutrition and Vitality of Tendon in Tendon Transplantation.**—Steindler emphasizes the importance of rigid preservation of the mesotendineum and the practice of side-to-side attachments of the tendons in tendon transplantation.

34. **Orthopedic Centers of Great Britain.**—The organization of the orthopedic centers in England groups itself about the inspector of military orthopedics, Col. Sir R. Jones, and the assistant inspector, Major Pater, professor of anatomy in Liverpool University. There is a central office in Adastral House, which is the Medical War Office. It is on the same floor with the office of Surgeon-General Russell and that of Sir Alfred Keogh, head of all things medical in the British Empire. There are assistant inspectors for the Scottish, Welsh and Irish commands. Orthopedics centers usually consist of a certain number of beds set apart from a general military hospital. In Aberdeen, 500 beds; Edinburgh, 1,000 beds; Glasgow, 500 beds; Leeds, 1,800 beds; Bristol, 300 beds; Liverpool, 1,350 beds; Cardiff, 500 beds; Oxford, 400 beds; Belfast, 200 beds; Dublin, 200 beds, and London, 1,100 beds. A total of 7,850 beds. New centers are being started in Reading, Newcastle, Southampton, Birmingham and Manchester. And over in France, Major Goldthwait is preparing the way for the huge number of beds, 35,000, which our government has directed him to make ready in France.

### American Review of Tuberculosis, Baltimore

February, 1918, **1**, No. 12

35 *Attempt to Produce Immunity by Transplanting Tuberculous Lymph Nodes into Normal Animals. G. B. Webb, C. T. Ryder and G. B. Gilbert, Colorado Springs, Colo.—p. 693.
36 *Heliotherapy in Tuberculosis. E. Mayer, Trudeau, N. Y.—p. 698.
37 *Comparison of Physical Signs, Symptoms and Roentgen Ray Evidence Obtained in Pulmonary Tuberculosis. F. H. Heise and H. L. Sampson, Trudeau, N. Y.—p. 709.

35. **Transplantation of Tuberculous Lymph Nodes.**—Early in 1916 a series of guinea-pigs were inoculated by Webb and his associates beneath the skin of the belly, each with about 300 bacilli of a culture from a case of human tuberculosis. A month later, lymph nodes showing fairly advanced tuberculosis were removed from their groins and planted beneath the abdominal skin of a new series of pigs. These animals in turn developed tuberculosis, the disease appearing first in the inguinal lymph nodes. A subsequent series received infected nodes from these, and so on. This experiment was repeated on several series of guinea-pigs, in the hope that some evidence of relative immunity would be secured, but this has not been the case.

36. **Heliotherapy in Tuberculosis.**—Mayer claims that light therapy is a valuable adjuvant in the treatment of tuberculosis but must be used together with the usual routine treatment. In bone and joint tuberculosis, results have been most remarkable, with the closure of sinuses and both the healing of joint lesions and the reestablishment of function. Almost equal success has been met with in tuberculous disease of the skin, mouth, glands, pleura and peritoneum. Occasional disappearance of definite and marked disease of the ocular and genito-urinary apparatus has occurred. In laryngeal cases some few favorable results were obtained, especially by the direct application of light to the focus. Finally, in pulmonary tuberculosis, in a very few selected instances, definite favorable results were obtained that had to be considered as due to this therapeutic aid and which no other means of treatment alone was able to offer.

37. **Physical Signs, Symptoms and Roentgen-Ray Evidence in Tuberculosis.**—Analyses of symptomatology, physical signs and laboratory findings in all cases coming to the Trudeau sanatorium during a certain period of time, compared with the type of lesion seen on the roentgenogram, support the belief in the existence of a peribronchial or lymphatic type, in contradistinction to a parenchymatous or alveolar type. Nineteen cases give a history of tuberculosis in whom there were no definitely positive physical signs present. Of these, 16 per cent. gave a negative pulmonary roentgenogram, while 68 per cent. showed peribronchial evidence and 16 per cent. parenchymatous. Of the incipient cases (seventy-eight) the roentgen ray failed to show a lesion in 9 per cent.; while 42 per cent. gave evidences of the peribronchial and 49 per cent. of the parenchymatous type. Of the moderately advanced cases (120) 2 per cent. failed to give any roentgen-ray evidence; 8 per cent. gave peribronchial shadows, and 90 per cent. showed evidences of parenchymatous change. In 28 per cent. of the cases the area involved was grossly the same. In 54 per cent. the roentgen ray showed a much larger area involved, while in 18 per cent. the physical signs were present over a greater area than the roentgen ray showed. In 17 per cent. the physical signs showed a lesion on one side or the other which was not detected by the roentgen ray. The physical signs in these cases were largely found at the right apex and at the bases. In 32 per cent. the roentgen ray showed a lesion on one side or the other not demonstrable by physical signs. In 6 per cent. of the cases the lesions as detected by physical signs and roentgen ray were on opposite sides. In 5 per cent. the physical signs were on the right and the roentgen-ray lesion on the left, and in 1 per cent. the reverse was the case. The authors are convinced that the roentgen ray is of great value in the diagnosis of early cases without definite physical signs. Furthermore, much more accurate knowledge of the extent of the disease and the nature of the pathology is obtained by the use of the roentgen ray.

### Arkansas Medical Society Journal, Little Rock

February, 1918, **14**, No. 9

38 Placenta Praevia. L. T. Evans, Mount Pleasant.—p. 181.
39 Squint; Importance of Early Correction. R. H. T. Mann, Texarkana.—p. 183.
40 Diagnosis of Surgical and Neurotic Borderline Cases. J. N. White, Texarkana.—p. 184.

### Boston Medical and Surgical Journal

Feb. 28, 1918, **178**, No. 9

41 *Back Troubles. H. W. Marshall, Boston.—p. 279.
42 *Lithiasis with Bilateral Renal Involvement. W. F. Braasch, Rochester, Minn.—p. 292.
43 Fractures of Neck of Femur; Report of Three Cases. C. E. Ayers, Worcester.—p. 298.

41. **Back Troubles.**—Among the 100 cases analyzed by Marshall there were 33 cases of hypertrophic arthritis of the spine. Fourteen cases had to be diagnosed from clinical appearances without roentgen rays; 19 cases had roentgenograms taken some time during their course of hospital visits. These showed the following results: six were negative for hypertrophic changes; 13 were positive for hypertrophic changes; 5 showed vertebral variations; 1 showed metastatic new growth of vertebrae; 1 showed beginning tuberculosis of spine; 1 showed a probable fracture of vertebra. Eight cases were associated with traumas at onset of symptoms. Eight cases were considered back strains also, at some time during their course. No diagnosis of infectious arthritis was made, although numerous foci were present. The average age of these 33 patients was 49 years. Thirty-four cases of infectious arthritis of the spine.—Twenty-one cases were diagnosed from clinical histories, without roentgen rays; 13 cases had roentgenograms taken which showed the following results: 6 showed positive hypertrophic bony changes; 3 showed vertebral variations; 3 showed obscure bony lesions. Four cases were considered to represent back strains also, at some time during their course. Two cases were associated with traumas at onset of symptoms. The average age of these 34 patients was 33 years. Thirty-three cases of back strains.—Twenty-four cases were diagnosed from clinical histories without roentgen rays. Nine cases had roentgenograms taken which showed the following results: 1 showed definite hypertrophic bony changes; 6 showed vertebral variations; 1 suggested spinal tuberculosis; 1 suggested a fracture of a vertebra. Nine cases were associated with definite traumas at onset. Nine cases had foci of infection which justified a diagnosis of infectious arthritis. The average age was 33 years.

42. **Lithiasis with Bilateral Renal Involvement.**—In 17.2 per cent. of the sixty patients in this series there was bilateral renal involvement. The percentage of bilateral lithiasis was 12.3. Pain in bilateral nephrolithiasis was unilateral in 64 per cent. and absent in 8 per cent. of the cases. Bilateral stones were found most frequently in the pelves and calices. Combined renal functional tests were of practical value only when normal or extremely low. To ascertain the comparative degree of function in the two kidneys, the functional test was of value only when it was zero or a trace, normal or excessive. The functional test, roentgen-ray examination and cystoscopic inspection may be insufficient in determining the degree of healthy renal tissue remaining, and exploration only can determine this. Indications for operation: (*a*) The kidney with acute complications should be operated on first; (*b*) without acute complications the kidney with the better function should be operated on first; (*c*) occasionally simultaneous bilateral operation is advisable. Patients may be inoperable because of renal insufficiency, secondary infection, kidney destruction or constitutional complications. Patients with large bilateral stones causing no symptoms or complications are better off without operation. The operative mortality in this series was zero; the total number of deaths after operation, ten; these patients died less than a year following operation. The recurrences in cases of bilateral nephrolithiasis was 20 per cent.; in unilateral lithiasis it was 10 per cent.

When there is stone in one kidney the most common forms of disease in the opposite kidney are: pyelonephritis, pyonephrosis and hydronephrosis. With unilateral lithiasis the opposite kidney may be so badly diseased that a preliminary operation may be advisable on that kidney. Stone secondary to pyelonephritis, when removed, prevents further renal destruction but is not of curative value. When the nephritic element predominates, removal of the stone is not of much therapeutic value. A single kidney has a great degree of tolerance for repeated operation for stone. In a single kidney the phenolsulphonephthalein output usually remains high in spite of the presence of an uncomplicated stone which is probably due to compensatory hypertrophy. Fused or horseshoe kidneys permit of repeated operation for lithiasis which may, if necessary, include heminephrectomy.

### Bulletin of Johns Hopkins Hospital, Baltimore

February, 1918, **29**, No. 324

44 Interstitial Pregnancy; Report of Case. H. M. U. Wynne, Baltimore.—p. 29.
45 *Transplantation of Trachea. W. C. Burket, Baltimore.—p. 35.
46 Experiments in Artificial Production of Amyloid. K. Hirose, Baltimore.—p. 40.

45. **Transplantation of Trachea.**—With the purpose in view of the possible utilization of a tracheal transplant in human cases in which a portion of the trachea has been resected on account of malignant disease, Burket undertook to study the transplantation of the trachea in dogs. The animals were kept under ether anesthesia by mouth or through a tracheotomy wound. The tracheal segments from the different sized animals were readily adapted in size to one another because of the anatomic fact that the cartilaginous portion of the tracheal rings was not complete and the posterior wall was formed of fibroelastic tissue. After operation five of the animals had a hoarse voice, a dry cough, and a rather stiff neck, which, when walking, they would occasionally shake from side to side, especially in the case of the dogs with the long transplants. Although otherwise their general condition remained very well, yet after from one to three weeks they developed marked symptoms of tracheal obstruction with dyspnea, and died. Necropsy revealed a normal esophagus and lungs, and a stricture of the trachea at the site of the transplant. In these unsuccessful cases, the dogs with the short tracheal transplants lived from one to two weeks, while the animals with the long transplants lived approximately three weeks. The cases of isotracheal transplants resulted in death with symptoms similar to the unsuccessful cases of autotransplants, and necropsy showed normal lungs with stricture of the trachea at the region of the transplant. The three successful transplant cases showed no symptoms and gave every evidence that they were as healthy and normal as before operation.

### Canadian Medical Association Journal, Toronto

February, 1918, **8**, No. 2

47 Anthrax in Man; Report of Two Cases. C. H. Gilmour and A. R. Campbell.—p. 97.
48 Suprapubic Prostatectomy. N. H. Beal, London, Ont.—p. 108.
49 Surgical Treatment of Pernicious Anemia. C. K. P. Henry, Montreal.—p. 115.
50 Minor Infections and Quarantine. T. H. Whitelaw, Edmonton.—p. 122.
51 How Medical Health Officer Can Become Cooperative Social Force in Rural Districts. P. H. Bryce, Ottawa.—p. 129.
52 Development of Hemorrhagic Disease Following Injury to Liver. E. M. von Eberts, Montreal.—p. 139.
53 Case of Anthrax of Face. C. K. P. Henry and W. J. Scott.—p. 142.

### Georgia Medical Association Journal, Augusta

February, 1918, **7**, No. 10

54 Roentgen Ray Therapeutics; Report of Cases. T. B. King, Sandersville.—p. 201.
55 Emergency Head Surgery. C. E. Dowman, Atlanta.—p. 206.
56 Urinary Symptoms in Female. R. L. Rhodes, Augusta.—p. 211.
57 Major Operations Under Local Anesthesia. W. A. Selman, Atlanta.—p. 212.
58 Septic Infarcts of Kidney. G. R. White, Savannah.—p. 215.
59 Significance and Diagnosis of Conditions Causing Blood in Urine. E. P. Merritt, Atlanta.—p. 217.
60 Specialization, What Does It Mean? W. B. Emery, Atlanta.—p. 219.

### Iowa State Medical Society Journal, Des Moines

February, 1918, **8**, No. 2

61 Typhoid in Iowa. M. Levine and H. E. Middleton, Ames.—p. 37.
62 Nontuberculous Infections of Kidney. M. J. Moes, Dubuque.—p. 41.
63 Tumors of Kidneys. R. E. Green, Creston.—p. 43.
64 Renal Functional Tests and Pyelography in Kidney Diagnosis. N. G. Alcock, Iowa City.—p. 45.
65 Surgical Conditions of Kidney. C. J. Rowan, Iowa City.—p. 49.
66 Diagnosis of Chronic Bone Lesions. A. Steindler, Iowa City.—p. 53.

### Journal of Cutaneous Diseases, Chicago

February, 1918, **36**, No. 2

67 Etiology and Pathology of Skin Cancer. F. G. Harris, Chicago.—p. 67.
68 Treatment of Skin Cancer. G. M. MacKee, New York.—p. 92.
69 Case of Darier's Disease (Keratosis Follicularis); Roentgen Ray Treatment. A. Schalek, Omaha.—p. 104.

### Journal of Laboratory and Clinical Medicine, St. Louis

February, 1918, **3**, No. 5

70 *Methods of Control of Clothes Louse [Pediculus Humanus Vestimenti]. W. Moore, St. Paul, Minn.—p. 261.
71 *Etiology of Scarlet Fever. R. W. Pryer and J. B. Kelly, Detroit.—p. 269.
72 *Factors of Coagulation in Blood in Certain Pathologic Conditions. D. F. Pettibone, Rochester, Minn.—p. 275.
73 *Chronic Tonsil Infections. J. J. Moore, Chicago.—p. 283.
74 *Rapid Colorimetric Method for Estimating Glucose in Urine. V. I. Isaacson, New York.—p. 289.
75 Serum Veal Agar; Dependable Substitute for Ascitic or Blood Agar. N. S. Ferry and A. Noble, Detroit.—p. 295.
76 Peptone Free Media for Routine Culture Work. N. S. Ferry and A. Noble, Detroit.—p. 298.
77 *Simple Test for Glycuronates in Urine. F. C. Askenstedt, Louisville, Ky.—p. 300.
78 Antigen for Use in Complement Fixation in Tuberculosis. M. S. Fleisher and G. Ives, St. Louis.—p. 302.

70. **Control of Clothes Louse.**—Moore shows that sachets are not successful. Talc, 20 gm.; creosote, 1 c.c., and sulphur, 0.5 gm., is six times as effective a louse powder as naphthalene, creosote and iodoform, causing less irritation to the skin and, being dry, is easier to apply. Impregnation of the underwear does not appear promising, but a cheesecloth suit impregnated with saturated solution of sulphur in creosote could be successfully worn outside the underwear. Chlorpicrin can be used as a fumigant, penetrating the clothing and killing the lice in all parts of the clothing in fifteen minutes and the eggs in thirty minutes. By increasing the heat in the fumigation chamber, the time required to kill the eggs could be reduced.

71. **Etiology of Scarlet Fever.**—The blood of twenty-four cases showing typical symptoms of scarlet fever was examined by Pryer and Kelly. In nineteen, or 79 per cent., of these cases a diphtheroid organism has been isolated in pure culture. In six normal individuals a diphtheroid organism, morphologically and culturally identical with the one isolated from the nineteen cases of scarlet fever, was isolated from the blood of four. In cases of disease other than scarlet fever this organism was found in one case of measles, and two out of five cases of diphtheria. A large polymorphic organism was isolated from the blood of a man dying of scarlet fever.

72. **Coagulation of Blood in Certain Pathologic Conditions.**—Among the 45 cases studied by Dorothy Pettibone are 2 of hemophilia, 7 of myelogenous leukemias, 2 of purpura, 9 of epilepsy, 12 of jaundice (10 obstructive and 2 hemolytic) and 13 of a miscellaneous group. There was a marked calcium deficiency in jaundice cases of several weeks' duration. Platelets were present in normal numbers. The blood of hemorrhagic purpuras was deficient in platelets. There was no retraction of the clot. Estimation of platelets was of value in differentiating between hemorrhagic purpuras and hemophilias. The coagulation time of epileptic blood was within normal limits. Prothrombin was slightly diminished in pernicious anemia. There was a tendency in myelocytic leukemias for prothrombin time to be prolonged beyond the normal limits of from six to fourteen minutes, although the coagulation time was within normal limits. There was a characteristic delay in coagulation in the blood of hemophiliac cases. There was also deficiency in prothrombin. Platelets were present in normal numbers and have normal retractile powers. There was apparently no deficiency in calcium. One patient of special note among the hemophilias had an extremely long coagulation time though his prothrombin time was within normal limits. His mother had a normal coagulation time but a markedly delayed prothrombin time.

73. **Chronic Tonsil Infections.**—Moore cites examples which suggest that the infectious organism or virus of many diseases which have as their portals of entry the upper respiratory system, may lodge either permanently, or for a long period in the crypts of the tonsils, thus producing the state which we term a "chronic carrier." The removal of the infected tonsil may aid materially in controlling such diseases.

74. **Colorimetric Estimation of Glucose in Urine.**—This method depends on the fact that alkaline copper sulphate solutions are reduced by glucose at higher temperatures. The quantity of copper sulphate reduced is computed indirectly by determining the amount left unreduced. This latter portion is measured in a colorimeter by comparing the intensity of its blue ammonia compound with a standard solution of the same substance.

77. **Simple Test for Glycuronates in Urine.**—Askenstedt's test combines simplicity with a fair degree of accuracy. The urine to be examined is diluted with water until its specific gravity is reduced to 1.001. For example, if the urine has a specific gravity of 1.015 (correction being made for temperature), dilute 1 c.c. of urine with 14 c.c. of water; if the specific gravity is 1.021, dilute 1 c.c. with 20 c.c. of water. (Diabetic urine should be diluted until its urea content is 0.1 per cent.). To 10 c.c. of the diluted urine in a test tube add 1 or 2 drops of a 1 per cent. solution of alphanaphthol in glycerin (alcohol impairs the test), and then 10 c.c. hydrochloric acid, specific gravity 1.19. Mix by turning the tube over once or twice. Then let the tube stand in a dark, cool place for about twelve hours, after which the reaction is noted in reflected light. This is best done by holding a white surface, as, for example, a white blotter, behind the tube. Normally the fluid will remain colorless or show a mere suggestion of blue. If glycuronates are present in excess, there will appear a proportionate blue color, tinged with red. The depth of the color may be denoted by the customary use of plus signs, medium blue, the deepest color observed in the above dilution, being designated with + + + +. If greater accuracy of estimation is desired, a standard solution of indigo blue, containing some indigo red, in sulphuric acid, may be employed by dropping it into another test tube of the same size, containing 20 c.c. of water. The tube receiving the standard solution is turned over after each drop is added and comparison of the two tubes is made, this procedure being continued until the nearest likeness of color is obtained, when the number of drops added is recorded. In twenty-four hours, or later, a slight cloudiness, with fading of color, appears ultimately forming a sediment.

### Journal of Nervous and Mental Diseases, Lancaster, Pa.

February, 1918, **47**, No. 2

79 *Tabes Dorsalis. M. Grossman, New York.—p. 81.
80 *Treatment of Delirium Tremens by Spinal Puncture, Stimulation and Use of Alkali Agents. H. H. Hoppe, Cincinnati.—p. 93.
81 Meningitis Due to Shell Wound. C. B. Craig.—p. 100.
82 Dystonia Musculorum Deformans; Report of Case and Review of Literature. M. Kerschner, Brooklyn.—p. 103.
83 Consideration of Pathogenesis of Epilepsy. L. J. Pollock, Chicago.—p. 114.
84 *Some Experiments Bearing on Flow of Lymph in Nerves. L. B. Alford and S. I. Schwab, St. Louis.—p. 118.

79. **Tabes Dorsalis.**—Grossman's paper is based on the study of 240 cases of undoubted tabes. The average age of syphilitic infection, dated from the primary chancre, was 24.4 years. The average age of onset of tabes was 39 years. No detectable difference existed in the age of onset of tabes in those patients treated with antisyphilitic remedies and in the age of onset in those untreated or presumably less treated.

The probable average preataxic period is three years. The average life expectancy of the bedridden tabetic was 53 years. Among those tabetics who become bedridden, a short ataxic period usually follows a short preataxic period. The cause of death in tabes is syphilis. Syphilis and tabes lead to death through cardiovascular and renal degeneration, and through weakened resistance of nonsyphilitic infections. The average age at which death occurs is 53 years. The mortality among tabetics over 53 years of age is 238 per thousand. Tabes is as nonlethal as any form of syphilis.

80. **Treatment of Delirium Tremens.**—Following is the routine treatment for delirium tremens employed by Hoppe in the Cincinnati General Hospital. Catharsis is used as a routine measure, calomel, followed by a rather large dose of epsom salts. Tincture of digitalis and tincture of nux vomica, 10 drops of each, are given by mouth every three hours. In the active state of delirium strychnin and digitalin are given hypodermatically. Hoppe says that this stimulation is the most essential part of the treatment. In mild cases the indication for alkalies is met by the use of the imperial drink with lemon juice. Prolonged hot baths and hot packs are given twice a day, chloral and bromids are given only at night, and then not more than 2 to 3 doses during the twelve hours. In ordinary mild cases of delirium tremens, uncomplicated with kidney trouble, the above treatment is sufficient and the disease runs a very mild course. In the more severe cases, and at present a routine treatment, spinal puncture is resorted to as soon as the patient begins to have hallucinations. From 30 to 60 c.c. are usually withdrawn. The withdrawing of the fluid is followed by a rapid reduction of the delirium, especially in cases which have had preliminary stimulation and alkalinization. If the delirium returns, spinal puncture is repeated. If the delirium still continues notwithstanding the spinal puncture, or if the patient is pale and covered with perspiration with a low muttering delirium, an intravenous injection of physiologic sodium chlorid solution is given, or what has been found to be of more use, especially in cases with frequent convulsions and deficient kidney function, Fisher's solution. Of 105 cases, which seemed clinically uncomplicated, eight patients died, a mortality of 7.6 per cent. During the previous ten years, when the routine treatment was catharsis and sedatives, the mortality was 18.5 per cent.

84. **Flow of Lymph in Nerves.**—The hypothesis that there is a flow of lymph along nerve trunks in a central direction has been advanced and has been used in explaining the situation of the lesion in paresis, tabes dorsalis, herpes zoster and other affections of the nervous system, and in accounting for some of the facts of tetanus, rabies and poliomyelitis. It is supported by the results of a number of experiments. In attempting to repeat and amplify some of these experiments, Alford and Schwab injected a solution of certain iron salts, and of fuchsin, India ink, turpentine, and ether into nerve trunks of animals, but found no evidence of the existence of an ascending lymph stream. It was found, however, that when certain substances, particularly turpentine and ether, are injected into nerve trunks, they flow along under the sheath for long distances and may enter the subarachnoid and subdural spaces. This fact, and not the presence of an ascending lymph stream, may account for some results of other observers. It was also found that ether injected into infra-orbital branches in the cheeks passes into and causes a degeneration of the Gasserian ganglion. It is suggested by the authors that this method might be used in the treatment of trifacial neuralgia.

### Journal of Pharmacology and Experimental Therapeutics, Baltimore

February, 1918, **11**, No. 1

85 *Comparative Activity of Local Anesthetics. I. Paralysis of Sensory Nerve Fibers. T. Sollmann, Cleveland.—p. 1.
86 *Id. II. Anesthesia of Frog Skin. T. Sollmann, Cleveland.—p. 9.
87 *Id. III. Anesthesia of Rabbit's Cornea. T. Sollmann, Cleveland.—p. 17.
88 *Influence of Diet on Toxicity of Sodium Tartrate. W. Salant and A. M. Swanson, Washington, D. C.—p. 27.
89 Protective Action of Diet Against Tartrate Nephritis. W. Salant and A. M. Swanson, Washington, D. C.—p. 43.
90 *Action of Iodid, Bromid and Nitrate Ions on Respiratory Center. D. I. Macht and D. R. Hooker, Baltimore.—p. 63.
91 Comparative Efficiency of Local Anesthetics. Anesthesia of Human Skin. T. Sollmann, Cleveland.—p. 69.
92 Action of an Isomer of Caffein. W. Salant and H. Connet, Washington, D. C.—p. 81.
93 *Clinical Actions of Veratrum. R. J. Collins and P. J. Hanzlik, Cleveland.—p. 89.

85 to 87. **Activity of Local Anesthetics.**—I. The activity of anesthetics on sensory nerve fibers was studied by Sollmann by applying the anesthetics to the sciatic plexus and observing the presence or absence of reflex response to stimulation of the foot. He found that cocain, novocain and tropacocain hydrochlorids are about equally efficient. The efficiency of potassium, alypin, quinin-urea, and especially antipyrin, is smaller; and their efficiency ratio in comparison with cocain is lower than for motor fibers. Alkalization increases the efficiency of the organic anesthetic from two to eight times; the increase being generally about one half as much as for motor fibers. Epinephrin does not increase the efficiency; this result being the same as with the motor fibers. Mixtures of cocain with novocain hydrochlorid or with quinin-urea hydrochlorid give simple summation without potentiation, just as with the motor fibers. Mixtures of the anesthetics with potassium do not show potentiation, differing in this respect from motor fibers. Apparently, therefore, the sensory fibers show some important differences from motor fibers in their response to local anesthetics.

II. Sollmann shows that the application of the anesthetics to the skin of the frog's foot approaches the conditions of surface anesthesia, involving penetration of the drug as well as action on the sensory fibers; but somewhat simplified by doing away with the absorptive removal of the drug. The results differ in some important respects from those of direct immersion (conduction anesthesia). The efficiency ratios for the frog skin are different for prompt and for slow anesthesia. Cocain, alypin and tropacocain make the best showing. Novocain is relatively less efficient than for conduction anesthesia; potassium, quinin-urea and antipyrin make a very poor showing for fast anesthesia; much better for slow anesthesia. Alkali increases the efficiency, even more than for immersion. Epinephrin does not increase the efficiency. Mixtures of cocain with novocain or quinin do not potentiate; nor do mixtures of potassium with cocain or novocain.

III. The application of anesthetics to the cornea is a satisfactory method for comparing their efficiency as surface anesthetics. The order of efficiency is markedly different from immersion or conduction anesthesia. On the cornea, cocain and holocain are the most efficient; then follow beta-eucain, alypin, quinin-urea and tropacocain, and lastly, novocain. Antipyrin and potassium are practically ineffective. The rapidity and the duration of the action vary with the concentration. For just effective concentrations, the duration is shortest with cocain and tropacocain, and longest with quinin-urea. The addition of sodium bicarbonate (0.25 per cent.) increases the efficiency of the anesthetics considerably (two to four times); with the exception of quinin-urea, which is rendered less efficient. Epinephrin does not increase the efficiency. Mixtures of the anesthetics with each other or with potassium, do not lead to potentiation. Sollmann's experimental data are in agreement with the clinical usage.

88. **Influence of Diet on Toxicity.**—An analysis of the results obtained by Salant and Swanson in this investigation shows that the mode of action of some diets and of fasting in modifying the toxicity of tartrate cannot be explained at present. The toxicity of sodium tartrate was most marked on a diet of oats, hay and cabbage. Diets rich in sugar were efficacious in decreasing toxicity, the effect being most pronounced on a diet of young carrots. A marked increase of resistance to tartrates was also observed on a diet of carrot leaves. The authors suggest that the favorable effects of some diets on the toxicity of tartrates might be due to several factors, among them inhibition of bacterial activity in the intestine, vitamins, or unknown constituents that might be present in some diets.

90. **Action of Iodids and Bromids.**—From the experiments described by Hooker and Macht it may be concluded that the iodid, bromid and nitrate ions exert a stimulating effect on the respiratory center. In case of the iodids this agrees well with the stimulating effect of the iodid ion noted by Macht on the isolated heart and blood vessels (3); and in case of the nitrate the results agree also very well with the difference between the action of the nitrates and nitrites noted by the same author on the ureter (4). This effect of the various ions studied and more particularly of the iodids and bromids is of considerable interest from the therapeutic point of view, inasmuch as iodids and bromids are extensively employed in pathologic respiratory conditions.

93. **Clinical Actions of Veratrum.**—The series of cases studied by Collins and Hanzlik includes two normal individuals, and a total of thirty-six observations on twenty-seven different subjects representing such circulatory disorders as hypertonus, paroxysmal tachycardia, myocarditis with renal vascular disease, aortic insufficiency, auriculoventricular heart block and several other clinical conditions. Briefly, it may be said that a slowing of the pulse and fall of blood pressure occurs with single therapeutic doses of 15 to 20 minims of the tincture of veratrum album and this occurs independently of such symptoms as nausea, vomiting, etc. (toxicity). Large and repeated doses (25 to 75 minims) produced a slowing of the pulse together with a fall in both systolic and diastolic blood pressure in practically all individuals studied by the authors. The fall of blood pressure and diminution in pulse rate are roughly proportional to the dose. All the desirable circulatory effects produced by tincture of veratrum album may be secured with doses ranging from 45 to 55 minims, administered at the rate of about 10 to 15 minims every one-half to one hour, and without symptoms of toxicity. Repeated large doses administered within short intervals are apt to give rise to symptoms of toxicity. These effects are generally absent with small doses given at longer intervals. Two normal individuals responded to tincture of veratrum album with a fall of systolic and diastolic blood pressure and a slowing of pulse rate in the usual way. Effects in various circulatory disorders were observed about as follows: most marked in hypertonus; less marked, inconstant or no effect at all in heart block (two cases), paroxysmal tachycardia, myocarditis with renal vascular disease, aortic insufficiency (one case each). The usual effects of slowing of the pulse and fall of both systolic and diastolic blood pressure were observed in a patient with eclampsia. A number of miscellaneous clinical conditions also responded in the usual way. There were no demonstrable effects on the electrocardiogram. No noteworthy effects with both small and large doses of veratrum album were observed on the respiration. Using compound tincture of gentian (U. S. P.) under the same conditions as tincture of veratrum album in the same and other individuals, no noteworthy effects on the circulation were demonstrable. The effects of veratrum are due, therefore, to the drug per se.

### Kentucky Medical Journal, Bowling Green

March, 1918, **16**, No. 3

94 Plea for Better Diagnoses. R. M. Rankin, Covington.—p. 95.
95 Duties and Opportunitities of Medical Reserve Corps Officer. R. Lockhart, Owensboro.—p. 100.
96 History of Surgical Anesthesia and Discoverer. J. W. Barnhill, Owensboro.—p. 103.
97 Worms. T. T. Gibson, Middlesboro.—p. 105.
98 Pellagra. S. J. H. Harris, Philpot.—p. 106.
99 Amebic Dysentery; Results Obtained from Use of Emetin. E. S. Allen, Louisville.—p. 108.
100 Eye as Index in Certain Diseases. C. T. Wolfe, Louisville.—p. 110.
101 Public Health. R. Olcson, Louisville.—p. 116.
102 Antepartum Hemorrhage, Gas Bacillus Infection, Milk Leg in Same Patient. W. Sanders, Louisville.—p. 119.
103 Recurrent Laryngeal Paralysis from Aortic Aneurysm. I. A. Lederman, Louisville.—p. 121.

### Maine Medical Association Journal, Portland

February, 1918, **8**, No. 7

104 Late Visceral Syphilis. T. J. Burrage, Portland.—p. 187.
105 Halifax Disaster. T. A. Foster, Portland.—p. 199.

### Medical Record, New York

March 2, 1918, **93**, No. 9

106 Problem that Mental Disorders Present to Medical Profession, and Profession's Responsibility. W. B. James, New York.—p. 353.
107 Eyes of Youth. S. E. Jelliffe and L. Brink, New York.—p. 366.
108 Cancer Death Rate in New York City During 1917. L. D. Bulkley, New York.—p. 362.
109 Masked Pellagra. J. F. Yarbrough, Columbia, Ala.—p. 363.
110 Parkinson's Disease and Its Treatment with Parathyroid Gland. W. N. Berkeley, New York.—p. 365.
111 Unstable Qualities of Digitalis Preparations. E. Zueblin, Cincinnati.—p. 366.

### New York Medical Journal

March 2, 1918, **108**, No. 9

112 Relation of Tooth Infection to Other Diseases. O. T. Osborne, New Haven, Conn.—p. 385.
113 Hyperthyroidism and Mental Disorders. W. K. Walker, Pittsburgh.—p. 391.
114 Daughters of Moabites and Our Soldiers. W. L. Howard, Westboro, Mass.—p. 394.
115 Surgical Aspects of Gastric Hemorrhage. G. Woolsey, New York.—p. 395.
116 Nature of Transference in Psychanalysis. A. Stern, New York.—p. 398.
117 Case of Subdural Spinal Abscess. Posterior Lateral Laminectomy. Recovery. H. Lowenburg, Philadelphia.—p. 402.
118 Facial Paralysis Following Infection of External Auditory Canal. A. N. Schiller, New York.—p. 403.

### New York State Journal of Medicine

February, 1918, **18**, No. 2

119 Syphilis of Eye. W. C. Posey, Philadelphia.—p. 48.
120 Syphilis of Ear. B. A. Richards, Rochester.—p. 52.
121 Intracranial Treatment of Syphilis of Optic Pathways and Optic Atrophies. M. J. Schoenberg, New York.—p. 59.
122 *Treatment of Syphilis of Brain and Cord by Subdural Injections of Salvarsanized Mercurialized Serum. S. T. Nicholson, Clifton Springs.—p. 63.
123 Gallbladder Disease. R. S. Fowler, Brooklyn.—p. 72.

122. Abstracted in The Journal, June 2, 1917, p. 1657.

### South Carolina Medical Association Journal, Greenville

February, 1918, **14**, No. 2

124 Postoperative Treatment of Gastro-Intestinal Tract Following Abdominal Section. J. Wallace, Easley.—p. 36.
125 Diagnosis of Urinary Lithiasis. N. B. Edgerton, Columbia.—p. 38.

### Texas State Journal of Medicine, Forth Worth

February, 1918, **13**, No. 10

126 Fibrosis Uteri. W. B. Russ and H. T. Wilson, San Antonio.—p. 346.
127 Diagnosis of Nephritis. K. H. Beall, Fort Worth.—p. 349.
128 Kidney of Pregnancy. I. L. Van Zandt, Fort Worth.—p. 351.
129 Significance of Casts in Urine. F. R. Lummis, Houston.—p. 353.
130 Influence of Minute Foreign Bodies within Eye. J. O. McReynolds, Dallas.—p. 355.
131 Student's Expectancy on Entering Medical College. M. H. Boerner, Austin.—p. 356.
132 Pemphigoid Eruptions Following Vaccination. J. B. Shelmire, Dallas.—p. 358.

### Vermont Medicine, Rutland

February, 1918, **3**, No. 2

133 Pneumonia and Serum Therapy. E. H. Buttles, Burlington.—p. 27.
134 Goiter. F. H. Lahey, Boston.—p. 30.
135 Vital Thyroid, Parathyroid Activities. C. F. Ball, Rutland.—p. 33.

### West Virginia Medical Journal, Huntington

January, 1918, **12**, No. 7

136 Medical Economics. I. J. Haynes, Richmond.—p. 241.
137 Nitrous Oxid and Oxygen in Obstetrics. C. S. Fleming, Fairmont.—p. 246.
138 Ptomain Poisoning. A. Lederer, Morgantown.—p. 248.
139 Medical Preparedness in Great Drive for Democracy. J. C. Bloodgood.—p. 255.

February, No. 8

140 Variations in Lateral Processes of Fifth Lumbar Vertebra in Etiology of Backache. H. A. Wilson, Philadelphia.—p. 281.
141 Diagnosis and Treatment of Urinary Lithiasis. J. E. Burns, Baltimore.—p. 286.
142 Roentgen Ray Examination of Duodenum, Gallbladder and Pancreas. W. A. Quimby.—p. 291.
143 Cellular Determination of Sex. P. J. McElrath, Bramwell.—p. 297. To be continued.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### Annals of Tropical Medicine and Parasitology, Liverpool

January, 1918, **11**, No. 3

1 Chilomastix Mesnili. A. J. Chalmers and W. Pekkola.—p. 213.
2 Nocardia Cylindracea; South Africa Otomycosis. W. E. De Korté. p. 265.
3 Tsetse Flies and Fly Belts. C. Christy.—p. 279.
4 *Quinin Treatment of Tertian Malaria. J. W. W. Stephens and Others.—p. 283.

4. **Malaria Treated by Quinin.**—The effect of 15 grains of quinin sulphate given by the mouth on two consecutive days was studied by the authors; further, in order to ascertain the effect of the magnitude of the dose, a series of observations was made with the following doses on two consecutive days: 5, 10, 30, 60 and 90 grains. So far as possible, such cases as did not relapse were observed for a period of at least sixty days after treatment in order to determine the curative value of the respective treatments. As a general rule, it may be stated that the administration of quinin sulphate on two consecutive days in doses as low as 10 grains suffices to cut short an attack of simple tertian malaria and to cause the temporary disappearance of parasites, trophozoites and gametes from the cutaneous blood. This also holds good for a series of cases treated with 5 grains of bihydrochlorid, but in four of the twelve cases in the 5 grains of sulphate series the parasites did not disappear. Regarded from the curative point of view, that is, the prevention of relapse, no success was obtained when the dosage was less than 45 grains. When this dosage was reached a curative value became appreciable: thus in the 45 grains series 25 per cent. of cases did not relapse, in 60 grains series 42 per cent., and in the 90 grains series 62 per cent. The observation period in the cases which did not relapse was at least sixty days.

### British Medical Journal, London

Feb. 9, 1918, **1**, No. 2980

5 Possible Pitfalls in Life Assurance Examination. F. P. Weber.—p. 167.
6 Two Years' Experience of Septic Wounds in Duncombe Park V. A. D. Hospital. A. Blair.—p. 169.
7 Technic of Carrel-Dakin Treatment. G. E. McCartney and F. H. H. Mewburn.—p. 170.
8 *Treatment of Wounds by Flavine. E. M. Pilcher and A. J. Hull. —p. 172.
9 Wound Flora in Relation to Secondary Suture. A. R. Munroe, A. G. Fleming and R. M. Janes.—p. 173.
10 Value of Mixture of Cyllin, Iodoform and Olive Oil in Intrathoracic Sepsis. W. Gordon and M. E. Gates.—p. 173.
11 *Mutton Bird (Sooty Petrel) Oil. J. S. Purdy.—p. 174.

8. **Treatment of Wounds by Flavine.**—Two main theses are proposed by Pilcher and Hull: First, a comparison is made between flavine and Carrel-Dakin treatment, in which the former, though not inferior at all points, is yet made, on the criteria chosen, to take a second place; and secondly, by histologic examination flavine is shown to delay the process of repair, to allow organisms to remain on the wound surface, and to prevent epithelial ingrowth. The authors hold that, putting aside any question of the permanence and effectiveness of the antiseptic solution used in the Carrel-Dakin treatment (though this has been called in question), the method itself is not of universal application, entirely on account of its inherent difficulties of technic. If this is allowed, any simpler method which can be effectively used by less skilled workers, and which approaches in efficiency, as judged by the suture standard, the Carrel-Dakin method, is worthy in spite of minor drawbacks, of an extended trial in the army.

Results which can only be obtained by an expert with much time and comparatively few cases are contrasted with a method which is practically fool proof; any dresser can fill a wound cavity with gauze dipped in 1 in 1,000 solution of flavine. In the many hundreds of cases (rather more than 5,000) so treated in the hospitals under the command of one of the authors, they have found that for ease of preparation and application, rapidity when dealing with large numbers of cases, complete absence of surgical fidget, early cleaning of the wounds, and abatement of constitutional reaction to absorption, flavine (and its congener brilliant green) is an admirable application under all circumstances, but especially where surgeons are few, time is short, and wounds are many. But, even when contrasted with the Carrel-Dakin series of fifty flavine cases does not come badly out of the test. The temperature falls early; more than one third reach the difficult suture ideal; and though there is delay in the process of healing, there is some diminution in the local and general reaction to infection. The lethal concentration of flavine against cocci in the presence of serum being 1 in 200,000 (Browning), the authors find the addition of hypertonic saline solution a valuable adjunct to the action of the antiseptic by producing free exudation.

11. **Mutton Bird Oil.**—According to Purdy the oil extracted from the sooty petrel is not only an excellent substitute for, but, in the opinion of some, more effective in the treatment of bronchitic conditions and phthisis than cod liver oil.

### Edinburgh Medical Journal

February, 1918, **20**, No. 2

12 John Hunter's Free Martin. D. B. Hart.—p. 84.
13 Cerebrospinal Fever. P. W. Maclagan.—p. 93.
14 Three Cases of Axillary Vein Obstruction. R. J. Willan.—p. 105.
15 Scurvy in Infants. A. D. Fordyce.—p. 110.

### Journal of Tropical Medicine and Hygiene, London

Feb. 1, 1918, **21**, No. 3

16 *Case of Larbish or Oerbiss Observed in Northern Nigeria. J. W. S. MacFie.—p. 25.
17 Symptomatology and Treatment of Human Trypanosomiasis in Lusanga Area, District Dukwango, Belgian Congo. W. E. Masters.—p. 25.

16. **Case of Larbish or Oerbiss.**—Larbish is a form of "creeping eruption" occurring in French Senegal first described by Bérenger-Féraud in 1875. MacFie reports a case. The disease is due to the presence of dipterous larvae under the skin. No parasites have hitherto been found, and the cause of the condition is at present unknown.

### Lancet, London

Feb. 9, 1918, **1**, No. 4928

18 *Acidemia in Gas Gangrene, and on Conditions Which Favor Growth of Its Infective Agent in Blood Fluids. A. E. Wright and A. Fleming.—p. 205.
19 Introduction of Modern Practice of Bone Grafting. A. Keith. —p. 210.
20 *Painful Neuritis Resulting from Wounds of War. J. A. Sicard. —p. 213.
21 Intussusception; Report of Cases. H. W. G. Mackenzie and W. H. Battle.—p. 215.
22 Vibrating Sensation in Differential Diagnosis of Affections of Spinal Cord and Peripheral Nerves. R. T. Williamson.—p. 216.
23 Method of Estimating Vibratory Sensation. J. L. M. Symns. —p. 217.

18. **Acidemia in Gas Gangrene.**—Observations made by Wright and Fleming confirm and bring into clearer light the fact that the growth of the microbes of gangrene is favored by every reduction of blood alkalinity, and they suggest that wherever, as in the dead body and the muscles, we come on conditions which specially favor the growth of the gas gangrene bacillus, there the factor of acidosis is likely to be the operative factor. And it has been further demonstrated that the microbes of gangrene can by elaborating acid make for themselves favorable conditions at the site of infection, and in the blood generally. The treatment of the acidemia of gas gangrene toxemia follows directly from its pathology. Wright and Fleming have employed, as is done in grave diabetic acidosis, intravenous injections of alkali, following these up, in cases in which a relapse had to be guarded against, by lactate of soda administered by the mouth in doses of 8 gm. four-hourly until the urine becomes alkaline. For the intravenous injections they have employed a 5 per cent. solution of sodium bicarbonate, preferring this for two reasons to a solution of carbonate of soda: First, for convenience of dosage, the bicarbonate being, as distinguished from the water holding carbonate of soda, a noneffforescent salt; and, second, to guard against local injury to tissues in case of any fluid escaping from the needle during the injection. The quantity of alkaline solution chosen, that is, 500 c.cm. has sufficed to restore, or just more than restore, to the blood its

normal alkalinity. The lactate of soda—made by neutralizing lactic acid by soda—was chosen for the after-treatment both because it is very easily tolerated by the normal stomach and because it is after absorption very rapidly (in the normal man in the course of a very few minutes) converted into carbonate. On account of the nausea and vomiting at the onset of gas gangrene toxemia the oral administration of lactate of soda cannot at that stage replace intravenous injection. With regard to the after-treatment of the wound it is of fundamental importance where infected or acidosed (and because of that very easily infected) tissue has to be left behind to evacuate all the corrupted lymph, replacing it by lymph normal in alkalinity; normal, if this should come into account, in sugar content; and normal (and that in this case means equipollent with the blood fluids) with respect to antitryptic power. To this end a local lymphagogue must be resorted to — 5 per cent. salt solution.

20. **Painful Neuritis Resulting from Wounds of War.**—Sicard and his associates have treated by intraneural injection of alcohol twenty-one cases of painful neuralgia following on gunshot wounds of nerves, recovery resulting in each case. The nerve is freed and isolated from the adjacent tissue. The upper adjacent segment is uncovered, and in the middle of apparently healthy nerve tissue, about 3 to 4 cm. above the seat of the wound, a fine Pravaz needle is introduced and, with the aid of a glass syringe, there is injected about 1 to 2 c.cm. of sterilized alcohol 60, or even 80 should the neuralgia be of long standing. When the injection has been properly given it should cause a local swelling, and the nerve trunk assumes a characteristic white mother-of-pearl appearance. All the nerve trunks supplying the painful region must be injected.

### Annales de Médecine, Paris

September-October, 1917, **5**, No. 5

24 *Functional Disturbances After War Wounds of the Chest. E. Sergent, P. Pruvost and P. Labro.—p. 473.
25 *Spinal Fluid in Typhus. D. Danielopolu.—p. 495.
26 The Pupils After Shell Concussion. Guillain and Barré.—p. 503.
27 *Psychoneurotic Contracture of Foot or Hand. G. Roussy, J. Boisseau and d'Oelsnitz.—p. 515. To be continued.
28 *Measurement of the Ventricles. E. Beaujard.—p. 545.
29 *Inherited Syphilis of Femur. M. Deromps.—p. 555.

24. **Nervous Disturbances After War Wounds of the Chest.**—The men had apparently completely recovered after a bullet had pierced the chest. All the organs seemed sound on roentgen and physical examination, but still the men complained of pains, unstable pulse and respiration rhythm, with constant dyspnea, exaggerated at the slightest movement. Some had neuralgia of the phrenic nerve or partial paralysis of the diaphragm; in others the pupils were irregular and unstable or there were vasomotor disturbances. Five of the ten men presented, besides, signs of exophthalmic goiter. If the projectile is no longer in the tissues, these functional disturbances usually gradually subside.

25. **The Spinal Fluid in Typhus.**—Danielopolu's experience with sixty typhus patients at Jassy has convinced him that the nervous disturbances are responsible for the deaths much oftener than the cardiac. For this reason he repeated lumbar puncture every few days, and in this communication describes the findings in the cerebrospinal fluid from twenty-four typhus patients with more or less serious nervous symptoms. In the majority of the cases the more intense nervous phenomena coincided with a high leukocyte count and a complete and pronounced reaction on the part of the meninges. The globulin reaction and the lymphocytosis seem to be the result of augmented permeability of the meninges on the one hand, and of the leukocytosis in the blood on the other hand. In some cases the leukocyte count was very high, up to 60,000, but there was no meningeal reaction and the patient did not show any serious nervous disturbances. Evidently the meninges were not much permeable. Two other patients presented from the very first grave nervous disturbances; the meninges were extremely permeable but there was pronounced leukopeny and no signs of a meningeal reaction.

27. **Psychotherapy for Contracture of Hand or Foot.**—This profusely illustrated article reviews the experiences with 141 cases of contracture or paralysis after minor wounds of the region. The article is to be continued.

28. **Measurement of the Ventricles.**—Beaujard comments on the precision now possible with screen examination of the heart, especially with the disappearance of the apex as a basis, that is, turning the body obliquely to the rays passing through the body to the posterior point of the spine, moving the left shoulder forward on the right shoulder as a pivot, until the shadow of the apex disappears behind the shadow of the vertebra on that plane. The angle between this line and the median line passing through the chest to the same posterior point in the vertebra varies with the size of the left ventricle, and can be determined with precision by placing a footrule against the front of the chest. The technic for three different applications of this principle is described with diagrams. Still greater precision is obtained by comparison with a second oblique line, parallel to the first, but just grazing the extreme right margin of the heart as the body is held obliquely to the roentgen tube.

29. **Tardy Inherited Syphilis of Long Bones.**—Deromps quotes Ménard's warning that many cases of supposed tuberculous lesions of the long bones are in reality manifestations of inherited syphilis, and thus exceptionally amenable to treatment. The roentgen rays reveal the syphilitic nature of the trouble and show its subsidence under treatment. Milian has published an instructive case of the kind, with pronounced retrogression of the periostosis under novarsenobenzol treatment, notwithstanding the old chronic nature of the bone trouble and its enormous extent. A similar case is described here, with roentgenograms showing the enlargement of the femur, its diameter the entire length being approximately the same as in the condyle region; in the other leg, only the lower end of the femur showed the enlargement. The patient was a young woman of 20 of an infantile aspect, who had had pains in the thighs for nearly six months. At the age of 5 there had been opacity of the cornea which later had retrogressed; at 15 there had been pains in the thighs for nearly a year but they then subsided for four years, returning then more violent than ever. The Wassermann reaction was positive and under novarsenobenzol great improvement followed. The patient was unable to stand iodid or mercury. Such cases call for an early diagnosis, and early and protracted treatment, regardless of the extent or long standing of the lesions. The main thing is not to be misled into assuming the tuberculous nature of the trouble.

### Archives de Médecine des Enfants, Paris

February, 1918, **21**, No. 2

30 *Development of Nervous System and Brain in Young Children. A. Collin and Godet.—p. 57.
31 *Left Recurrent Paralysis and Mitral Disease. A. Carrau.—p. 77.
32 *Cervical Rib Simulating Pott's Disease. J. Renault and Romme. —p. 83.

30. **Development of the Nervous System in Children.**—Collin and Godet present evidence to show that the nervous system and the mind of young children develop in three phases. The first lasts for one month after birth, the second from the second to the sixth month, and the third phase from the sixth to the twenty-sixth month. Each of these phases has its special neuropsychiatric characteristics, knowledge of which is indispensable for the detection of variations from the normal. The discovery of the too early disappearance of some of these signs or the undue persistence of others may give the clue to proper therapeutic and prophylactic measures, as they describe in detail. Among the special characteristics cited is the peculiar pupil reaction to light in infants up to a month old; in infants up to six months the flexion of the foot on the leg and the fan spreading of the toes when the back of the foot or lower end of the tibia is brushed three, four or five times with a blunt instrument or the end of a match. This reflex was found constant under the age of six months in the forty infants tested, but gradually subsided during the following six months. It persisted unmodified only in children that developed Little's disease. After the fifteenth month the persistence of this reflex must be regarded as pathologic.

Perception and reaction to pain are more sluggish the younger the infant. In healthy infants of eight or nine months the reactions seem to occur as rapidly as in the adult, but in children with inherited or acquired taints the interval may be long. Two much debilitated infants of eight and ten months did not cry and did not withdraw their hand when the skin was pinched. From the sixth to the twenty-sixth month the tendon reflexes are livelier than in adults. From the seventeenth to the twenty-eighth month there is a marked tendency to physiologic retention of attitude. If the arms or legs are placed in a position which would fatigue an adult, the infant leaves them in this position and seems to forget them. If the arms are raised and then one is passively lowered, the child leaves the other in the air and does not seem to think of lowering it spontaneously. The acquisitions in the psychic sphere are reviewed in detail likewise. The normal child begins to say "I" between the twenty-second and twenty-eighth months, and to control the sphincters between the fifteenth and twentieth months.

31. Summarized in Abstract 83 below.

32. **Supernumerary Rib Simulating Pott's Disease.**—The girl of 13 held head and neck as if there was a process of caries in the cervical spine. Radioscopy explained the trouble as a supernumerary cervical rib. Several physicians had been misled into assuming Pott's disease and imposing treatment for it until radioscopy cleared up the case.

### Bulletin de l'Académie de Médecine, Paris

Jan. 29, 1918, **79**, No. 4

33 *Pituitary Treatment of Paralysis of the Intestines. E. Kirmisson. —p. 82.
34 *Extraction of Bullet in Heart Wall. H. Hartmann.—p. 84.
35 *Capillary Drainage of Mastitis. H. Chaput.—p. 85.
36 Mixed Typhoid and Paratyphoid Fever. G. Etienne.—p. 86.
37 *Typhus at Paris. A. Netter and Blaizot.—p. 90.

33. **Pituitary Extract in Treatment of Paralysis of the Intestines.**—Kirmisson calls attention to the action of pituitary extract on the paralysis of the intestine which so often follows operations for appendicitis. He describes a typical case in a girl of over 10 who had no movements of the bowels for six days after removal of a gangrenous appendix. The abdomen was enormously distended, and neither lavage of the stomach, enemas or castor oil suppositories had any effect on the symptoms of acute peritonitis. Then a subcutaneous injection of pituitary extract induced a small passage, and repeating the injection on two successive days dissipated the alarming symptoms. He used a French preparation of the posterior lobe of the pituitary body. He adds that the constancy and the regularity of the results in his experience with this treatment are as interesting from the physiologic as from the clinical standpoint.

34. See Paris Letter, page 714.

35. **Capillary Drainage of Suppurating Mastitis.**—Chaput makes two radiating incisions in the areola over the abscess, and evacuates it, passing a horsehair through the cavity of the abscess, the ends emerging through the two incisions and tied together. He says that the drainage induced heals the lesion and there is no shriveling of the tissues and no interference with lactation.

37. **Typhus at Paris.**—Netter and Blaizot discovered typhus in a family of ragpickers at Paris. The two brothers of 12 and 14 seemed to have typhoid when they entered the hospital, but the patches of roseola seemed rather larger than those of typhoid, and a little darker in color. Six members of the family were affected and all recovered, but the father died in another family in which three members were affected. All of the nine patients had lice when they entered the hospital, but they were freed from the vermin and no further contagion occurred. Netter warns that there are no pathognomonic signs of typhus; the exanthem is fleeting and may not appear at all, but the stormy onset, the rapidity with which the fever reaches its height, the slight differences between morning and evening temperature, and the comparatively short course, the temperature subsiding rapidly, in a day or two, the accentuation of the nervous phenomena, the habitual rarity of intestinal symptoms and the relative frequency of complications, parotitis and gangrene, should arouse suspicion. In case of death, the relatively early date and the absence of intestinal lesions should confirm the suspicion. He thinks that probably typhus has never died out entirely in Paris. He had in his service in 1916 nine cases, all at the same time, in children who had been in the scarlet fever ward for a month. The retrospective diagnosis was mild typhus, Brill's disease.

### Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 30, 1917, **41**, No. 33

38 *Spirochete Jaundice. P. Pagniez, and others.—p. 1181.
39 *Transfusion in Anemia. P. Ravaut and de Kerdrel.—p. 1187.
40 *Diphtheria in the Gassed. P. Ravaut and Réniac.—p. 1190.
41 Vagotonic Hyperidrosis. L. Lavastine and J. M. Fay.—p. 1192.
42 *Malarial Meningism. E. de Massary and Tockmann.—p. 1195.
43 *Typhus. D. Danielopolu.—p. 1200.
44 *Slow Endocarditis. D. Denéchau and R. Picard.—p. 1202; R. Debré.—p. 1207; H. Vaquez.—p. 1212.

38. **Spirochete Jaundice.**—The Inada spirochete was found by Pagniez and his co-workers in 45 of 87 cases of jaundice in soldiers, and they comment on the reddish saffron tint of the jaundice. This tint is the combination of the yellow jaundice and the red vasodilatation in the skin. The latter may be pronounced even when there is no icterus; in the severer cases the color was like that of a ripe pomegranate; pruritus was rare; tardy bradycardia was common. The pigments in the spirochete urine seem to be especially unstable. If a drop or two of acetic acid is added to a test tube containing a few cubic centimeters of urine and it is heated as for the albumin test, the acidified portion of the urine turns a bright green. They found that this occurred only between the fifth and eighth day. Epistaxis was present in 13 cases and was the only form of hemorrhage. The blood clot failed to retract, and the proportion of platelets was much below normal. The changes in the blood were noted early, even before the jaundice, and they may aid in the differential diagnosis. During convalescence, the pallor, the persisting jaundice and the falling of the hair were striking features. Alopecia followed in 21 of 26 cases; it resembled in every respect syphilitic alopecia.

39. **Transfusion in Anemia.**—The man of 36 had been having chronic progressive anemia for eleven years and had dragged from hospital to hospital after his mobilization. The reds were considerably less than 2 million; the hemoglobin, 13 per cent.; whites, 2,000. Then he was given an ample direct transfusion of blood from his wife. The transfusion lasted twenty-nine minutes, and from that day improvement rapidly progressed. In less than a month the reds numbered 3,400,000; whites, 9,300, and hemoglobin 45 per cent. and the man was restored to active life by the single transfusion.

40. **Diphtheria in the Gassed.**—The young man developed diphtheria during convalescence from gassing, but the symptoms were ascribed to the gas until diphtheric paralysis developed. The paralysis yielded to antitoxin treatment in two series in the course of a month.

42. **Malarial Meningism.**—The young soldier presented symptoms deceptively simulating epidemic meningitis, but finally traced to malaria. In another similar case the young man was picked up in the depot in coma from malarial meningism.

43. **Chlorin Treatment of Typhus.**—Danielopolu has been seeking some harmless way of administering internally some disinfectant that would act analogously to neutral solution of chlorinated soda. After extensive tests he decided on chlorinated saline which seems to be innocuous in the proportions of 6.5 gm. sodium chlorid and 0.4 gm. chlorin to the liter. Rabbits stand 20 c.c. of this solution per kg. by the vein without the least sign of toxic action. He has given this solution in over 1,000 intravenous injections, without the least untoward incident except the chill which is seldom lacking. The dose was never over 500 c.c. and 90 per cent. recovered of the men given this treatment, which was applied only in the gravest cases, that is, those with intense delirium and prostration, cyanosis and cold extremities, with leuko-

cytosis of over 20,000 after the middle of the second week. In some cases the whites numbered 60,000 and more. Of all those presenting grave symptoms and not given this treatment, only 8 per cent. recovered. Those who died in spite of this treatment were all over 40 and in four of the six fatal cases death was due to some streptococcus complication. The chlorin water is prepared by letting hydrochloric acid act on a solution of calcium hypochlorite. The chlorin generated passes through a tube containing decinormal soda which frees it from the acid fumes, and then it passes on to dissolve in distilled water. The sodium chlorid is then added. The solution sheltered from light keeps unchanged in ampules for two or three days.

44. **Slow Endocarditis.**—Denéchau's patient was a man of 28 who for ten months had had endocarditis with muscular and abdominal pains, and occasional erythema with purpura, the temperature indicating a subacute septicemia. An autogenous vaccine and antitoxin seem to be giving some benefit now. Josué reported a case of endocarditis, without joint involvement, but prompt improvement followed salicylate treatment. Debré's patient died about a year after the first insidious symptoms. In addition to the heart and joint symptoms there were patches of painful erythema and the joint troubles were of a chronic and ankylosis character. The only case of recovery known is said to be that published by Hemsted. Treatment was with a serum obtained by inoculating a horse with the streptococci isolated from the patient's blood.

This slow endocarditis is one of the forms of malignant endocarditis that develop in the course of valvular disease. The symptomatology is variable; the essential sign is a febrile state. The endocarditis is responsible for most of the embolic complications; their localization differs according as the right or left heart is affected. Vaquez has encountered seventeen cases of this slow endocarditis in recent years. It is usually mistaken for typhoid, malaria, trench fever or tuberculosis. An old valvular trouble should turn the scale in favor of this infectious endocarditis. The spleen was a little enlarged in 75 per cent. of his cases. The fever morning and evening may be the only sign at first for a long time; the appetite keeps good and the tongue clean. Three of his cases were of the anemic type; in one case there were only 1,200,000 reds. All the seventeen cases terminated fatally in from six to ten or fourteen months. No treatment showed the least durable efficacy. Rist has reported a case of recovery; the woman was pregnant and the endocarditis subsided and she was delivered at term.

### Paris Médical

Jan. 12, 1918, **8**, No. 2

45 *The New Bases for Radiotherapy. E. A.-Weil.—p. 33.
46 Technic for Ethyl Chlorid Anesthesia. Jacob and Durieux.—p. 38.
47 Paralysis of Nerves in Lacerate Foramen. H. Aloin.—p. 40.
48 Diphtheria Complicating Shell Wounds. Marie and Martin.—p. 42.

45. **Bases for Radiotherapy.**—Weil states that our knowledge of the roentgen rays and how to manage them has been much increased lately, broadening their sphere of therapeutic action while augmenting their efficacy and their harmlessness. Benoist, for instance, has established that the specific opacity of sinple bodies is a determined function and generally increases with their atomic weight. Certain substances, the radiochroic substances, sift out the rays, and the rays with short waves are the ones for therapeutic use, as they have the elective biochemical action. Another law he cites is that the therapeutic action on the living cell is due chiefly to the secondary rays which the roentgen rays generate in the tissues; it is not due to the dose absorbed. The susceptibility to the roentgen rays is greatest in tissues whose reproductive power is greatest, whose karyokinetic future is longest, the reproductive power greatest, whose morphology and functions are the least definitely established. Weil concludes his review with the remark that many persons judge radiotherapy by the results they obtained with it during the early years of the use of the roentgen rays. They forget that the radiotherapy of today differs from that of yesterday as fundamentally as the surgery of the day differs from that of the era before Pasteur.

### Presse Médicale, Paris

Jan. 24, 1918, **26**, No. 5

49 *War Tachycardias. C. Aubertin.—p. 37.
50 *Section of Ulnar Nerve. M. Galland.—p. 41.
51 *Toxicity of Emetin. J. Guglielmetti.—p. 43.
52 *Arteriomesenteric Obstruction of Duodenum. M. Romme.—p. 45.
53 *Dosage of Diphtheria Antitoxin. J. Comby.—p. 46.

49. **War Tachycardias.**—Aubertin discusses the tachycardia free from all murmurs, and especially the cases in which the tachycardia can be banished. When the blood pressure is normal, the tachycardia, he says, is generally reducible, but with hypertension this is less apt to be the case. In thirty-four in this group with hypertension, eighteen were under 30 years old, and only five over 40, and three of the latter were officers. There was nothing to suggest nephritis in the antecedents. The pulse grows regularly slower from morning till midnight, unless the men have been walking or smoking. The tachycardia does not seem to be directly influenced by bed rest or by compression of the eyeballs, but in the reducible form it gradually yields to repose and dieting. In such cases the men can return to duty after a period of convalescence, but it is best to warn the regiment physician of the possible return of symptoms unless the man is looked after or assigned merely to light duty. Four of the men returned later with recurring tachycardia but in a mild form, and the pressure was normal; probably the forewarned regiment physician had detected the first signs of the tachycardia and sent the man back. In one case, however, the clinical picture was worse than at first, showing that these disturbances in the heart rhythm although not symptomatic of valvular disease, are yet liable to become aggravated.

With nonreducible tachycardia with hypertension he sends the men before the board of review for assignment to the auxiliary service only or discharge. The errors to be guarded against are overlooking valvular disease when extreme tachycardia is the main symptom. He has made this mistake himself several times. Rest, digitalis or compression of the eyeball may slow the heart and bring out the murmur. Another mistake is that the tachycardia is overlooked as the pulse has returned to normal under bed rest, but the tachycardia returns after test exertion. It must be borne in mind that the way the pulse behaves on the firing line is the important thing—not how it behaves in the hospital. These tachycardias are probably brought on by eating too much meat, drinking too much wine and coffee, and smoking too much, in addition to the fatigues of the service. Most of the men are from rural districts not accustomed to much meat, alcohol or tobacco. This triple intoxication may in time induce serious and durable functional disturbance. The important fact from the practical point of view, he remarks in conclusion, is that many of these men with tachycardia are less well fitted for active service, nothwithstanding the absence of any lesion, than many men with valvular disease.

50. **Severing of the Ulnar Nerve.**—Galland reiterates that the peripheral end of a severed nerve always degenerates throughout. The nerve regenerates by fibers issuing from the central stump, and this requires six, ten or more months. Any appearance of early restoration of function is due to substitution by other nerves.

51. **Toxicity of Emetin.**—Guglielmetti has continued his study of this subject since his first report summarized in The Journal, Aug. 11, 1917, p. 498. His clinical experiences and those related by others and three cases personally observed have confirmed the cumulative action of the drug and the dangers with intravenous administration. He advises never to go over 0.15 gm. a day for five or six consecutive days; or 0.10 gm. for eight or ten; or 0.05 gm. for over fifteen or twenty days, and the intervals between the series should be long. Fatal toxic action is liable with 0.6 gm. at one time and death is practically certain with 1.2 gm. at one time.

52. **Chronic Arteriomesenteric Occlusion of the Duodenum.**—Romme refers particularly to this obstruction of the bowel in persons inclined to ptosis. The occlusion of the duodenum may not be complete, but it may be enough to induce digestive disturbances ascribed to various causes, but in reality they are the result merely of this partial arteriomesenteric occlu-

sion. Radioscopy may show vigorous peristalsis and the outline of the duodenum changes its shape and size, but the contents are not passed along. Unless this chronic partial obstruction of the duodenum in visceroptosis is thought of and examined for, treatment is liable to be applied on the wrong basis. By fattening the patient a little, the tendency to ptosis is reduced and the occlusion may subside. With the more pronounced form, the same mechanical measures as with the acute occlusion may be necessary, reclining prone or taking the knee-chest position. Romme quotes Vanderhoof's recent report of six cases in The Journal. He made his patients assume the knee-chest position for fifteen minutes every two hours, and lie prone the remainder of the time. If conditions are so grave that operative measures have to be considered, most surgeons prefer duodenojejunostomy or resection of the right half of the colon.

53. **Dosage of Diphtheria Antitoxin.**—Comby deplores the timidity of certain physicians who still hold back from high dosage and give diphtheria antitoxin in inadequate amounts. He would like to have the antitoxin marketed in large vials, up to 20, 40 or 60 c.c. The small vials might be labeled "preventive dose" and the large "curative dose."

### Progrès Médical, Paris

Jan. 5, 1918, 33, No. 1

54 *Nontoxic Antiseptics. L. Mencière.—p. 1.
55 Autochthonous Malaria. Two Cases. J. Tapie.—p. 3.
56 The Cure of the King's Stiff Neck. A. Satre.—p. 5.

Jan. 12, 1918, 33, No. 2

57 Nature of Somnambulism. Bernheim.—p. 11.
58 *Placental Origin of Eclampsia. L. Bory.—p. 12.
59 Thyroidism and Loss of Flesh in Women. P. Blum.—p. 15.

Jan. 26, 1918, 33, No. 4

60 *Immobilization of Fractured Femur. H. P. Achard.—p. 27.
61 Immobilization for Fractured Fingers. L. Senlecq.—p. 33.
62 *Fracture of Humerus in Throwing Grenade. L. Senlecq.—p. 34.

54. **Nontoxic Antiseptics.**—Mencière's nearly three years of experiments with scraps of human tissue and specimens of blood treated with guaiacol and benzoic acid, his intravenous injection of these drugs in animals, and his study of their effects on wounds, etc., have convinced him that this combination is strongly bactericidal, while it does not destroy the protoplasm of the cells or display any hemolytic action. Hence he declares that these stable drugs can be used in treatment of wounds as nontoxic and efficient antiseptics. In his experiments on rabbits he used 10 c.c. of a mixture of 2 gm. benzoic acid, 10 gm. guaiacol and 8 gm. alcohol to 1,000 gm. water. One rabbit was given five daily injections to a total of 65 c.c. in six days. No untoward by-effects were observed. The freezing point of this mixture is —0.45, the same as the freezing point of physiologic saline solution.

58. **The Placental Origin of Eclampsia.**—Bory's theory is that eclampsia is the result of insufficiency of the placenta just as uremia is the result of insufficiency of the kidneys, and jaundice of insufficiency of the biliary apparatus. The eclampsia is the terminal syndrome of placental insufficiency which permits the toxins from the fetus to pass into the maternal circulation unmodified. During the later months of pregnancy, the waste products of the fetus increase progressively in amount, and if they pass unmodified through the abnormal placenta, their toxic action injures the maternal organs and sets up a vicious circle with the result that symptoms develop suggesting both insufficiency of the kidneys and of the liver, and we have the clinical picture of eclampsia. The frequent protracted contractions of the uterus so common in primiparas may be the cause of the insufficiency of the placenta or may exaggerate it.

60. **Fracture of the Thigh.**—Achard gives eleven illustrations of various devices for immobilization and extension of the fractured femur. The devices of the kind in use before the war were designed for closed fractures, so that they had to be fundamentally reconstructed for the wounded. Whatever the device used, the traction must be powerful enough to overcome the muscular contraction. Weights of from 10 to 20 kg. at least must be used.

62. **Fracture of Humerus from Throwing Grenade.**—Since Phelip reported in 1916 a case of this kind, five similar ones have been encountered. The fracture occurs in healthy men as they throw the grenade by hand. The bone breaks obliquely into three overlapping pieces, as Senlecq shows by a radiogram. Vautrin's patient was an American soldier and the fracture occurred while he was playing ball. Consolidation was not complete until the end of the fourth month. In the other cases one month generally sufficed.

### Revue de Chirurgie, Paris

July-August, 1917, 36, No. 7-8

63 *Arteriovenous Aneurysms in War Surgery. E. Forgue.—p. 1.
64 *Skull Wounds. A. Schwartz and P. Mocquot.—p. 50.
65 *Extensive War Wounds. A. Chalier and R. Glénard.—p. 124.
66 *Repair of the Skull. C. Villandre.—p. 184.

63. **Arteriovenous Aneurysms in War.**—Forgue remarks that this complication of a war wound was never known before the modern small jacketed bullet was introduced, but it has become common since the Franco-Prussian War of 1870. He discusses how they should be managed, emphasizing in particular what not to do. Ligation of the central end of the artery is directly injurious, for reasons which he explains. The first step should be quadruple ligation, with excision of the aneurysmal segment of both artery and vein, realizing throughout the importance of keeping the arterial and the venous circulation separate. The quadruple ligature must be on a stretch of the vessels free from important venous collaterals. Other special points to bear in mind are described. Sometimes it is possible to release the vessels and close the opening in the vein or artery or both with a lengthwise suture, but time and experience have demonstrated that the most radical is the safest method.

64. **Skull Wounds.**—This article summarizes the lessons learned from 53 cases of skull wounds without injury of the dura, 136 in which the dura had been opened, and 64 in which the wound was merely superficial. Only 4 died in the first group but 78 died of the 136 men with wounds involving the dura mater. The details of 103 cases are given, classified according to the various types of injury and the indications. Local regional anesthesia is always preferable and the projectile should always be removed if it is of some size and in the hemisphere corresponding to the entering wound. It should be sought along its track under roentgen control. The magnet is better than forceps for removing a metal foreign body.

65. **Extensive War Wounds.**—This instalment concludes Chalier and Glénard's study of 1,500 cases of *grandes blessures* treated at an advanced surgical station. Abdominal wounds are discussed here and the principle of a prompt and ample laparotomy is insisted on. Expectancy, they declare, is a snare and a delusion. It is permissible only when from twenty-four to forty-eight hours have elapsed since the injury. In this event no food should be allowed, and the man should not be sent back any distance until after six weeks.

66. **Repair of the Skull.**—Villandre is convinced that headache and dizziness in some cases are due merely to the upset in the balance in the brain when there is a gap in the solid box containing it. A small trephine hole does not require repair, and he does not repair the breach unless symptoms suggest that intervention is called for. As a rule, all foreign bodies should be extracted before repairing the breach, and also all bone sequesters, but exceptionally this might be omitted in the absolute absence of symptoms. Excessively high pressure and albumin content of the cerebrospinal fluid should warn to postpone the intervention, but convulsions do not contraindicate it. For various reasons enumerated, his choice for closing the gap is with several shavings of costal cartilage or bone-periosteum scraps from the tibia, all from the patient himself. Only when he refuses those autografts, Villandre uses a plate of bone from a human or sheep skull or other source. General anesthesia is necessary in the autografting cases; the various steps of the intervention on chest or tibia and skull are described in detail with illustrations. He protects the cartilage grafts with catgut passed

from side to side to form a network, suturing the scalp hermetically over this with horsehair. This not only protects but nourishes the cartilage engrafted scraps. The man must lie horizontal afterward in a warm bed and room, without a pillow, for eight days at least. In his 130 cases there were no deaths and the intervention proved a success in all but eight cases. The bone-periosteum grafts were all successful; the cartilage grafts in all but 4 per cent.; the bone plate cases in all but 18 per cent. while the pulverized bone paste was thrown off later in 50 per cent., that is, in two of the four cases. The men benefited materially and morally by the closure of the breach in the skull, the symptoms subsided and the men were able to lie down to sleep, in short all the reactions improved except the reaction to changes in temperature. But still, Villandre advocates temporary or definite discharge from the service of men with wounds of the skull and brain as the later evolution may bring surprises, notwithstanding the benefit from the plastic operation on the skull. It should not modify in any way the decision as to the man's fitness for further service or the pension granted.

### Annali d'Igiene, Rome

December, 1917, **27**, No. 12

67 Commercial Sterilization of Milk. C. Gorini.—p. 729.

### Policlinico, Rome

January, 1918, **25**, Surgical Section No. 1

68 Inflammatory Fibrous Tumor of the Neck. P. Gilberti.—p. 1.
69 *Pseudohermaphrodite. C. Lollini.—p. 7; G. Filardi.—p. 19.
70 Experimental Lesions of Pituitary Body. A. Chiasserini.—p. 26.

69. **Pseudohermaphrodites.**—In both the cases described the aspect of the body and the external genitals were of a pronounced feminine type, with full breasts. Each had testicles simulating hernia. The interstitial gland was well developed, but there were no other internal sex organs. The usual assumption that the ovaries preside over the development of the breast is disproved by these cases, as there were no ovaries, tubes or uterus in either.

### Prensa Medica Argentina, Buenos Aires

September 10, 1917, **4**, No. 10

71 Normal Beef Serum in Treatment of Anthrax.—Kraus and Others.—p. 119. Continuation.
72 Complications of Criminal Abortion. M. L. Perez.—p. 121.

Dec. 20, 1917, **4**, No. 20

73 Ignored Syphilis. N. V. Greco.—p. 263.
74 *Antityphoid Vaccination in Argentina. S. Mazza.—p. 264.
75 The Trichocephalus in a Camel. Parodi and Widakowich.—p. 266.
76 Testing Toxic Doses on White Mice. (Laucha blanca.) O. B. Montes.—p. 268.
77 *Access to the Iliolumbar Region. R. Finochietto.—p. 271.
78 Tuberculosis in Argentina. D. Cabred.—p. 272.

74. **Antityphoid Vaccination in Argentine Army.**—Mazza concludes from his experience that the number of indigenous strains used in making the vaccine should be increased, always having paratyphoid B bacilli in a proportion of one third. He advises two injections as ample but increasing the number of germs to 2 billions at the first and 6 billions at the second injection. He also advises repeating the injections annually, at least for the troops.

77. **Access to the Iliolumbar Region.**—Finochietto expatiates on the ample access afforded when the patient is placed with his trunk lying on one side on the table, the legs resting on the floor at an angle of 130 degrees. The exaggerated scoliosis thus induced opens up widely the space in question and the spine is readily exposed. Five illustrations accompany the article.

### Revista de Medicina y Cirugia Practicas, Madrid

Nov. 21, 1917, **117**, No. 1483

79 Delivery with Contracted Pelvis. D. J. J. de la Muela.—p. 241.
80 Tremor in Masturbating Degenerates. J. S. De Figueroa.—p. 250.

Dec. 7, 1917, **117**, No. 1485

81 Blunders in Diagnosis. D. J. Blanc.—p. 321.
82 Lumbar Puncture with Skull Trauma. D. J. Blanc.—p. 327.

### Revista Medica del Uruguay, Montevideo

December, 1917, **20**, No. 12

83 *Paralysis of Left Recurrent Nerve with Mitral Disease. A. Carrau.—p. 727; P. E. Nuñez.—p. 735.
84 *Pedunculated Myoma on Gravid Uterus. H. F. Platero.—p. 739.
85 *Premature Senility after Puerperal Fever. A. Turenne.—p. 742.
86 *Annular Dystocia and Pituitary Extract. C. P. Colistro and H. F. Platero.—p. 752.
87 *Meningitis at Montevideo. L. Morquio and others.—p. 769.

83. **Paralysis of Recurrent Nerve with Mitral Stenosis.**—Carrau's patient was a girl of 16 who had presented symptoms of mitral stenosis since an attack of acute rheumatism four years before. Aphonia developed suddenly and has persisted for six months; it is relieved when the girl reclines and becomes more complete as she stands. The aphonia grew much less marked also under the influence of digitalis. Carrau believes that this is the youngest age reported to date for recurrent paralysis from this cause. The symptoms from the mitral stenosis had become much attenuated before the aphonia developed. The dilated auricle with its thick walls evidently presses on the pulmonary artery and forces it out of shape. This in turn presses on the left recurrent nerve.

Nuñez was called in consultation on the case, the first of the kind he had ever seen, and within two months he encountered a second case. The patient was a woman of 25 with a history of dyspnea on exertion and aphonia for years. Evidently a congenital and familial primary mitral stenosis was responsible for the aphonia in this case.

84. **Uterine Myoma Simulating Ovarian Cyst.**—The diagnosis of torsion of an ovarian cyst in a woman five months pregnant seemed beyond question, especially as the patient was only 20 and there had been no previous symptoms and no menstrual disturbances. The tumor was a fibromyoma on a twisted pedicle, 3 cm. long, implanted on the left body of the uterus.

85. **Premature Senility.**—Turenne has encountered four cases in which puerperal fever in young women seemed to have damaged the organs to such an extent that they shriveled away afterward, bringing on a premature general senility. In the first case a robust woman of 28 within two years lost 33 pounds, her teeth had dropped out without caries or pains, she had lost most of her hair, and the skin was dry, yellow and wrinkled. The general health was good except for arteriosclerosis. This increased and the woman succumbed to it at 38. Another primipara of 22 had had suppuration in the uterus for two months and menstruation had not returned in three years. Four teeth had dropped out and much hair had been lost but the general health was good and she had gained in weight but the aspect was that of a woman of 50. The two other cases resembled these, the young women looking old and wrinkled, with scanty hair, but they had not lost any teeth. The findings on palpation of the uterus were in all like those after subtotal hysterectomy. The persisting amenorrhea had never been accompanied by the deficit symptoms of the menopause, and there was nothing to call attention in particular to the suprarenals; thyroid or parathyroids. In all his experience with atrophy of the uterus from other causes, he never witnessed symptoms like the above. For the premature senility, there must have been various factors at work, possibly damage of glands with an internal secretion. He reviews what is known in regard to the functioning of these various glands, and urges a watch for deficit symptoms in order to apply the proper organotherapy in time, heeding the reactions induced. Another practical conclusion from his experience is that women who have passed through severe puerperal fever should be long supervised to ensure hygienic conditions and promote absorption of exudates, etc., with the viscera in their normal position.

86. **Annular Dystocia and Pituitary Extract.**—Colistro and Platero report a case of difficult delivery in a healthy woman of 35 with normal pelvis, the fetus rather smaller than the average. As labor was unduly protracted, after failure or attempts at forceps extraction, pituitary extract was given.

The fetal heart sounds then ceased to be heard. The fetal head was free in the vagina but the annular contracture above was almost unconquerable although morphin was given freely afterward. At necropsy a hole was found just above the ring, opening into the pouch of Douglas, and responsible for the fatal peritonitis. This perforation was not present when the fetus was delivered or it would have been discovered during the careful examination that was made. The prolonged pressure of the fetal parts had evidently compromised the vitality of the tissues at this point. The pituitary extract had manifestly increased the tendency to contracture. Cases of annular dystocia in which pituitary extract has been given are much more difficult to bring to a successful conclusion than cases without it. Turenne has recently warned that dystocia is being encountered now with unprecedented frequency, and he ascribes this to the increasing use and abuse of pituitary extract.

87. **Meningitis at Montevideo.**—The Pediatric Society at a recent meeting listened to Zerbini's report of meningitis in the course of mumps in a boy of 13. The cerebrospinal fluid showed 99 per cent. lymphocytes at first but they gradually declined. Morquio remarked that mumps meningitis is generally mild and soon thrown off, but while it lasts it may aid in the differential diagnosis of the mumps in the absence of pronounced parotitis. A slight meningeal reaction is not meningitis, but merely a reaction to the elimination of toxins. He has known, however, of fatal cases of mumps meningitis and others which left durable nervous affections. Pelfort reported two cases of meningitis in infants about a year old, fatal in both, notwithstanding temporary improvement under antimeningococcus serum. Meningococci were numerous in the spinal fluid. Bonaba reported a fatal case of a diplococcus meningitis in a girl of 12. Improvement was marked for a time under serotherapy, but then the convulsions and hemiplegia returned. A silver salt was injected intraspinally and a fixation abscess induced but the child died the twenty-second day. Morquio commented on the greater virulence of the germs in the last year or so. In all the cases improvement follows the serotherapy, but a few days later the cerebrospinal fluid grows turbid again, the meningococci reappear and the symptoms return more severe and more tenacious. Zerbino stated that before 1916 his mortality had been only 11 per cent. but recently most of the cases terminated fatally. Solari mentioned a fatal case in a young child in which the meningitis was secondary to pneumonia, and pneumococci swarmed in the cerebrospinal fluid.

### Semana Medica, Buenos Aires

Nov. 15, 1917, **24**, No. 46

88 *Uremic Meningitis. J. R. Goyena and V. Peradotto.—p. 545.
89 *Prophylaxis of Leprosy. A. G. Fages.—p. 552.
90 *Sand Test of Typhoid Carriers. R. A. Borzone and J. M. Carbone.—p. 569.

88. **Uremic Meningitis.**—Goyena and Peradotto report with minute laboratory detail a case of what seemed to be uremic meningitis consecutive to nephritis with retention of urea alone. The acute meningeal phase subsided under restriction to a milk diet, then milk and vegetable, and a diuretic (pulverized squill, 0.2 gm. daily). The urine findings were constantly negative except for a little albumin during the menstrual periods, but the woman, an otherwise healthy sextipara still has 1 per thousand urea in the blood. Their experience does not confirm Widal's statement that with urea over 1 per thousand the patients rarely survive for more than a year. They had one case with 3.9 per thousand, and the woman kept in good condition for more than a year and the proportion became much reduced before she was lost to sight. In the present case the proportion keeps at 1 per thousand and the condition is satisfactory, but as she has had one severe meningeal involvement from retention, any errors in diet are liable to bring it back again with fatal outcome.

89. **Leprosy.**—Fages says that prophylaxis of leprosy requires careful disinfection of mouth and nose and of the cutaneous lesions, to ward off contagion of others. These hygienic and prophylactic measures are never applied completely, according to his experience to date, so that each leper is a possible source of contagion. He knows of eighty cases of leprosy in his district in Argentina. They are scattered in seven different regions; no attempt is made to isolate them except in one town where ten are gathered under one roof. It is now planned to construct a large leprosarium with accommodations for 500 in the Chaco district. He protests that an inland leper colony of this kind is just adding fuel to the fire. The leper colony should be on some island apart from the centers of population. Each member of the colony should be given land and everything for successful farming. It should be a free farming community except that the inmates cannot leave the island.

90. **Sand Test for Typhoid Bacilli Carriers.**—Borzone and Carbone report the successful use of Carbonell's modification of the sand tube for differentiation of the more motile typhoid bacilli. The sand test was described in The Journal, April 15, 1916, p. 1281. Carbonell's modification consists in using an outer tube, 18 cm. long by 3.5 cm. in diameter, and an inner tube 14 cm. long by 2 cm. in diameter. The lower end of the inner tube tapers and curves up, and it is filled with sand to a height of 4 cm. The outer tube is partly filled with bouillon containing 1 per cent. glucose and a few drops of neutral red. The sand soaks up the bouillon, and the diluted specimen of feces is placed only in the inner tube. In from sixteen to eighteen hours the bouillon in the outer tube will contain typhoid bacilli in case of positive findings. In thirty suspected carriers, by this means the typhoid bacillus was detected in twenty-three and the paratyphoid B in three. Numerous tests with colon, paracolon, anthrax and dysentery bacilli and staphylococci confirmed the reliability of the differential findings.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

November 17, 1917, **2**, No. 20

91 *The Divining Rod in Medicine. G. van Rijnberk.—p. 1799.
92 *Atrophy of Muscles of Central Origin. J. K. A. W. Salomonson.—p. 1811.
93 *Iron Scrap in Eyeball. J. Van der Hoeve.—p. 1819.
94 Pneumothorax in Pneumonia. W. A. Weisfelt.—p. 1825.

Dec. 15, 1917, **2**, No. 24

95 *Meningitis. J. P. Bijl.—p. 2110.
96 Optochin in Pneumococcus Sepsis. C. J. C. van Hoogenhuyze and A. de Kleyn.—p. 2116.
97 Auscultation of Diastolic Pressure. J. Lankhout.—p. 2120.
98 Physical Conditions of Amsterdam Schoolchildren. J. Lubsen.—p. 2128.
99 *Liver Syphilis. W. Hoogslag.—p. 2131.
100 Paratyphoid B. A. Athmer.—p. 2134.

91. **The Divining-Rod in Medicine.**—Rijnberk discusses rather sarcastically some recent works on this subject by Van Gulik in the Netherlands and by Professor M. Benedikt of Vienna, remarking in conclusion that Professor Benedikt's age, 82, must be taken into consideration.

92. **Cerebral Atrophy of Muscles.**—In the case reported, a diabetic woman of 66 developed paralysis on one side, evidently from a focus of softening in the brain. This was soon followed by atrophy of the muscles on the paralyzed side with the reaction of degeneration, the whole of unprecedented intensity. Salomonson theorizes to explain this as the result of the inadequate nourishment of the nerve cells owing to the reduction in functioning on account of the paralysis. The diabetes is probably responsible for the fact that the nourishment became so rapidly insufficient, entailing the early degeneration.

93. **Iron Scraps in the Eyeball.**—The two cases reported emphasize the importance of removing minute scraps of iron from the eye, although they may seem to be perfectly tolerated at first. In one case, after transient ulceration of the cornea, vision seemed to be normal for seven years, but then severe pain developed in that eye and a brown tumor was found on the iris, about 4 mm. in diameter. It was assumed to be a melanosarcoma and its excision was planned. Just before the operation, however, it was noticed that the supposed tumor had become detached from the iris and

changed its position. It was removed and proved to be a scrap of steel in the midst of an amorphous mass. Only traces of the lens were found, but vision was left 3/4. Vision was still more reduced in the second case; in both cases the direct siderosis was unusually pronounced and the eye and vision suffered.

95. **Meningitis.**—Bijl relates that in 1915 there were 54 cases of meningococcus meningitis recorded in the Netherlands; 226 in 1916 and 449 in the first six months of 1917. Army medical officers are now being called in consultation by civilian physicians in civilian practice, and bacteriologic tests are promptly made. The mortality from meningitis in general was 3.96 per 10,000 inhabitants in 1901 but dropped to 1.41 in 1916. The mortality in 1916 was 54 per cent., and was 43 per cent. in the first half of 1917. The distribution of the meningococcus meningitis in 63 communities in 1916 showed that only one case occurred in fifty-one; that is, in 81 per cent. of the cases the "epidemic" meningitis failed to start an epidemic. This was also the case in the first nine months of 1917. In 72 per cent. of the 131 communities with less than 20,000 inhabitants the "epidemic" was restricted to one case.

He suggests that probably many cases in the past have escaped detection as only the bacteriologic findings are able to differentiate the sporadic from the "epidemic" type, and the microscope was rarely used until recently. One fact which renders this plausible is that the supposed sporadic meningitis in past years was sometimes followed by several other cases, small epidemics of 17, 14, 16, 18 fatal cases, as was the record at Vlaardingen (about 20,000 inhabitants) in the years 1901-1904. This same multiplication of cases or small epidemics has been observed also with croupous pneumonia. This usually occurs sporadically but there are sometimes small epidemics and even extensive epidemics. Another point of resemblance between the "sporadic" and the meningococcus types was revealed by reexamination of men who had had sporadic meningitis in recent years. Deafness and other complications were found numerous, which may be accepted as further evidence of the meningococcus' evil influence. In the experiences of the last three years, instances of direct contagion are known, but they are very rare. One soldier was already sick when he went home on leave and his brother also developed the disease. Another man from the same camp had been home on a furlough a few days before a case developed in the two families he had visited, and three weeks later another case in the family of another soldier from that camp. There had never been any cases in the camp at that time, but three months later cases began to develop. Bijl has never witnessed meningitis develop in a known carrier. The cases occur in jumps, and very long jumps. This seems to certify to conveyance by carriers, but it has seldom or never been demonstrated. Unhygienic conditions and especially overcrowding favor its development, and in the Netherlands conditions now almost invite it: the trips of soldiers to and fro, the overcrowding in barracks, the scarcity of dwellings in general, scarcity of food, and lack of fuel, render the hygienic conditions less favorable. But, even with all these drawbacks, the deaths from meningitis of all kinds, he reiterates, number only a third of the figure in 1901.

99. **Liver Syphilis Simulating Abscess.**—The man had lived in the tropics and the diagnosis of liver abscess seemed beyond question, but under potassium iodid, the symptoms began to subside and the Wassermann reaction confirmed the syphilitic nature of the lesion.

### Ugeskrift for Læger, Copenhagen

Jan. 3, 1918, **80**, No. 1

101 *Acute Leukemia. S. Baastrup.—p. 5.
102 *Nomenclature for Diseases of the Blood. V. Bie.—p. 14.
103 *Test for Urobilin in the Urine. S. Marcussen and S. Hansen.—p. 16.

101. **Acute Leukemia.**—Baastrup reports in detail four cases of acute leukemia. The patients were two unmarried women of about 34, a man of 38 and a boy of 6. In three of the cases the sudden onset of severe sore throat led to the diagnosis of diphtheria. In some of the cases on record the stomatitis and gingivitis were the first manifestations of the disease to attract attention, but in the majority of cases several weeks or months of lassitude and lack of appetite with occasional vague pains and more or less anemia generally preceded the other symptoms, but the latter then developed suddenly and in a most pronounced form. The course then resembles that of acute sepsis. That leukemia is an infectious disease now seems to be beyond question. Bie has reported a case of leukemia in a housemaid developing soon after the death of the head of the family from leukemia with a three years' course, and seven other writers have reported similar multiple cases in a family. The hemorrhagic diathesis may manifest itself first in the internal ear, retina or serous and mucous membranes as well as in the skin. Leukemic infiltration is common, and also enlargement of glands, liver and spleen, but they are not inevitable. The most constant manifestations are the continuous fever, anemia, hemorrhagic diathesis and stomatitis. All the other symptoms are inconstant, and it is more than probable that some cases have escaped recognition.

102. **Nomenclature for Diseases of the Blood.**—Bie would retain plethora, hydremia, leukemia and leukocytosis, but suggests, instead of leukopeny, "oligoleukocytosis," and "polycytosis" when both reds and whites are increased in numbers, the plasma reduced in volume. If the corpuscles are in normal proportions but the amount of plasma is below normal, he suggests "meioplasmia"; with "erythrocytosis" when the whites are normal and the reds increased, and "erythremia" as the idiopathic chronic disease from this cause.

103. **Dilution Test for Urobilin in the Urine.**—Marcussen and Hansen treated urine containing urobilin with various acids and worked out a simple technic which, they say, offers several advantages over those in vogue, the latter being too complicated for clinical use or not sensitive enough. The method described does not give the absolute figures, but it takes only a few minutes to show whether urobilin is present, and in what proportions. To 10 c.c. in the glass A are added 3 drops of 5 per cent. tincture of iodin. After mixing, 1 c.c. is transferred to the reagent glass B. To the 9 c.c. urine left in the glass A are then added 9 c.c. absolute alcohol and 1 gm. zinc acetate. When the zinc acetate is entirely dissolved, the whole is filtered through a smooth filter (9 cm. in diameter) into a reagent glass of this diameter. This reagent glass now contains the 9 c.c. urine plus the 9 c.c. alcohol, etc. The total volume is thus 18 c.c.: the dilution is 1 : 2. If the filtrate is still fluorescent, then in the glass B 3 c.c. of water, 1 c.c. of a clear 20 per cent. aqueous solution of zinc acetate and 5 c.c. of alcohol are added to the mixture in glass B. The dilution here is 1 : 10 If the filtrate then is still fluorescent, 5 c.c. of urine are placed in still another glass containing 5 c.c. water and 2 drops tincture of iodin. Of this mixture, 1 c.c. is transferred to a new glass and mixed with 3 c.c. water, 1 c.c. of a 20 per cent. solution of zinc acetate and 5 c.c. of absolute alcohol and filtered; the dilution here is 1 : 20. If the filtrate still fluoresces, 5 c.c. of urine are mixed with 15 c.c. water and 2 drops iodin. Of this mixture 1 c.c. is transferred to a new glass and to it are added 3 c.c. water and 1 c.c. 20 per cent. solution of zinc acetate, with 5 c.c. alcohol, and the whole filtered; the dilution here is 1 : 40. Among the fifty apparently normal persons tested, fluorescence occurred with dilution of 1 : 10, so that 1 : 20 seems the lowest limit for pathologically increased urobilinuria. In some persons with liver disease, fluorescence occurred with dilutions of 1 : 40 or 1 : 80 or even greater dilutions than this. The alcohol proportion has to be not less than 40 per cent. All that is required for the test are four graduated pipets; 1 gm. finely pulverized zinc acetate; a 20 per cent. solution of zinc acetate, with a 5 per cent. tincture of iodin and a dropper for it.

A number of experiments with other technics are described in detail. With Schlesinger's test, a positive response was obtained both with liver disease, with various surgical affections, and in the healthy.

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# CAUSATION OF ECZEMA, URTICARIA AND ANGIONEUROTIC EDEMA

## BY PROTEINS OTHER THAN THOSE DERIVED FROM FOOD: STUDY XVIII *

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In 1912, Talbot and Towle,[1] from a study of the stools of eczematous patients, concluded that foods played a considerable part in the causation of eczema; the fats and starches as well as the proteins were concerned. In 1916, Blackfan[2] called attention to the association of eczema with asthma in children who were sensitive to foods. McBride and Schorer[3] found that in predisposed persons certain food proteins caused urticaria and erythema. White[4] noted the anaphylactic phenomenon in eczema, and a year later[5] (1917) he no longer doubted the fact that food constituents (protein, fat and carbohydrate) play some rôle in the abnormal composition of individuals afflicted with chronic rebellious eczema. Urticaria following the ingestion of certain foods and the injection of serum is a common occurrence. Since it would seem to be an established fact that foods may and do cause eczema and urticaria in some persons, cases illustrating such instances will not be given here. Suffice it to say that in our study of bronchial asthma we have frequently observed the association of eczema with asthma in patients who were sensitive to various food proteins, and we have definitely proved in some cases that urticaria was caused by food proteins.

In this paper I shall present instances in which eczema, urticaria and angioneurotic edema were produced by proteins which are not foods, but with which persons intimately come in contact throughout life, and which so far have not been recognized as possible causes of these conditions: four cases of eczema, two of which were caused by the proteins of horse dandruff, one by the pollen of timothy and one by the pollen of ragweed; five cases of urticaria, two of which were caused by horse dandruff proteins and three by ragweed pollen, and three cases of angioneurotic edema, caused, respectively, by timothy pollen, flaxseed and ragweed pollen. With the exception of one patient who had hay-fever, all of the patients had bronchial asthma, and the asthmatic condition was caused by the same proteins that also caused the eczema, urticaria and angioneurotic edema.

### PROTOCOLS OF PATIENTS WITH ECZEMA

Case 1.—W. P., aged 11, had bronchial asthma and eczema continuously since he was 1 year old. He could not ride behind a horse without having asthma. The eczema was dry and scaly, and was present all over his body with the exception of his face.

Cutaneous reactions were positive with the pollen of ragweed and with the proteins of horse dandruff. The alkali metaprotein and the peptone of horse dandruff gave positive reactions in a dilution of 1:1,000 and the coagulated protein gave a positive reaction in a dilution of 1:10,000.

The patient was treated subcutaneously at weekly intervals with gradually increasing amounts of horse dandruff coagulated protein in a dilution of 1:100,000. After a few such treatments the patient noticed that when he bathed there was much less desquamation all over his body, and his forearms were practically free from eczema. Riding behind horses no longer caused asthma.

Case 2.—M. T., a girl, aged 15, had bronchial asthma for nine years. Although she had asthma all through the year, it was worse in summer, when she also had hay-fever. She had eczema on the hands every summer.

Cutaneous tests were positive with ragweed pollen in a dilution of 1:5,000, and with horse dandruff peptone in a dilution of 1:1,000.

After a series of treatments with ragweed pollen in gradually increasing amounts, the patient had no asthma, hay-fever or eczema during the ensuing summer. Following the completion of the ragweed treatments, a series of subcutaneous injections with horse dandruff peptone were given. During twelve weekly injections of the peptone in a dilution of 1:10,000, no untoward symptoms were noted. The dilution of the peptone was then increased to 1:1,000, and each week the amount of this dilution was slowly increased. After a few of these treatments the patient began to have eczema on her forehead; this gradually spread and resisted all medication. It was thought advisable to omit treatment with the peptone and all medication for the eczema. After one week there was marked improvement in the eczema, and two weeks later the eczema had practically disappeared.

Case 3.—C. S., a girl, aged 10, had asthma since she was 2 years of age. The patient had eczema continuously between the ages of 1 and 2, and she had had it off and on ever since.

Cutaneous tests were positive with the proteins of horse dandruff in dilutions of 1:10,000 and with the pollen of timothy in a dilution of 1:500.

The patient was treated subcutaneously fourteen times in as many weeks with horse dandruff alkali metaprotein, first a 1:100,000 dilution, later a 1:10,000 dilution and finally a 1:1,000 dilution being employed. During this treatment the patient was free from symptoms, including asthma and eczema. In anticipation of the pollen season, the patient was given during April and May subcutaneous injections of timothy pollen, first in a dilution of 1 : 1,000, then 1 : 500 and finally in a dilution of 1 : 100; this was in conjunction with the horse dandruff treatment as outlined above. After five doses of the timothy pollen, the patient complained of very troublesome eczema, which was similar to what she had had previously. She said that it began to appear after the third timothy injection, that it was gradually getting worse, and that it was most marked the next day after the injection. The eczema was very itchy, scaly and dry, and it was present on the back and under the knees and at the bends of the elbows in the antecubital fossae. Further injections with the timothy pollen were discontinued, but the horse dandruff treatment was continued. The eczema gradually disappeared; in two weeks the patient's back was free from eczema, and in four weeks the knees and arms became free. The patient was still being treated with large doses of horse dandruff protein.

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* From the medical clinic of the Peter Bent Brigham Hospital.

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[1] Talbot, F. B., and Towle, H. P.: Infantile Eczema and Indigestion, Am. Jour. Dis. Child., September, 1912, p. 219.

[2] Blackfan, K. D.: Cutaneous Reactions from Proteins in Eczema, Am. Jour. Dis. Child., May, 1916, p. 441.

[3] McBride, W. L., and Schorer, E. H.: Erythemas and Urticarial Eruptions Resulting from Sensitization to Certain Foods, Jour. Cutan. Dis., 1916, **34**, 70.

[4] White, C. J.: The Anaphylactic Phenomenon in Eczema, Jour. Cutan. Dis., 1916, **34**, 57.

[5] White, C. J.: The Treatment of Eczema in Childhood, Boston Med. and Surg. Jour., 1917, **178**, 5.

Case 4.—A woman, aged 65, always had bronchitis and eczema periodically; the eczema appeared each year during the latter part of the summer, and at this time she had bronchial asthma.

Cutaneous tests were positive with ragweed pollen only.

Previous to the cutaneous tests the patient's physician had considered ragweed pollen as a cause of eczema in this case, since she was free from it, provided she kept out of her garden, which was surrounded by ragweed. After the positive test had been obtained with ragweed pollen, the patient was allowed to go in her garden with her hands and arms covered with cloth. In spite of this protection, during the latter part of August when the ragweed pollen is being shed, the patient had a little eczema. She was then not allowed to go into her garden at all, and the eczema entirely disappeared for the remainder of the summer.

In the first case there would seem to be little doubt that horse dandruff played a part in the causation of eczema, since improvemnt in the eczema was quite rapid during treatment with small amounts of horse dandruff protein. The same was also true of the asthmatic condition. Judging from our experience with Case 2, we should anticipate that sooner or later when large amounts of horse dandruff protein are given an amount will be reached which will make the eczematous condition worse. In Case 2 there can be no doubt that the subcutaneous injections of horse dandruff protein caused the eczema, since it appeared during the treatment and since it disappeared when the injections were discontinued. Small amounts of the protein, however, did not cause eczema; therefore it may be possible to treat eczema satisfactorily with very small desensitizing doses of the offending protein. The two cases represent two different channels of exposure to the protein; the first patient had eczema from natural exposure to horse dandruff, and the second patient had eczema when the protein was introduced beneath the skin. In other words, in the first case the offending agent was outside the body, and in the second case it was inside the body, thus simulating food in the causation of eczema. In Case 3 there can be no doubt that timothy pollen protein caused eczema, since the eczema appeared during subcutaneous injections of the pollen, it was worse soon after each injection, and it disappeared soon after the injections were omitted. Horse dandruff proteins played no part in the causation of eczema, since injections of these proteins were continued while the eczema was clearing up. It is quite probable that previous attacks of eczema were caused by exposure to timothy pollen. In Case 4 it is quite evident that ragweed pollen caused eczema through natural exposure by contact with the pollen.

## PROTOCOLS OF PATIENTS WITH URTICARIA

Case 5.—F. I., a boy, aged 7, had bronchial asthma since he was 8 months old.

Cutaneous tests were positive with horse dandruff peptone and coagulated protein in dilutions of 1 : 10,000, and they were doubtfully positive in a dilution of 1 : 100,000.

The patient was given at weekly intervals six subcutaneous injections with horse dandruff peptone in a dilution of 1 : 1,000,000; the amount of this dilution was increased with each treatment, and no untoward symptoms resulted. The dilution of the peptone was then increased to 1 : 100,000, and no symptoms followed 0.1 c.c. of this dilution. A week later the same dose was repeated, and in a few hours the patient developed large, white, very itchy urticarial wheals over his whole back; these persisted for only a few hours. A week later the same dose was again repeated but without symptoms, and since then the amount of the dilution has been gradually increased without producing symptoms, and the patient has been free from asthma.

Case 6.—M. S., a girl, aged 13, had bronchial asthma since she was 1 year old. During the first year of age she had eczema, but this disappeared when asthma began. The patient had urticaria after drinking milk.

Cutaneous tests were positive with the proteins of rice, milk and mackerel, and with all three proteins of horse dandruff in dilutions of 1 : 100, and with the coagulated protein in a dilution of 1 : 1,000.

The patient was given subcutaneously 0.1 c.c. of the coagulated protein in a dilution of 1 : 10,000. The next morning there were present all over her body raised, itching blotches which the patient's mother called hives. A week later the same dose was repeated without producing symptoms, and further increase in the dose produced no symptoms.

Case 7.—W. P., a man, aged 44, had asthma for fifteen years and hay-fever for ten, both chiefly in the summer months, from the middle of August to the first of October. He had winter bronchitis.

Cutaneous tests were positive with the pollen of ragweed in a dilution of 1 : 5,000, and of goldenrod in a dilution of 1 : 100; higher dilutions of these pollens failed to give reactions.

The patient was thus treated subcutaneously at weekly intervals with ragweed pollen: 1 : 10,000 dilution, 0.1 c.c.; 1 : 5,000 dilution, 0.1, 0.2 and 0.3 c.c.; 1 : 1,000 dilution, 0.1 and 0.2 c.c., and 1 : 500 dilution, 0.1 and 0.2 c.c. A few minutes after the last injection, large, raised, white, very itchy wheals appeared over the patient's whole body; they disappeared in a few hours. Subsequent weekly injections of 0.2 and 0.4 c.c. of ragweed pollen in a dilution of 1 : 500 caused no untoward symptoms.

Case 8.—J. M., a boy, aged 12, had asthma since he was 1 year of age. He had eczema from infancy up to a few years ago, when it disappeared and has not since returned.

Cutaneous tests were positive with ragweed pollen in a dilution of 1 : 500 and with the proteins of horse dandruff in dilutions of 1 : 100; higher dilutions of the pollen and of the dandruff proteins were negative.

A subcutaneous injection of 0.1 c.c. of a 1 : 1,000 dilution of ragweed pollen was followed the next morning by urticarial wheals over the whole body. Three days later, 0.1 c.c. of a 1 : 500 dilution of the pollen was followed the next morning by a much less extensive urticaria. Subsequent injections at three-day intervals of 0.2 c.c. of a 1 : 500 dilution of the pollen and 0.1 and 0.2 c.c. of a 1 : 100 dilution of the pollen caused no untoward symptoms. A series of injections with the proteins of horse dandruff also failed to produce urticaria.

Case 9.—B. S., a housewife, aged 46, had the summer type of hay-fever and asthma for nine years.

Cutaneous tests were positive with the early and with the late pollens. Timothy pollen was positive in a dilution of 1 : 100 and doubtful in a dilution of 1 : 500, red top pollen was doubtful in dilution of 1 : 100, and ragweed pollen was positive in a dilution of 1 : 100 but only slightly positive in a dilution of 1 : 500.

The patient was given a series of subcutaneous injections at weekly intervals with timothy pollen in dilutions of 1 : 500

and 1 : 100 without symptoms. The patient was then similarly treated with ragweed pollen in 1 : 1,000 dilution, 0.1, 0.2 and 0.3 c.c., and in 1 : 500 dilution, 0.1 c.c., without producing untoward symptoms. A week later, 0.2 c.c. of 1 : 500 dilution was followed in a few hours by an attack of asthma and by urticaria which continued for only a few hours. Treatment, however, was continued as previously with 0.3 and 0.4 c.c. of a 1 : 500 dilution and with 0.1 c.c. of a 1 : 100 dilution without producing symptoms.

In the foregoing protocol the first two patients, Cases 5 and 6, both developed urticaria following subcutaneous injections of horse dandruff proteins. It is difficult to explain why in Case 5 the second dose of 0.1 c.c. of protein caused urticaria when only a week previous the same dose had failed to do so. The theories of antianaphylaxis would not seem to obtain in such a case. Rackemann[6] has recently reported an instance in which such theories failed. The other three patients, Cases 7, 8 and 9, developed urticaria following injections of ragweed pollen. In Cases 7 and 9, the theories of antianaphylaxis fail. Although such experiences are neither usual nor serious, nevertheless great care should be employed in attempting to desensitize patients in order to avoid more serious results. It is interesting that in Case 9 timothy pollen should fail to produce urticaria, whereas ragweed pollen did cause urticaria, since the patient by skin reaction was equally sensitive to the two pollens.

### PROTOCOLS OF PATIENTS WITH ANGIONEUROTIC EDEMA

Case 10.—A physician, aged 28, had the summer type of hay-fever for seven years, and during the past winter he had slight asthmatic attacks with colds. The patient's mother had hay-fever, and his two children had urticaria after eating strawberries and lobster.

Cutaneous tests were positive with all of the common pollens and with alcoholic extracts of horse dandruff and guinea-pig hair. Timothy pollen gave a positive test in a dilution of 1 : 1,000 but no higher.

The patient had no ill effects following two subcutaneous injections of timothy pollen in a dilution of 1 : 5,000. A week later by mistake he injected 0.1 c.c. of a dilution of 1 : 500 instead of 1 : 1,000, as should have been done. Following this injection the patient had the following symptoms, which will be given in detail since he observed himself closely: Ten minutes after the injection, the patient's eyelids itched severely. This was quickly followed by suffusion of the face and neck; the latter rapidly became much swollen, necessitating the rapid removal of the patient's collar. The nares and nasopharynx became greatly swollen, thus making respiration through them difficult. His face became turgid and swollen, and the swelling of his face was so marked that it was on a level with his nose. The swelling of the eyelids closed his eyes. The suffusion extended rapidly over his chest and body, with intense itching, and shortly urticarial wheals developed. The wrists and hands soon became involved, but the arms and legs remained free from wheals. All of the foregoing symptoms, with the exception of the edema, disappeared in three hours. A few hours later, the patient had intense cramplike pains in the abdomen, and extreme tenesmus which was not relieved by going to stool. During this train of symptoms the patient's pulse rate was 120 per minute, his temperature was normal, and his respiration was rapid and labored; his blood pressure was not taken. He had considerable headache throughout the night, and he was restless and irritable. The next morning his face and eyelids were still badly swollen, and he felt somewhat prostrated, although he was not prevented from working.

Case 11.—A nurse, aged 28, had bronchitis and asthma from childhood. Recently while making a flaxseed poultice the patient had an attack of coughing, sneezing, watering of the eyes, and asthma.

Cutaneous tests were positive with the protein of flaxseed.

The patient was given subcutaneously 0.1 c.c. of a 1 : 10,000 dilution of flaxseed protein. Five minutes later the patient began to cough and choke, and five minutes later still she was unable to walk because of extreme dyspnea. Her head became very hot, her neck began to swell so that she had quickly to remove her collar, her face became so swollen that both eyes were closed, and she began to itch terribly. Her head itched severely, her ears felt like bursting, her heart felt queer, she was sick at the stomach, respiration was difficult, and on the whole she felt impending death. She was very cyanotic, and urticarial wheals developed over the upper part of her body. The urticaria soon disappeared from the upper part of the body only to appear over the lower part of the body; but in an hour she was free from urticaria. During the height of the disturbance a subcutaneous injection of epinephrin (adrenalin chlorid, 1 : 1,000, Parke, Davis & Co.) relieved the head and earache and the dyspnea. The patient was unable to sleep because of severe gas pains in the abdomen. The next morning she felt normal.

Case 12.—F. V., a woman, aged 44, had asthma for seventeen years only in the summer time from the middle of August to the first of October. In childhood she had hay-fever and eczema.

Cutaneous tests were positive with ragweed pollen in a dilution of 1 : 500, and a dilution of 1 : 1,000 gave a doubtful reaction.

The patient was given a subcutaneous injection of ragweed pollen in a dilution of 1 : 1,000; 0.1 c.c. was given. A few minutes later she had an attack of sneezing, wheezing, ringing of the ears, running of the eyes and nose, and her face suddenly became swollen and her collar had to be quickly removed. A few hours later she was normal.

In the foregoing protocols, Patients 10 and 11 had typical angioneurotic edema, which, according to Osler, includes urticaria and intestinal cramps. In Case 10, angioneurotic edema followed too large a subcutaneous dose of timothy pollen, and in Case 11 it followed a very small dose of flaxseed protein; in fact, the amount of flaxseed protein was probably much less than that which may be readily absorbed from its application as a poultice. It is probable that the patient became sensitized to flaxseed protein through the frequent application of such poultices, since as a child she remembers such medication for her bronchitis. Patient 12 had marked swelling of the face, neck and throat following a small injection of ragweed pollen, but the reaction was much less marked than in the two preceding cases. Such experiences well illustrate the great care that should be employed in the desensitization of persons with proteins to which they are sensitive.

### CONCLUSIONS

The proteins of horse dandruff, ragweed and timothy pollens may cause eczema both from external exposure and internal injection in predisposed persons. As we have found it to be with food proteins, so it is with the foregoing proteins: Eczematous patients tolerate very small doses of the offending protein and the eczema seems to improve; but a slight increase above this small amount makes the eczema worse. The amount of protein that benefits eczema is too small to prevent asthma, and the amount of protein that benefits asthma makes the associated eczema worse. Therefore, desensitization for eczema, if such is possible, must be a very slow and cautious process, even more than for asthma.

Since small subcutaneous injections of the proteins of horse dandruff and ragweed pollen caused urticaria in some cases, it would seem advisable, when determining the cause of urticaria, to exclude all protein substances with which the patient may come in contact, as well as the food proteins. The same reasoning would seem to apply to cases of angioneurotic edema.

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[6] Rackemann, F. M.: Interesting Reactions Incidental to the Treatment of Two Cases of Bronchial Asthma, The Journal A. M. A., Sept. 15, 1915, p. 889.

During the desensitization of patients with proteins, the appearance of eczema, urticaria or angioneurotic edema should make one suspect that the treatment was the cause of such symptoms. Although such experiences are not serious, yet they are sufficiently alarming to warrant great care in the desensitization of patients with proteins.

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# THE DIET OF THE NEGRO MOTHER IN NEW YORK CITY *

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Not long ago we reported the result of prophylactic therapy for rickets in a negro community.[1] This test was carried out in what is known as the Columbus Hill district of New York City, a district with a population of about 9,000, composed almost entirely of negroes. As was stated in the previous paper, this section enjoys the unenviable distinction of having the highest infant mortality rate of any community in the city, although, it should be added, the rate is steadily decreasing. Shortly before we undertook this study, a survey of Columbus Hill had been carried out by the Henry Street Settlement and the National League for the Study of the Urban Conditions of the Negro, to ascertain the social and economic conditions responsible for the high death rate. Both these organizations have been helpful in enabling us to gain access to the homes of these people, and we take this opportunity of thanking them for their cooperation.

In connection with the examination of the infants for rickets, which was made in the homes, and involved frequent interviews with the mothers, it seemed worth while to conduct a careful investigation as to the dietary of these women. This work promised to be of value, not only from an economic, but also from a medical standpoint, as it has at all times seemed probable that the food of the infant, and perhaps that of the mother as well, played a rôle in the development of rickets. We therefore set ourselves the task of ascertaining the adequacy of the diet of a group of women — about seventy-five in all — with respect to its caloric value, its content of the various foodstuffs, and its mode of preparation. This investigation was made in the fall of 1916 and the winter of 1917, before the war had caused prices to rise inordinately, so that the results cannot be regarded as having been distorted by the high cost of living.

The method of procedure and the results obtained are portrayed in the series of tables included in this paper. Table 1 shows a typical dietary chart, such as was used to record the data obtained in each case. In ascertaining the amount of food used daily—for example, a teaspoonful of sugar—we always asked the woman to demonstrate what she understood by a teaspoonful. In the case of bread, she was asked to cut a slice. Her cupfuls were likewise seen and measured. We realize that this cannot be considered an absolutely accurate method of measurement. From a practical dietetic standpoint, however, it gives important information, and when it is carried out among a considerable number of persons, the error is not great. In five instances, exact figures were obtained. The food was weighed as well as measured. For this purpose a considerable number of the more intelligent women were selected, such as gave promise of being able to cooperate. Each of these women was given a scale, and was asked to weigh all the food she used for two twenty-four hour periods. Among the women, there were only five who we were convinced carried out the experiment satisfactorily. The others did not evince sufficient interest or understanding for us to accept their figures. The five weighed dietaries are reproduced in Table 2. On examination, these figures show that the women consumed almost 2,500 calories a day, that is to say, almost the estimated requirement for a woman weighing 60 kg. (132¼ pounds); that they received a sufficient amount of protein, and that their carbohydrate intake was almost normal, but that they obtained about three quarters of the amount of fat which should be normally consumed.

TABLE 2.—COMPOSITION AND CALORIC VALUE OF FIVE DIETARIES IN WHICH FOOD WAS WEIGHED

| Case No. | Weight, Kg. | Amount Eaten | | | | Estimated Requirement | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Protein, Gm. | Fat, Gm. | Carbohydrate, Gm. | Calories | Protein, Gm. | Fat, Gm. | Carbohydrate, Gm. | Calories |
| 14 | 73 | 138 | 71 | 286 | 2,342 | 124 | 124 | 387 | 3,212 |
| 17 | 51 | 75 | 78 | 205 | 2,304 | 87 | 87 | 270 | 2,244 |
| 46 | 56 | 78 | 54 | 341 | 2,120 | 95 | 95 | 297 | 2,464 |
| 55 | 63 | 177 | 109 | 249 | 2,786 | 107 | 107 | 334 | 2,772 |
| 68 | 69 | 102 | 60 | 421 | 2,735 | 117 | 117 | 366 | 3,036 |
| Aver. | 62 | 104 | 75 | 300 | 2,457 | 105 | 105 | 329 | 2,728 |

TABLE 3.—COMPOSITION AND CALORIC VALUE OF FIFTEEN DIETARIES IN WHICH FOOD WAS MEASURED*

| Case No. | Weight, Kg. | Amount Eaten | | | | Estimated Requirement | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Protein, Gm. | Fat, Gm. | Carbohydrate, Gm. | Calories | Protein, Gm. | Fat, Gm. | Carbohydrate, Gm. | Calories |
| 4 | 51 | 121 | 74 | 336 | 2,524 | 87 | 87 | 270 | 2,244 |
| 9 | 51 | 94 | 54 | 234 | 2,050 | 87 | 87 | 270 | 2,244 |
| 18 | 49 | 135 | 77 | 252 | 2,175 | 83 | 83 | 260 | 2,156 |
| 19 | 61 | 126 | 43 | 387 | 2,770 | 104 | 104 | 323 | 2,684 |
| 25 | 81 | 109 | 92 | 214 | 2,087 | 138 | 138 | 429 | 3,564 |
| 30 | 51 | 151 | 102 | 194 | 2,327 | 87 | 87 | 270 | 2,244 |
| 36 | 65 | 152 | 83 | 401 | 2,963 | 111 | 111 | 345 | 2,860 |
| 38 | 49 | 127 | 70 | 366 | 2,662 | 83 | 83 | 260 | 2,156 |
| 43 | 47 | 119 | 88 | 213 | 2,007 | 80 | 80 | 249 | 2,068 |
| 44 | 65 | 156 | 95 | 386 | 2,941 | 111 | 111 | 345 | 2,860 |
| 51 | 79 | 111 | 57 | 377 | 2,487 | 134 | 134 | 419 | 3,476 |
| 56 | 61 | 137 | 76 | 308 | 2,439 | 104 | 104 | 323 | 2,684 |
| 57 | 79 | 144 | 98 | 358 | 3,116 | 134 | 134 | 419 | 3,476 |
| 63 | 47 | 172 | 85 | 230 | 2,323 | 80 | 80 | 249 | 2,068 |
| 67 | 65 | 84 | 58 | 277 | 1,995 | 111 | 111 | 345 | 2,860 |
| Aver. | 60 | 129 | 77 | 302 | 2,458 | 102 | 102 | 318 | 2,640 |

* The food charted in Table 2 was weighed immediately before eating. The food in this table was measured before eating, and subsequently equal amounts were weighed.

Table 3 gives the composition and caloric value of fifteen dietaries in which the food was merely measured, and coincides surprisingly well with the figures given in the previous table. Here we see an excess in the intake of protein, an adequate consumption of carbohydrates, and once more a deficiency of almost 25 per cent. of fat in the dietary.

The deviation of these twenty dietaries from normal standards forms the basis of Table 4, which constitutes a summary of the twenty cases. It merely brings into relief the points just emphasized, showing the number of cases in which the three main foodstuffs were excessive, normal, or deficient in amount.

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* On account of lack of space, some of the tables have been omitted. They will appear in the reprints, a copy of which may be obtained from the authors on request.

[1] Hess, A. F., and Unger, L. J.: Prophylactic Therapy for Rickets in a Negro Community, The Journal A. M. A., Nov. 10, 1917, p. 1583.

In order to get information as to the actual foodstuffs which the women ate, we ascertained the dietaries of almost all those whose babies were receiving the cod liver oil therapy. The women numbered about seventy-five in all. We carried on the study of dietaries from day to day, noting the kind of food they had consumed during each previous twenty-four hours. There were some who were too ignorant to furnish reliable information, in which cases the data were discarded. In every instance, we obtained the dietary for at least two or three days, being careful not to include Sunday or Monday in the number. In this way we collected the dietaries (reproduced in Table 5) of seventy-five mothers for 179 days. A glance at this table shows that the women ate meat or fish almost daily; that rice or potato also constituted a daily part of their ration; that milk, except in small amounts as it was taken with tea or coffee or cereal, entered scantily into their dietary; that fruit was taken only fifty-three times in the 179 days, and that this was true of vegetables to about the same extent.

In the study of vegetables as an article of diet, it is important to distinguish between the fresh and the canned or dried. Although there is no doubt that the latter forms of vegetables have considerable nutritional value, they must not be regarded as the equivalent of fresh food.[2] Looking into the question from this point of view, we found, at least in the fall and winter months when our investigations were made, that the women rarely had the fresh food in mind when they referred to vegetables. There was a preponderance of canned and dried vegetables, as well as a deficiency of fresh vegetables in the 179 days' dietaries. We find that, on an average, vegetables were eaten about twice a week (fifty-three times in the 179 days) and that fresh vegetables were taken in twenty-one instances, constituting an average of less than once a week. Inquiries at the grocery and vegetable stores in the neighborhood served to confirm these observations. The amount of fresh vegetables in stock was small, and the storekeepers stated that almost all they sold were either dried or canned. Nor was this lack of fresh food compensated for by a liberal intake of fruit. In fact, we find the same deficiency in this important article of diet. The women ate fruit only about twice a week (fifty-three times during the 179 days), and if we refer to the table of individual families (Table 6), it is evident that in many instances fruit hardly need be considered as forming an article of their dietary.

TABLE 5.—NUMBER OF TIMES IMPORTANT FOODSTUFFS WERE EATEN BY SEVENTY-FIVE WOMEN (179 DAYS' DIETARIES)

| Foodstuff | Number of Days Food Was Eaten at Least Once | Foodstuff | Number of Days Food Was Eaten at Least Once |
|---|---|---|---|
| Meat or fish | 172 | Potato | 128 |
| Eggs | 52 | Rice | 100 |
| Milk: As a beverage | 47 | Fruit | 53 |
| Milk: With cereal | 59 | Vegetable: As vegetable | 53* |
| Milk: With tea or coffee | 81 | Vegetable: In stew | 32 |
| Milk: With cocoa | 38 | | |

* Fresh vegetables were eaten 21 times; canned or dried, 32 times.

It seemed of interest to inquire whether these people prepared their meals in any special manner, and especially how long they cooked the vegetables and the meat, as well as whether they used soda to hasten the cooking process. The main point brought out by this aspect of the investigation was that they undoubtedly cooked their food longer than the average housewife. We found this to be especially true of meat, which was eaten very frequently in the form of a stew. The vegetables were cooked one or two hours, and the water in which they were cooked was generally discarded. In some cases a small amount of soda was added to soften the vegetables; this practice, however, was the exception. The data of these culinary customs have been summarized in Tables 8 and 9, and comprise the facts elicited from seventy families.

TABLE 8.—DURATION AND MANNER OF COOKING MEATS AND VEGETABLES

| Case No. | Vegetable | | Meat | | Soda Used | | |
|---|---|---|---|---|---|---|---|
| | Boiled (Hours) | Water Discarded | Boiled (Hours) | Stewed (Hours) | For Meat or Vegetable | Amount† | Times a Week |
| 1 | 1 | Yes | 1 | 2 | 0 | 0 | 0 |
| 2 | 1 | No | 2 | 2½ | Veg. | + | 7 |
| 3 | 1 | Yes | 2 | 3 | 0 | 0 | 0 |
| 4 | 1¾ | No | 3 | 3 | 0 | 0 | 0 |
| 5 | 2 | Yes | 2½ | 2½ | 0 | 0 | 0 |
| 6 | 1 | Yes | 2½ | 2 | 0 | 0 | 0 |
| 7 | 1 | Yes | 2 | 1½ | Veg. & meat | ½ teasp. | ½ |
| 8 | ½ | Yes | 1 | 2 | 0 | 0 | 0 |
| 11 | 1¾ | Yes | 1 | 3 | 0 | 0 | 0 |
| 12 | 8½ | No | 3 | 8½ | Veg. & meat | + | 2 |
| 13 | 1 | Yes | * | 2 | 0 | 0 | 0 |
| 14 | 1 | No | 1 | 2 | 0 | 0 | 0 |
| 15 | 2 | Yes | 3½ | 2½ | Meat | ½ teasp. | 2 |
| 16 | 4 | No | 3 | 3 | Meat | + | 1 |
| 17 | 1 | Yes | 3 | 3 | 0 | 0 | 0 |
| 18 | 1 | Yes | 3 | 2 | 0 | 0 | 0 |
| 19 | 2½ | No | 2 | 2 | 0 | 0 | 0 |
| 20 | 2 | No | 2 | 2 | 0 | 0 | 0 |
| 21 | 1 | Yes | 2 | 3 | 0 | 0 | 0 |
| 22 | 1 | Yes | 2 | 3 | 0 | 0 | 0 |
| 23 | 1 | Yes | 2 | 3 | Meat | + | 2 |
| 24 | 2 | No | * | 2 | 0 | 0 | 0 |
| 25 | 1½ | No | 2½ | 3 | Meat | + | ½ |
| 27 | 2 | Yes | 2 | 2 | Meat | + | 0 |
| 28 | 1½ | Yes | 2 | 2 | Veg. & meat | + | ¼ |
| 29 | 1 | Yes | 2 | 3 | 0 | 0 | 0 |
| 30 | 2½ | Yes | 2 | 5 | Meat | ½ teasp. | ½ |
| 31 | 1 | Yes | 2 | 2 | Veg. | + | 0 |
| 32 | 2½ | Yes | 4 | 4 | 0 | 0 | 0 |
| 33 | 1 | Yes | 2 | 2 | 0 | 0 | 0 |
| 34 | 2 | Yes | 2 | 3 | 0 | 0 | 0 |
| 35 | 2 | No | 1½ | 2½ | Veg. & meat | + | 4 |
| 37 | 1 | Yes | 1½ | 3 | 0 | 0 | 0 |
| 38 | 2½ | Yes | 5 | 3 | Veg. & meat | ½ teasp. | 2 |
| 40 | 2 | Yes | 3 | 4 | 0 | 0 | 0 |
| 41 | 2 | No | 2½ | 3 | 0 | 0 | 0 |
| 42 | 1 | Yes | 1½ | 1½ | 0 | 0 | 0 |
| 43 | 3 | No | 3 | 4 | 0 | 0 | 0 |
| 44 | 1½ | Yes | 2½ | 3 | 0 | 0 | 0 |
| 45 | 2 | Yes | 2 | 2 | 0 | 0 | 0 |
| 46 | 5 | No | 7 | 4 | Meat | + | ¼ |
| 47 | 1½ | No | 1½ | 2 | 0 | 0 | 0 |
| 48 | 1 | Yes | 1½ | 4½ | Meat | 0 | 0 |
| 49 | ½ | Yes | 1 | 1½ | 0 | 0 | 0 |
| 50 | 2½ | No | 2½ | 2 | 0 | 0 | 0 |
| 51 | 2 | Yes | 3 | 4 | 0 | 0 | 0 |
| 52 | 2 | Yes | 2½ | 3 | Meat | + | 1 |
| 53 | 2 | Yes | 2 | 4½ | Veg. & meat | + | 1 |
| 54 | ½ | No | 2 | 3 | 0 | 0 | 0 |
| 55 | 2 | Yes | 4 | 4 | 0 | 0 | 0 |
| 56 | 1 | Yes | 1½ | 2½ | 0 | 0 | 0 |
| 57 | 1 | Yes | 2 | 4 | 0 | 0 | 0 |
| 58 | 1 | Yes | 1½ | 3 | 0 | 0 | 0 |
| 60 | 1 | Yes | 2 | 3 | 0 | 0 | 0 |
| 62 | 2 | Yes | 1½ | 3 | 0 | 0 | 0 |
| 63 | 1 | Yes | 2 | 3 | 0 | 0 | 0 |
| 64 | 1 | Yes | 3 | 3 | Veg. & meat | + | 3 |
| 65 | 1½ | No | 2½ | 2½ | Veg. & meat | + | 2 |
| 66 | 2 | Yes | 1 | 2 | Meat | + | ½ |
| 67 | 1½ | No | 1½ | 4 | 0 | 0 | 0 |
| 68 | 1½ | No | 3 | 5 | 0 | 0 | 0 |
| 70 | 1½ | Yes | 2 | 3 | 0 | 0 | 0 |

* Never uses boiled meat.
† In this column, + indicates a pinch of soda.

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[2] The fact that fresh vegetables will prevent the development of scurvy in man and animals, whereas dried vegetables fail to do so, shows that a distinction must be recognized between them.

The negroes of the Columbus Hill district, in the great majority of instances, have emigrated from the West Indies, only a few having come from the southern part of the United States. Most of them have been here a few years, giving the islands of St. Kitts, the Barbadoes and St. Croix as their places of birth. It appeared worth while to inquire into their habits and diet before they emigrated to this country, and to compare these with their mode of life in a great metropolitan city under different climatic conditions. No more striking contrast could have been found. In the West Indies they lived an outdoor life, their diet consisting mainly of vegetables and fruit. They stated that they frequently ate two or three kinds of vegetables at a meal, and partook of them always fresh—never in a dried or canned state. The variety of vegetables was also considerably greater than we have in New York City. In addition to peas and beans, spinach, etc., they mentioned yams, breadfruit, "tanniers," eddoes, watercress and okra as forming frequent articles of food. Many of these vegetables grew in their own gardens, or were brought to the town from the suburbs and sold at what seem to us nominal prices. Just as the dietary was rich in vegetable food, so was it also in fruit, which they consumed once a day or oftener.

It is probable that a dietary as deficient as that of this urban community must affect the body tissues. The question may well be raised whether this would not be true to a greater extent among a people accustomed to have fresh food in abundance. It is difficult to state in chemical terms the exact deficiency in this diet. For calcium and other salts, however, we depend largely on milk, vegetables and fruit, and it is in all these foods that the dietary we have outlined is markedly lacking. It would seem certain that these women, and probably others who are living in the large cities of the North, are receiving an amount of calcium which is close to their minimum requirement.

There is a hypothetic aspect which suggests itself in relation to this subject. As is well known, the negro race is particularly subject to rickets. In fact, almost all the negro children in New York City, whether nursed or artificially fed, seem to have this disorder to a greater or less extent. The nature of rickets and the cause of this racial susceptibility remain illusive and unsolved problems. It is known, however, that the negro in the tropics does not suffer from rickets. We have made direct inquiries of physicians in Jamaica, Cuba, Panama, Trinidad and the Bahamas, and received unanimous reports that this disease has been rarely encountered in their experience.[3] There are many etiologic factors to which the difference in the incidence of rickets in the tropics and in the North may be ascribed. It is a mooted question, one which has occupied pediatric attention for many years, but which cannot well be discussed at this time. We must take into account the contrast in the northern negro's mode of life, as well as the change in the climate. This, however, does not exclude the possibility that the marked difference in the food also plays a part. The fact that this race has lived on a diet largely composed of fruit and vegetables—foods rich in calcium and in undefined substances present in all fresh vegetable products—and the fact that its dietary has suddenly been changed so that meat becomes one of the principal ingredients, to the virtual exclusion of fresh fruits and vegetables, may well alter the metabolism of the mother and her offspring.

16 West Eighty-Sixth Street.

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[3] Dr. J. E. Ker, Kingston, Jamaica, British West Indies, superintending medical officer, wrote: "Rickets, as we know it in infants in large towns, practically does not exist here in Jamaica. Beaded ribs and square heads are of the very rarest occurrence."

Dr. Guiteras, Havana, put our question to Dr. Aballi, a specialist in the diseases of children, who said: "My experience is that colored children in Cuba suffer but little from rickets. Only exceptionally do we meet with a grave form, and the lighter ones are not frequent, with slight epiphyseal enlargements and beading of ribs."

Dr. Guiteras himself wrote as follows: "My impression is the same as Dr. Aballi's. It is interesting to note that in the absence of natural alimentation, much boiled milk is always used."

Dr. W. B. Pierce, Panama, superintendent of the Hospital Santo Tomas, as a result of his experience, having been in the Health Department of the United States government on the Canal Zone and the City of Panama for the past eight years, wrote: "I have yet to see my first case of rickets in the West Indian negro child. My colleagues who have been here much longer tell me that West Indian children down here never have rickets."

Dr. R. Scheult, Colonial Hospital, Trinidad, Port of Spain, expressed the following opinion: "You will be surprised to learn that during my twenty-four years of hospital practice in this colony I have not met a single case of rickets, although hundreds of children are treated in our children's ward every year. This, no doubt, may be attributed to their diet, which consists mainly of vegetables and fruit."

Dr. J. B. Albury, Nassau, Bahamas, wrote: "I do not consider rickets at all a common disease here among negroes."

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# AN EXPERIMENTAL INVESTIGATION OF LIPOVACCINES

## AN ADDITIONAL NOTE, WITH A NOTE ON TRIPLE DYSENTERY LIPOVACCINE *

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At the Washington meeting of the Society of American Bacteriologists, in December, 1917, we presented a preliminary note on lipovaccines. In The Journal, Feb. 16, 1918, we gave the results of vaccination of animals and men with a triple typhoid, a triple dysentery, a pneumococcus, and a meningococcus lipovaccine, and we gave our reasons for thinking the oil suspension would be an advantage in each case.[1] In both of those notes we indicated some of the difficulties that would have to be overcome in order to produce the vaccines on a large scale. We now feel that we have overcome some of these difficulties.

As all of our first series of animals and men are now broken up, and much more comprehensive series are under way on all of the vaccines, we desire to record the final results of our preliminary series of vaccinations, especially with the triple dysentery lipovaccine.

### PREPARATION OF THE LIPOVACCINES

*Preparation of the Bacterial Mass.*—One of the principal points is to get the bacteria from the culture medium into the oil as promptly as possible, and with as little change as possible. It appears that freezing and drying in vacuo accomplish this better than does drying in warm air.

Rogers[2] has shown that when bacteria in milk are frozen and dried in vacuo over sulphuric acid, there is no change in the concentration of substances in the liquid in which the organisms are bathed, and that in lactic bacteria dried that way, from 90 to 95 per cent. of the organisms are alive after drying. He also showed that the number of living organisms was greatly reduced when they were dried by a current of warm air.

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* From the Department of Pathology, Army Medical School.

[1] Whitmore, E. R.; Fennel, E. A., and Petersen, W. F.: An Experimental Investigation of Lipovaccines, The Journal A. M. A., Feb. 16, 1918, p. 427.

[2] Rogers, L. A.: The Preparation of Dried Cultures, Jour. Infect. Dis., 1914, **14**, 100.

In the preparation of the lipovaccines, the bacteria are grown on agar in Kolle flasks, and are removed with a vacuum scraper. This scraper consists of a T shaped or Shepherd's crook shaped piece of metal tubing with a narrow slit or multiple holes in that portion which comes in contact with the agar. This scraper is attached to a vacuum pump through a collecting flask; and when passed over the surface of the agar it removes the bacterial growth very thoroughly. In this way large amounts of bacterial material can be collected from the Kolle flasks without the addition of any fluid, and with a minimum of danger of contamination.

The bacterial growth is at once poured into Petri dishes, frozen, and dried in vacuo. If, for any reason, there is any delay in drying, the bacterial material is kept frozen and at constant temperature, and, being in Petri dishes, the material can be put directly into the desiccators without being allowed to thaw.

We have dried our material in glass desiccators and in the metal desiccator devised by Rogers. Metal desiccators for direct circulation of brine from the refrigerating plant are now being installed, and this will make it possible to freeze and dry the bacteria in large amounts.

When the bacterial mass is frozen and dried in vacuo, it makes a flaky mass that readily crumbles to a fine powder. This dried bacterial material is at once incorporated in the oils.

*Preparation of the Lanolin and Oil.*—We have used lanolin, lecithin and sperm oil for emulsifying the bacteria in the oil before the final dilution with oil.

Any vegetable oil appears to be satisfactory as a vehicle: the oil must not be irritating when injected, and it must not be too rapidly absorbed, but it must be completely absorbed. Olive oil is being used at the present time; though we have used sweet almond oil, castor oil, cottonseed oil, and sesame oil.

Sterilization of the lanolin and oils has received attention. Achard and Foix[3] found that when olive oil was heated high enough to sterilize it in dry air, the oil was changed so that it at times gave abscesses on injection.

We find that these oils, when seeded with *B. subtilis* spores, can be sterilized in the autoclave at 15 pounds for fifteen minutes; and any water they take up will soon settle out. We also find that heating the oil to 90 C. on a water bath for ten hours, as is done by Eimer and Amend, will sterilize.

We have tried sterilization with the halogens. Chlorin sterilizes the oil, but it is difficult to remove the hydrochloric acid which is formed in the process, as the vegetable oils form soaps when an alkali is added. These chlorinated oils also tend to decompose on standing, with the formation of hydrochloric acid.

We find that when powdered potassium iodin is added to olive oil and sweet almond oil, iodin is liberated in sufficient amount to sterilize the oil; and then the iodin is taken up in the oil molecule and no free iodin can be detected. Sweet almond oil is sterilized in about three days; but it requires about ten days to sterilize olive oil. It is necessary to know whether this method of sterilization will affect the antigenic power of the vaccine. Dr. Small is working on this problem.

We are also trying ultraviolet rays in the sterilization of the oil.

For the present we are sterilizing the lanolin and oils in the autoclave at 15 pounds for fifteen minutes, and find this entirely satisfactory.

*Mixing the Bacterial Mass with the Lanolin and Oil.*—For grinding we are using glass stoppered bottles of large diameter, with steel balls such as are used in ball bearings. We do not find that the glass is ground off to any extent; and when we are able to get bottles of large diameter made of pyrex glass, we believe this will be far superior to porcelain jars with pebbles for this work.

The bacterial mass is ground for forty-eight hours; then enough lanolin to make 10 per cent. in the completed vaccine is added, and the mixture is ground for twenty-four hours; then the oil is added, and this mixture is ground for twenty-four hours.

In using lecithin in the preparation of the emulsion, enough lecithin to make 0.5 per cent. in the completed vaccine is thoroughly mixed with a little oil and is then ground with the bacterial material as is the lanolin. Lecithin has the disadvantage of making a foamy emulsion; this settles on standing, but it takes up air bubbles on very slight shaking.

Sperm oil has been tried in making the emulsion, on account of its being of the nature of a liquid wax.

We find that the preliminary grinding kills the bacteria; and tests are now being made to determine whether this grinding to a fine powder makes the bacterial material more rapidly absorbed. Possibly this preliminary grinding should be limited to merely breaking up the bacterial mass so it will mix with the lanolin.

We heat the final oil suspension to 53 C. for one hour on a water bath. Pfeiffer and Besseau[4] found that heating a saline suspended vaccine extracted the antigenic substances from the bacteria very rapidly and very thoroughly. Tests are now under way to determine whether this is the case in an oil suspended vaccine, and whether the heating is of any advantage.

### ADMINISTRATION OF THE VACCINE

In our previous note we gave the method of administering the vaccine. We find a needle, No. 21, B. and S. gage, with a cannula three-fourths inch long entirely satisfactory.

In giving the lipovaccine, the possibility of fat embolism from accidentally getting some of the vaccine into a vein has been considered. Le Moignic and Pinoy[5] noted tachycardia in the mice in their early series; but they considered this to be due to the 1 per cent. of camphor they used in the vaccine. They did not notice any reaction of this kind in later injections with vaccines which contained no camphor.

Graham[6] says that fat embolism may be a frequent and often serious complication of such conditions as fractures, but that it seldom causes death. In experimental work, Graham found that a single dose of 0.8 c.c. of oil injected into the ear vein of rabbits gave only a slight passing dyspnea, or no evidence of discomfort.

Thus, it appears that the danger of fat embolism in giving the lipovaccines is slight; and this agrees with experience in the injection of mercurial oil (gray oil) and other oil preparations. However, our warning is very definite to make the injection subcutaneously, and carefully to avoid getting the vaccine into a vein. After the needle has been introduced, the plunger of the syringe should be drawn out slightly, to be certain that the needle is not in a vein.

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[3] Achard and Foix: Compt. rend. Soc. de Biol., 1916, **79**, 209.

[4] Pfeiffer, R., and Besseau, G.: Ueber die angebliche Trennung der toxischen und der immunisierenden Bestandteile des Typhusbacillus, Centralbl. f. Bakteriol., Part I, Orig., 1912, **64**, 172.

[5] Le Moignic and Pinoy: Compt. rend. Soc. de biol., 1916, **79**, 201.

[6] Graham, G. S.: Fat Embolism: Report of a Case and of Experiments on Animals, Jour. Med. Research, 1907, **16**, 459.

### THE DYSENTERY LIPOVACCINE

In our previous publications we have indicated as our reason for considering that a dysentery lipovaccine would have a special advantage over a dysentery saline vaccine, that the slow absorption would reduce the reaction; and we gave some results of vaccination of animals and men with such a vaccine. As the series is now broken up, and a much more comprehensive series is under way, we wish to record the final results of the first series.

The vaccine contained 2,500 million each of Shiga, Flexner and "Y" types in 1 c.c., the strains that Gibson[7] used in his vaccine being employed.

Three rabbits were injected with the vaccine, and showed the agglutinations given in Table 1.

TABLE 1.—AGGLUTINATIONS IN THE RABBIT

| | | Agglutination | | |
|---|---|---|---|---|
| Rabbit | Dose | Shiga | Flexner | "Y" |
| 16* | 1 c.c. | 1:100 | 1:800 | 1:400 |
| 17 | 1 c.c. | 1:3,200 | 1:1,600 | 1:2,400 |
| 18 | 2 c.c. | 1:100 | 1:400 | 1:1,600 |

*Rabbit 16 died two months after vaccination.

Two men were injected with the vaccine, and showed the agglutinations given in Table 2.

TABLE 2.—AGGLUTINATIONS IN MAN

| | | Agglutination* | | |
|---|---|---|---|---|
| | Dose | Shiga | Flexner | "Y" |
| R.† | 0.25 c.c. | 1:200 | 1:200 | 1:37 |
| St. J. | 1 c.c. | | None | |

* The agglutinations of these men are reversed in the preliminary note.

† R passed from further observation.

Two and one-half months after vaccination, St. J.'s serum in dilution of 1 : 20 gave immediate cloudiness, and precipitation after two hours, with an extract of the Shiga type. His serum gave only a slight opalescence with extracts of the Flexner and "Y" types. Control serums remained clear.

Two and one-half months after vaccination, the serum of St. J. and of Rabbits 17 and 18 showed an opsonic index of from 0.26 to 0.82 for Shiga and Flexner, and an opsonic index of from 1.35 to 1.81 for "Y." In studying the smears made for the opsonic index, it was noted that there was marked bacteriolysis in all smears containing serum from the vaccinated animals and man. This may explain the low opsonic indexes; and this point is being studied in the new series.

Two and one-half months after vaccination, the serum of Rabbit 17 gave partial fixation of complement with all three types of the dysentery bacillus; the serum of Rabbit 18 and of St. J. showed no fixation of complement.

Two and one-half months after vaccination, Rabbit 18 received a dose of 2,700 million *B. dysenteriae* Shiga L intraperitoneally. The rabbit died during the night, apparently in about the same length of time as did the controls. The toxicity of this culture is such that 1,000 million intraperitoneally kill a rabbit in thirty-six hours.

For the new series of animals and men we have used a vaccine containing 3,000 million Shiga, 3,200 million "Y," and 2,200 million Flexner per cubic centimeter, using the strains that Gibson[7] used in his vaccine. Guinea-pigs stand up to 6 c.c. of this vaccine without ill effects; and we have vaccinated a series of men with 1 c.c. of this vaccine with no more local or general reaction than we get from a single dose of the regular triple typhoid vaccine in saline.

### CONCLUSIONS

We find that the lipovaccines can be made on a large scale by growing the bacteria in Kolle flasks; taking off the growth with a vacuum scraper; freezing and drying in vacuo, and emulsifying in lanolin and oil by grinding in a ball mill, using glass bottles and steel balls.

The oils can be sterilized by steam at 15 pounds for fifteen minutes; by heating to 90 C. for ten hours on a water bath, or by mixing with potassium iodid.

We find that we can give men a dose of 3,000 million Shiga, 3,200 million "Y," and 2,200 million Flexner type of the dysentery bacillus in oil without marked local or general reaction. We find production of agglutinins, precipitins and bacteriolysins in the blood of vaccinated animals and men, and there is some evidence of complement fixation.

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[7] Gibson, H. G.: A New Method of Preparation of a Vaccine against Bacillary Dysentery, Jour. Royal Army Med. Corps, 1917, 28, 615.

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# THE INFLUENCE OF FORCED DIURESIS IN EXPERIMENTAL POISONING WITH DIPHTHERIA TOXIN *

W. D. SANSUM, M.D.

CHICAGO

This records an effort to apply the principle of forced diuresis or histolavage to the treatment of experimental poisoning with diphtheria toxin. As certain of the bacterial poisons are known to be capable of excretion in considerable amounts by way of the urine, a great acceleration of diuresis might appear to be a more rational procedure in the case of certain infections than in the case of poisoning with heavy metals. Diphtheria toxin was selected because it is sufficiently stable to permit of standardization. The work is reported for the sake of completeness along with that on glaucoma, mercuric chlorid poisoning, etc., since it serves to amplify our knowledge of what may or may not be accomplished by salt and sugar diuresis in general.[1]

### TECHNIC

The same general plan was followed as in the mercuric chlorid work.[2] The diphtheria toxin was a stable product 2 years old. The fatal dose was determined intravenously, but not with the same degree of precision as in the case of the mercuric chlorid, owing to the varying resistances found in the different animals. We found that 0.021 c.c. of the toxin per kilogram of body weight killed four out of five dogs in from three and one half to six days. One part of the toxin in 100 parts of 0.8 per cent. sodium chlorid solution was

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* From the Otho S. A. Sprague Memorial Institute, Laboratory of Clinical Research, Rush Medical College.

[1] A fifth detailed report covering phases of work outlined in a preliminary communication (Woodyatt, R. T.; Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, The Journal A. M. A., Dec. 11, 1915, p. 2067).

[2] Sansum, W. D.: The Principles of Treatment in Mercuric Chlorid Poisoning, The Journal A. M. A., March 23, 1918, p. 824.

administered intravenously in each case as a single dose. When diuretic treatment was to follow, the toxin was administered with the first few cubic centimeters of the diuretic solution. Three diuretic solutions were used: (1) an alkaline hypertonic salt solution (sodium chlorid, 2.2 per cent., and sodium carbonate, 0.371 per cent.; (2) an 18 per cent. glucose solution, and (3) an 18 per cent. glucose solution having the salt content of Ringer's solution (sodium chlorid, 0.7 per cent., potassium chlorid, 0.03 per cent. and calcium chlorid, 0.025 per cent.)

The diuretic solutions were administered as in the experiments described in previous publications.[1] In the first series of four experiments we gave more than the predetermined fatal dose of diphtheria toxin in the hope of obtaining a decisive therapeutic result. These dogs received 0.030 c.c. of the diphtheria toxin per kilogram of body weight instead of the 0.021 c.c. The two controls (Dogs 6 and 7) lived three and five days, respectively. The first treated dog (Dog 8), weighing 10.80 kg., received 30 c.c. of the alkaline salt solution per kilogram hour for three hours, a total of 1,083 c.c., and passed during that time 963 c.c. of urine. There was also a marked catharsis, which accounts for the urinary output being less than the fluid intake. This dog lived three days. The second treated animal (Dog 9), weighing 5.11 kg., received 30 c.c. of the same alkaline salt solution per kilogram hour for four hours, and also sufficient water from the second machine to prevent dehydration. During the four hours this dog received 1,543 c.c. of fluid, 628 c.c. of the alkaline salt solution and 915 c.c. of water, and passed 827 c.c. of urine and numerous watery stools. This dog lived five days.

RESULTS OF EXPERIMENTS

| No. | Wt. of Dog, Kg. | Total Dose of Diphtheria Toxin, C.c. per Kg. | Intravenous Therapy | | | | | Urine, C.c. | Duration of Life, Days |
|---|---|---|---|---|---|---|---|---|---|
| | | | Diuretic Solution | C.c. per Kg. Hour | Duration of Injection, Hrs. | Total Amt. Injected | Fluid Used to Preserve Water Balance | | |
| 1 | 11.25 | 0.021 | .............. | .... | ..... | ..... | ...... | ..... | 3½ |
| 2 | 8.64 | 0.021 | .............. | .... | ..... | ..... | ...... | ..... | 3½ |
| 3 | 12.28 | 0.021 | .............. | .... | ..... | ..... | ...... | ..... | 6 |
| 4 | 15.11 | 0.021 | .............. | .... | ..... | ..... | ...... | ..... | 6 |
| 5 | 14.28 | 0.021 | .............. | .... | ..... | ..... | ...... | ..... | 14 |
| 6 | 11.82 | 0.030 | .............. | .... | ..... | ..... | ...... | ..... | 4 |
| 7 | 10.91 | 0.030 | .............. | .... | ..... | ..... | ...... | ..... | 5 |
| 8* | 10.80 | 0.030 | Alkaline salt solution | 30 | 3 | 1,083 | 0 | 963 | 3 |
| 9* | 5.11 | 0.030 | Alkaline salt solution | 30 | 4 | 628 | 915 c.c. water | 827 | 5 |
| 10 | 20.00 | 0.021 | Glucose, 18% | 30 | 3 | 1,810 | 300 c.c. water | 2,717 | 2 |
| 11 | 16.25 | 0.021 | Glucose, 18%, in Ringer's solution | 30 | 3 | 1,470 | 478 c.c. water | 1,355 | Lived |
| 12 | 15.00 | 0.021 | Glucose, 18%, in Ringer's solution | 30 | 3 | 1,358 | 86 c.c. Ringer's | 1,056 | 4 |
| 13 | 17.84 | 0.021 | Glucose, 18%, in Ringer's solution | 30 | 3 | 1,628 | 143 c.c. Ringer's | 1,410 | 4 |
| 14 | 24.55 | 0.021 | Glucose, 18%, in Ringer's solution | 30 | 2 | 1,482 | 475 c.c. Ringer's | 1,670 | 4 |
| 15 | 11.25 | 0.021 | Glucose, 18%, in Ringer's solution | 30 | 2 | 646 | 0 | 695 | 4 |
| 16 | 10.57 | 0.021 | Glucose, 18%, in Ringer's solution | 30 | 3 | 963 | 0 | 810 | 5 |

* Marked catharsis.

We poisoned the remaining seven dogs in this series with the marginal fatal dose of diphtheria toxin, that is, 0.021 c.c. per kilogram. Dog 10, weighing 20 kg., received the 0.021 c.c. per kilogram with the first few cubic centimeters of an 18 per cent. glucose solution, which was given at the rate of 30 c.c. per kilogram per hour for three hours. During the three hours the dog received 1,810 c.c. of the glucose solution and 300 c.c. of water, and passed 2,717 c.c. of urine. This was the greatest diuresis of any in the series. The dog lived only two days, or less time than any other animal in the series. The treatment appeared to have done harm rather than good.

This phenomenon of shortening rather than prolonging life we had noted before in the mercuric chlorid series, and in searching for a possible cause considered the idea that it might be due to the wholesale washing out of urea, chlorids and other essential salts of the body. With the next group of six animals, we poisoned as before, and used an 18 per cent. glucose solution having the salt content of Ringer's solution, preserving the water balance by the addition of extra Ringer's solution when needed. Dog 11 made a complete recovery, but the next five animals (Dogs 12, 13, 14, 15 and 16) died in four, four, four, four and five days, respectively. We were inclined to believe that the dog which lived had an unusually high resistance for diphtheria toxin, since something similar had been observed in Control Dog 5, which lived fourteen days.

In these experiments, water was passed through dogs at the rate of 30 c.c. per kilogram of body weight per hour for three or four hours. The same procedure, if carried out in the case of a man weighing 70 kg., would imply the intravenous injection of 2,100 c.c. of fluid per hour for a total of 6,300, or 8,400 c.c. in three or four hours, nearly all of this passing promptly out by way of the kidneys and bowel.

## CONCLUSIONS

The intravenous injection of an alkaline hypertonic salt solution, an 18 per cent. glucose solution or an 18 per cent. solution of glucose in Ringer's solution failed to prolong the life of dogs poisoned with diphtheria toxin even when treatment was begun at the most favorable time, that is, simultaneously with the administration of the poison. These negative results discourage attempts to apply an identical procedure in clinical cases of diphtheria.

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**Mammary Cancer in Infants.**—Dr. D. Z. Blanc reported at a recent meeting of the Spanish Gynecologic Society that in the last year he had encountered two cases of cancer of the mamma in young infants. One was a male child. The mamma had begun to enlarge soon after birth and at the age of 6 months the epithelioma had invaded the entire mamma and the glands in the axilla, but there was no ulceration and the growth was not adherent to the pectoralis muscle. Blanc excised the mamma, the pectoralis and the contents of the axilla. Three months later the child died from recurring hemoptysis. In the other case the cancer developed in the same way soon after birth and in a few months spread to the axilla and into the hypochondrium. It was inoperable when he first saw the child. Blanc stated that hemorrhage from the lungs, probably of cancerous origin, is not an uncommon complication after removal of mammary cancers in adults. Injecting a stain under pressure into the lymphatics of the mamma to ascertain the area of probable diffusion, he found the entire pleura colored by the stain, both the parietal and the diaphragmatic pleura. His communication is reproduced in the *Revista de Medicina y Cirugia Practicas*, 1917, **41**, 216, with the hypothesis he presents to explain these cancers in the new-born.

# POINTS IN TECHNIC OF SEPARATING ANAEROBES *

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It is the almost universal experience of careful workers with anaerobic bacteria that difficulties are numerous in the sure isolation of a single strain from a mixed culture. The following seem to be the main sources of difficulty, with means of correction:

(*a*) The direct plating of exudate presents great difficulties on account of the cohesion of the material. A preliminary anaerobic culture in bouillon results in a fairly even suspension, some separation, and a medium that can easily be diluted. Plating from a culture in chopped meat medium or milk, or from surface cultures makes an even suspension more difficult.

(*b*) There is frequent tendency of organisms, especially when encapsulated, to stick together to a certain extent. Two different bacilli which are still adherent after the plating is completed may grow and form what appears to be a single colony. If the bacilli are very similar morphologically, deception is easy.

The ordinary method of making successive dilutions in agar is not reliable as a method of separation. The thick consistency of the medium prevents the bacteria from being greatly affected by shaking or stirring. Attempts at thorough mixing aerate the agar and make it more difficult to obtain anaerobiosis.

Grinding the culture between glass slides destroys many organisms, and when dilutions are made the bacteria may again adhere. It seems better to make the separation in the dilution from which the planting is to be done.

Shaking the culture, or a dilution in salt solution is more effective, but is not alone sufficient for many cases. Shaking with glass beads is better. A method, however, which has been found to be most effective consists in shaking the culture in salt solution in a corked test tube containing about ½ inch of coarse sand. Sea-sand is washed by being repeatedly placed in a basin, stirred, and decanted as rapidly as possible so that only the coarse grains settling very rapidly are left. Organisms, growing in bouillon in auto-agglutination, with clumps absolutely unaffected by ordinary shaking, even when long continued, could thus be broken up.

A number of experiments were tried with a strongly auto-agglutinable bacillus to see the effects of the addition of various substances to the salt solution on the adhesiveness of the bacilli. Alcohol, soap, sodium carbonate, hydrochloric acid, acetic acid and tannic acid were tried in several dilutions. The acids appeared to hinder separation; tannic acid seemed actually to cause adhesions. Dilute soap or sodium carbonate had a slight but definite tendency to help the separation.

For ordinary purposes, physiologic sodium chlorid solution seems sufficient.

After a moderately slight dilution of the bouillon culture is thoroughly shaken in a sand tube, a further dilution is made into a second sand tube, which is thoroughly shaken, and so on.

It was found that the aeration produced by shaking had no effect if the plating was done within a few minutes afterward.

(*c*) The difficulty of fishing deep colonies makes surface sowing advisable.

(*d*) Moisture on the plate results in colonies running together. This is especially bothersome when the plates are made anaerobic by the hydrogen and palladium sponge method. For this reason it seems better to either (1) make cultures on the surface of slants in test tubes, the cotton preventing the entrance of the water from the hydrogen and oxygen; to (2) put some water-absorbing substance in the anaerobic jar; or to (3) use the pyro-soda method. It is, of course, important to have the medium of the right degree of moisture to start with.

(*e*) One of the most interesting sources of difficulty is due to the tendency of numerous anaerobic organisms to produce spores. If a spore lies dormant on the medium so that it is included in a colony that grows over it, it may be fished when the colony is picked off, and grow later in the subculture. Or it may start to grow later than the vegetative bacilli, and the colony formed by it be so small at the time of fishing that even if it is included in a larger one, it will not be noticed.

The remedy for this difficulty is:

1. To have a most favorable medium for the bacteria, so that spores will germinate to as high a percentage as possible and as quickly as possible.
2. To have good anaerobiosis to favor growth of spores.
3. To allow time for the spores to produce noticeable colonies.
4. To pick off the surface of colonies without touching the agar. This is easier, the more luxuriant the growth.

It follows that the best portion to touch is where the colony is definitely heaped up or fairly thick, but at some distance from the center, in order to get a recent growth. A point half way from the center to the edge usually satisfies these conditions sufficiently well.

The matter of a favorable medium is important. Ordinary agar or sugar agar, or even agar made with tryptic broth is not as good as egg mediums. Extremely good results are obtained by the egg medium of Stitt (from 10 to 15 c.c. of bouillon to each egg, beaten, tubed and inspissated), with the following modifications. The bouillon used is made by adding to beef infusion broth an equal volume of either meat or casein digested by trypsin or pancreatic extract and filtered.[1] One per cent. glucose is added, and the reaction made slightly alkaline to litmus. This medium is quickly and easily made, and the materials can always be obtained. Slants are made in fairly wide test tubes. To get a perfectly smooth surface, the egg-bouillon mixture is allowed to stand in the tubing funnel for at least one-half hour after beating, and after tubing brought up very slowly to 85 or 90 C. in the inspissator, thus getitng rid of small bubbles.

Good anaerobiosis can be obtained by the pyro-soda or the palladium sponge method. The most practical forms of these methods seem to be: (*a*) the Wright method for single test tubes[2]; (*b*) the Bullock jar for several tubes or plates at one time, and (*c*) McIntosh and Fildes palladium-asbestos tins and test tubes.[3]

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* From U. S. Army Base Hospital No. 5.

[1] Cole, S. W.: Lancet, London, 1916, **2**, 9.

[2] Mallory and Wright: Pathological Technique, Ed. 6, p. 128.

[3] McIntosh, J., and Fildes, P.: Lancet, London, 1916, **1**, 768; Compt. rend Soc. de Biol., 1916, **29**, 293.

The pyro-soda method for plates, as applied by several devices, is less convenient and takes more time. In any case the removal of air from the medium by heating to from 90 to 100 C. just before planting is advisable.

(*f*) The tendency for anaerobes to grow much more easily in symbiosis with aerobic organisms when anaerobiosis is not good makes it necessary to be careful in anaerobic methods.

(*g*) The motility of many anaerobes is an additional reason for care in reducing excessive moisture in the surface of the medium.

The main steps in the method are as follows:

1. An anaerobic culture is made in 1 per cent. glucose bouillon.
2. Successive dilutions are made in physiologic sodium chlorid solution and are shaken thoroughly in corked test tubes containing coarse sand.
3. From each dilution, successive streaks are made on the three or four slants of the modified egg medium of Stitt, made with tryptic broth, with 1 per cent. glucose.
4. They are grown two or three days under good anaerobiosis.
5. Fishing is done from the upper surface of colonies without touching the agar.

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# CASES SHOWING REMOTE RESULTS OF TESTICLE IMPLANTATION

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As I exhibited the first of the patients to a number of the members of the American Urological Association, and both patients at the meetings of the Chicago Urological Association in October and November last, there will be no difficulty in verifying the findings given below. As the cases already have been reported in detail, I will give at this time only a brief outline:

## REPORT OF CASES

Case 1.—A man, aged 30, had completely lost both testicles from infection following trauma. There were moderately marked feminine secondary sex characteristics; excessive and feminine distribution of fat was especially noticeable. There was complete impotence, with decided mental and physical inefficiency. Double scrotal implantation of entire testicles was performed, Aug. 1, 1915. The material was taken from a boy of 14, killed by a crushing injury. The testes were removed six hours after death, and kept on ice for thirty-three hours. Local progress of the case was uneventful. The patient returned home at the end of two weeks.

Three weeks later, he engaged successfully in coitus. His mental and physical efficiency rapidly improved and soon became normal. There was a gradual diminution of the flabby, feminine adipose tissue, with an increased masculinity of type. The condition at present, two years and a half after operation, is very satisfactory. The patient is athletic in appearance and indulges freely in athletic sports. He has lost 40 pounds of excess fat. His mental and physical efficiency and sexual power are normal.

The implanted testes still are in situ. The organs are somewhat smaller than those of the average boy of 14, and quite firm. At the time of operation, a small nodule about the size of a grain of wheat was found at the extremity of the cord on each side. These nodules have grown considerably, and are now about as large as good-sized peas. From present indications, I feel justified in believing that the results of the implantation of testicles in this case will be permanent.

Case 2.—A boy, at the age of 13, had suffered severely from a vaccination, probably with a mixed infection. Shortly after the vaccination, which, he stated, made him very ill, he developed orchitis in one testicle, probably from an infected embolus. Following the orchitis the testicle atrophied. Several weeks later, the opposite testicle became similarly involved and speedily atrophied. Coincidentally, the penis became distinctly smaller. Some months later, the patient was examined by several surgeons, who diagnosed retained testis on the left side and suggested operation. The patient subsequently, when 17 years of age, was referred to me. He was tall and healthy looking, with distinctly feminine secondary sexual characteristics. The pelvis, mons veneris and mammary glands were suggestive of a girl just entering on puberty. No beard was in evidence, and the complexion was distinctly of the "milk and blood" feminine type. There was a bare suggestion of hair on the pubis. The left testicle was represented by a small, hardly perceptible nodule about as large as a small pea just below the external inguinal ring. The right testis was soft, outlined with difficulty, and about the size and shape of a small lima bean. The penis was no larger than that of a well developed child of 5 or 6 years of age. The voice was that of the usual boy of 17. Psychically, the boy fortunately was a normal, manly fellow, although there were no signs of virility.

After about six months' treatment with faradism with some slight improvement, I suggested an implantation. Other advice was sought, and several surgeons—one supposedly an authority—suggested operation for retained testis, despite the feminine sexual characteristics, and local conditions that plainly showed the absurdity of such an operation. The patient passed from my observation and did not return until two years later, when I found that an operation had been performed on the left side, with the inevitable result that the remnant of testicle on that side had completely disappeared.

At the second examination, the condition in general was the same as it had been two years before, save that the secondary feminine sexual characteristics were more pronounced. There still had been no manifestations of virility. The pelvis was distinctly feminine, and the mons veneris was covered with a well pronounced cushion of fat and very sparsely supplied with small hairs, the arrangement of which was suggestive of that of a young girl approaching puberty. The beard still was lacking. Implantation of the testes again was suggested and consented to.

The operation, scrotal implantation, was performed, Oct. 27, 1916. The material used was taken from a healthy boy, aged 15, twenty-four hours after death from carbon monoxid poisoning. The glands were refrigerated thirty-two hours. The epididymides were not removed, and the testes were not decorticated. There was very little reaction and practically no elevation of temperature following the operation, but the patient was kept in bed for ten days.

Sixteen months after the implantation, the implanted testes still are well defined, the right gland being much larger than the left, and both being as large as those of the average lad of from 12 to 14. The consistency of both glands is softer and more nearly approximates the normal than have any other thus far implanted. The patient has gained weight and strength and is virile, as demonstrated by moderately frequent erections and the fact that he has cohabited thrice in succession on numerous occasions, with orgasm and emission. Penile development has greatly increased, and the pubic and scrotal hair also has increased and assumed a more masculine type. The lines of the patient's body have changed appreciably and become more masculine in conformation, the cushion of fat on the mons veneris, especially, being reduced in size. The patient's own atrophied right testicle has increased in size and firmness, and the epididymis—which could not be discerned at the time of the implantation—now can be plainly outlined. The voice is distinctly more masculine; the beard is heavier, and a growth of hair has appeared on the forearms. As in Case 1, I believe that the results in this case are likely to be permanent. It must be remembered that these two cases comprise four distinct and separate successful testicle implantations.

### COMMENT

I not only feel that my published impressions of the value of the sex gland implantation — notably in the matter of increasing physical efficiency, and especially physiosexual efficiency — have been confirmed by further experience, but I also am convinced that, when technic and material are right and the recipient is properly selected, continuity of hormone production by the implanted gland for at least a prolonged period is certain. That permanently beneficial physiologic and therapeutic results are equally certain seems probable. Thus far I have observed no case in which the implanted tissue has completely or even practically disappeared, prior to from twelve to eighteen months. In brief, I am convinced that my method of sex gland implantation long since has been taken from the purely experimental field, and that it now stands on firm ground as a valuable therapeutic resource.

25 East Washington Street.

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# TOXICITY OF THE AMERICAN-MADE ARSPHENAMIN (SALVARSAN)

## REPORT OF CASES

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At the outbreak of the world war, the original German-made salvarsan practically ceased being marketed in America as well as in France and England. The demand for the preparation had already assumed massive proportions. The natural result of this unsupplied demand was the manufacture of similar, if not identical, products by various concerns. Diarsenol, arsenobenzol, arsenobenzol "Billon" and other preparations were soon marketed as its substitute. Recently a preparation has appeared under the trade name of "Salvarsan," (arsphenamin) ostensibly manufactured in this country under the direction of the Farbwerke-Hoechst Company and by the process employed in the manufacture of the old German-made salvarsan.

Taking advantage of the large syphilitic clinic at the Marquette University School of Medicine, I have been attempting to arrive at some conclusions as to the relative therapeutic value and toxicity of these different preparations. A paper outlining this work is in the writing.

Recently the dispensary has been able to obtain some of the new arsphenamin now being made in New York by representatives of the Farbwerke-Hoechst Company of Germany. Having this new shipment at hand, I decided to give it a trial on five patients who had reported that day for an arsphenamin treatment. Three ampules, each containing 0.6 gm. of arsphenamin, were inspected and found not to be cracked. The contents of each was of the characteristic pale yellow color. The total of these ampules was dissolved in 225 c.c. of sterile water which had been distilled less than two hours before. After the arsphenamin was entirely dissolved, the solution was alkalized by the addition of a sufficient quantity of 15 per cent. sodium hydroxid to form and redissolve the precipitate. It might be said that this technic, together with that of the injection of the solution, was identical with that used in the administration of some 200 doses of salvarsan given in the past six months.

### REPORT OF CASES

Case 1.—A young woman, with a recently suppressed secondary syphilis, had received five salvarsan treatments at intervals of two and three weeks without notable reactions. She was given 50 c.c. of the prepared solution (0.4 gm. of salvarsan) in one of the arm veins. As she was leaving the building she became cyanotic and fainted. She soon regained consciousness and began vomiting severely. When I saw her about fifteen minutes later she was very pale, had a fast, thready pulse, was still vomiting and was in a violent chill in spite of blankets. After an hour's rest she was sent home in an ambulance. She subsequently reported that she continued nauseated and chilled for about twelve hours.

Case 2.—A young man, suffering from an active hereditary syphilis, had received one injection of salvarsan the week before. No reaction followed. He was given 50 c.c. of the prepared solution (0.4 gm. of salvarsan). He walked to an adjoining room and was forced to sit down because of a sudden dizziness. He became cyanotic, was nauseated, and hungered for air. His pulse rose above a hundred and was of little volume. After resting an hour, he was allowed to return home. He subsequently reported that he had a severe headache, was nauseated, and remained very chilly for four hours despite going to bed.

Case 3.—A small colored boy, with an active hereditary syphilis, had received one salvarsan treatment the week before without reaction. He was given 25 c.c. of the solution (0.2 gm. of salvarsan) and left the dispensary. His guardian subsequently reported that he appeared to have suffered no reaction.

As I was about to give the fourth injection, I was informed of the condition of Patients 1 and 2. Becoming alarmed, I tested a part of the remaining solution with dilute hydrochloric acid and found that the precipitate reformed on acidulation. Being satisfied that the solution was properly alkalized, I diluted it with freshly distilled and sterilized water so that 50 c.c. contained a fraction less than 0.3 gm. of salvarsan.

Case 4.—A middle aged man, suffering a late syphiloderm, had received an injection of salvarsan the week before without reaction. He was given 50 c.c. of the remaining solution (0.3 gm. of salvarsan). Arising from the table, he complained of dizziness and faintness; but after resting a half hour he decided to return home. He subsequently stated that he suffered only a slight headache for the following twelve hours.

Case 5.—A young man in the late primary stage of syphilis had received no previous treatment. The needle was introduced into the vein, and the solution allowed to run. After 30 c.c. (0.18 gm. salvarsan) had been injected, he began coughing, became cyanotic, and complained of air hunger. The injection was stopped. The pulse became rapid and thin. In spite of blankets he continued in a violent chill for thirty minutes. After an hour his color returned and he was allowed to go home. He subsequently reported that he remained chilly, nauseated and with a bad headache for the following four hours. This patient had had a preliminary cathartic.

### COMMENT

Having been convinced that these five cases alone were sufficient to give a very definite idea of the toxicity of the new American-made salvarsan (arsphenamin), I have abandoned its use. Realizing the wide reputation previously enjoyed by the old German-made product and the stimulus which that reputation is certain to give to the sale of the new American-made salvarsan, I have been constrained to make an early report of these cases, hoping to save others from my uncomfortable experience.

# END-RESULTS OF FRIEDMANN'S VACCINE

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WALLUM LAKE, R. I.

Friedmann's attempt to cure tuberculosis by inoculation of patients with large doses of living acid-fast bacilli must ever remain of interest to medical men. The temporary results from the vaccine in 120 of our patients treated in 1913 appeared in an earlier report.[1] Observers may honestly differ as to whether a remedy has been beneficial to living patients, but the fact of death and the value of the mortality rate in determining results cannot be successfully disputed. In the accompanying tables the Friedmann cure is subjected to the acid tests of time and the mortality rate.

TABLE 1.—RESULTS IN ONE HUNDRED AND TWENTY CASES TREATED WITH FRIEDMANN'S VACCINE IN 1913

| On Admission | Well | Living and Working | Living | Dead | Unknown | Totals | Per Cent. Living, Jan. 1, '17 |
|---|---|---|---|---|---|---|---|
| Tubercle bacilli in sputum: | | | | | | | |
| Incipient ...... | 0 | 0 | 0 | 0 | 0 | 0 | 00.0 |
| Mod. Adv. I .. | 4 | 0 | 0 | 9 | 0 | 13 | 30.8 |
| Mod. Adv. II.. | 2 | 5 | 1 | 21 | 1 | 30 | 27.6 |
| Mod. Adv. III. | 1 | 0 | 7 | 19 | 0 | 27 | 29.6 |
| Total Mod. Adv. | (7) | (5) | (8) | (49) | (1) | (70) | 28.98 |
| Far Adv. II .. | 0 | 0 | 0 | 3 | 0 | 3 | |
| Far Adv. III .. | 0 | 0 | 1 | 6 | 0 | 7 | 10.00 |
| Totals ...... | 7 | 5 | 9 | 58 | 1 | 80 | 26.58 |
| Tubercle bacilli absent from sputum: | | | | | | | |
| Incipient ..... | 0 | 1 | 1 | 0 | 0 | 2 | 100.00 |
| Mod. Adv. I .. | 9 | 6 | 5 | 3 | 0 | 23 | 86.9 |
| Mod. Adv. II . | 5 | 5 | 0 | 1 | 1 | 12 | 90.9 |
| Mod. Adv. III | 1 | 1 | 1 | 0 | 0 | 3 | 100.00 |
| Total Mod. Adv. | (15) | (12) | (6) | (4) | (1) | (38) | 89.2 |
| Far Adv. ..... | 0 | 0 | 0 | 0 | 0 | 0 | |
| Totals ..... | 15 | 13 | 7 | 4 | 1 | 40 | 89.7 |
| Grand totals .. | 22 | 18 | 16 | 62 | 2 | 120 | 47.46 |

For purposes of comparison with Table 1, Table 2 has been prepared, giving in similar form the results of routine sanatorium treatment in all cases in which the patients were discharged during 1911.

TABLE 2.—RESULTS OF SANATORIUM TREATMENT OF TWO HUNDRED AND EIGHTY-SEVEN PATIENTS DISCHARGED DURING THE YEAR 1911

| On Admission | Well | Living and Working | Living | Dead | Unknown | Totals | Per Cent. Known Living Jan. 1, '16 |
|---|---|---|---|---|---|---|---|
| Tubercle bacilli in sputum: | | | | | | | |
| Incipient ..... | 3 | 0 | 0 | 0 | .. | 3 | 100.00 |
| Mod. Adv. I.. | 4 | 3 | 2 | 4 | .. | 13 | 69.23 |
| Mod. Adv. II. | 11 | 8 | 10 | 42 | .. | 71 | 40.84 |
| Mod. Adv. III | 7 | 6 | 8 | 86 | .. | 107 | 19.62 |
| Total Mod. Adv. | (22) | (17) | (20) | (132) | .. | (191) | 30.88 |
| Far Adv. ..... | 0 | 0 | 0 | 17 | .. | 17 | 0 |
| Totals ...... | 25 | 17 | 20 | 149 | .. | 211 | 29.38 |
| Tubercle bacilli absent from sputum: | | | | | | | |
| Incipient ..... | 10 | 3 | 0 | 0 | 1 | 14 | 100.00 |
| Mod. Adv. I .. | 20 | 7 | 6 | 2 | .. | 35 | 94.28 |
| Mod. Adv. II.. | 12 | 4 | 5 | 3 | 1 | 25 | 87.50 |
| Mod. Adv. III. | 0 | 0 | 0 | 2 | .. | 2 | 0 |
| Total Mod. Adv. | (32) | (11) | (11) | (7) | (1) | (62) | 88.51 |
| Far Adv. ..... | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| Totals ...... | 42 | 14 | 11 | 7 | 2 | 76 | 90.54 |
| Grand Totals.. | 67 | 31 | 31 | 156 | 2 | 287 | 45.26 |

From these tables it appears that the sanatorium cases in the bacillary group had 29.38 per cent. survivors against 26.58 per cent. Friedmann survivors, and in the nonbacillary group the sanatorium had 90.54 per cent. survivors against 89.7 per cent. Friedmann survivors. If patients discharged during 1912 are examined, we find three and one-half years afterward that both bacillary and nonbacillary groups taken together had 48.24 per cent. survivors against Friedmann's 48.33 per cent. survivors at the end of the same period. Another group of twenty-three ex-patients reported to us that they had received the Friedmann treatment during 1913, after leaving the sanatorium. Only seven, or 40.4 per cent. of the patients, were living, Jan. 1, 1917. The duration of life after taking the vaccine of the sixty-two patients reported dead in Table 1 is shown in Table 3.

TABLE 3.—DURATION OF LIFE AFTER TAKING THE VACCINE OF THE SIXTY-TWO PATIENTS REPORTED DEAD IN TABLE 1

| | |
|---|---|
| Under 3 months ............................. | 1 |
| From 3 to 6 months ......................... | 3 |
| From 6 to 12 months ........................ | 6 |
| From 1 to 2 years .......................... | 26 |
| From 2 to 3 years .......................... | 19 |
| Over 3 years ............................... | 7 |
| Total ...................................... | 62 |

TABLE 4.—MORTALITY ACCORDING TO DOSES

| No. Doses | Living No. | Living Per Cent. | Dead No. | Dead Per Cent. | Unknown No. | Unknown Per Cent. | Total Cases |
|---|---|---|---|---|---|---|---|
| One ........ | 31 | 50 | 32 | 50 | 1 | 1 | 64 |
| Two ........ | 22 | 51 | 21 | 49 | .. | .. | 43 |
| Three ...... | 2 | 25 | 6 | 75 | .. | .. | 8 |
| Four ....... | 2 | 40 | 3 | 60 | .. | .. | 5 |
| Totals ... | 57 | 47 | 62 | 52 | 1 | 1 | 120 |

All the Friedmann patients had had the benefit of sanatorium treatment for many months, thirty-five being arrested or quiescent when the vaccine was given, and eight being ex-patient employees of the sanatorium who asked for the vaccine more to insure against relapse than because they had active disease. The vaccine was further favored in the foregoing comparison in that its survivors had been away from the sanatorium nearly a year's shorter time than the sanatorium survivors of 1911, and consequently the Friedmann survivors should have had a lower mortality rate.

## CONCLUSION

From all these considerations it appears certain that this vaccine had no beneficial effect on the patients.

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[1] Barnes, H. L.: Clinical Report on Friedmann's Vaccine, abstr., The Journal A. M. A., Sept. 27, 1913, p. 1066.

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**Artichokes as Food.**—In the *Scientific Monthly* (March, 1918), Prof. T. A. Cockerell of the University of Colorado writes of the so-called Jerusalem artichoke, or the girasole, as he prefers to call it, as a neglected article of food. This tuber is native to the American continent, one of the few contributions to the vegetables of the world. Though growing prolifically, without much labor in the cultivation, very little attention is given to it. It is known that it has produced as much as 20 tons to the acre, and is valuable as a food for hogs, which animals harvest the crop themselves. Its use for human food is perhaps even less well understood and it is even less eaten now than some years ago. Analysis of the tuber, however, show that it is of almost the same food value as the potato, though the carbohydrate content is different and is said to require further investigation. It may be eaten raw or cooked. In the latter form it may be used in soups, in salads sliced with egg, celery or endive, with French or maionaise dressing; sliced, boiled or steamed tubers may be covered with milk, seasoned, covered with bread crumbs and then baked. Grated cheese may be added to this dish. Finally, they may be boiled, mashed, creamed, seasoned, rich white sauce added and eaten on toast. Professor Cockerell says that the cultivation of this plant, especially in small gardens, may add very considerably to the food resources of the country at a time when such increase is more than desirable.

## *Military Medicine and Surgery*

# A NEW ADAPTATION OF THE FACE MASK IN CONTROL OF CONTAGIOUS DISEASE

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One of the most troublesome problems confronting the medical staff of the base hospitals in camps is the prevention of cross infections.

A mistaken diagnosis in the examining room may place measles in a scarlet fever ward, or meningitis in a clean diagnostic ward. These mistakes are partially remedied by sending all doubtful patients to an observation ward, where they may be differentiated at leisure.

The development of a secondary infection as a result of an exposure some time previous to entrance into the hospital is unavoidable.

On the other hand, the contraction of a secondary infection directly from another individual in the same ward demands the most serious effort in the way of prevention. When a case of scarlet fever breaks out in a measles ward, the ward must be placed in quarantine for a week. By the end of the week another case may develop and require another week of quarantine. This may go on indefinitely so that the ward is barred from either receiving or discharging patients.

Most contagious diseases, such as measles, German measles, scarlet fever, pertussis, meningitis and diphtheria, are transmitted from one person to another by means of the secretions of the nose and mouth. Coughing, sneezing and talking convey the bacteria-laden droplets of mucus through the air.

The cubicle system, now used extensively in the Army hospitals, and consisting of sheets suspended on wire between the beds, restricts the dissemination of droplets so long as the patients remain in bed.

In addition to this system we have carried out from the beginning, at the Camp Grant base hospital, the practice of requiring physicians, nurses and ward men to wear gowns and gauze face masks. In this we have followed as closely as possible the methods employed at the Durand Hospital in Chicago. Weaver,[1] in a recent report, shows the efficacy of the mask at the Durand Hospital in protecting the physicians and nurses from contracting contagious diseases and from becoming carriers of meningococci and diphtheria bacilli. We can also attest to the remarkable protection of the mask at Camp Grant, for during the first five months not one nurse or physician contracted the disease of the patients with whom he or she was working. With all these measures, however, we were unable to prevent the spread of cross infection from patient to patient, since we have no facilities for effectively separating patients in a ward once exposed to a fresh contagious disease. The cubicle segregates the bed patients, but it is almost impossible to confine convalescent soldiers day and night to bed; furthermore, it is not possible to furnish the necessary service in nursing, bathing and feeding to render such segregation effective. The patients use a common wash room and latrine, and hence the opportunity of transmission is unlimited.

The quarantine of several measles wards at a time by successive outbreaks of scarlet fever created at Camp Grant, last winter, an acute situation. To relieve this situation we carried out an experiment, the description of which is my purpose in this preliminary paper.

### MASKING THE PATIENT

The face mask has proved an undoubted success in protecting physicians and nurses from contagion. It seems reasonable that patients by wearing the mask should receive similar protection from either primary contagion, or if already ill with one infection, from a second contagion.

The experiment of masking the patients was first tried in a measles ward in which six successive cases of scarlet fever had developed at intervals of several days. After the introduction of this method, one more case of scarlet fever broke out in five days, but none subsequently. The system has since been tried in other wards with excellent results. In general wards exposed to scarlet fever the masks are worn by all patients for one week after the last exposure.

The essential principle of the method is that patients out of bed and out of the cubicle must never be unmasked, except when alone in the wash room. In order to make it effective a number of precautions are necessary. The following rules are posted in each ward and latrine:

### RULES FOR CONTAGIOUS WARDS

1. A face mask must be worn continuously by all patients when out of cubicle.
2. In the latrine the mask may be removed only by permission and under the direct supervision of ward nurse.
3. Wash basins and bath tub are not to be used. For washing face and brushing teeth use running water over sink. Shower may be used under supervision. Use only liquid soap from container.
4. Only one patient will be allowed in the wash room at one time. Remove mask on entering and replace before leaving wash room.
5. Masks may be removed when patients are in bed.
6. Sheets between beds are not to be drawn back.
7. No smoking allowed.
8. Corps men, nurses and surgeons should wear masks and gowns when on duty in the ward. A guard should be on duty continually near the wash room.
9. All eating utensils should be sterilized after each meal.

### MASKING PATIENTS IN THE AMBULANCE

Many patients in the hospital break out with a fresh contagious disease, the incubation period of which corresponds to the length of time they have been in the hospital. This circumstance strongly suggests that the disease was contracted on the date of admission. As patients with different infections frequently come to the hospital together in the same ambulance, the chance of cross infections is obvious. Attempts to avoid this danger by grouping cases affected with the same disease have been futile, because many are sent to the hospital at the beginning of fever or eruption and are not yet diagnosed. Further exposure to contagion takes place in the admission room, where patients are often crowded together awaiting examination.

To guard against this danger we have made it a rule that *every patient before entering the ambulance shall put on a face mask and continue to wear it until he*

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[1] Weaver, G. H.: The Value of the Face Mask and Other Measures, The Journal A. M. A., Jan. 12, 1918, p. 76.

*reaches his bed in the ward.* This applies to all patients, whether they have any communicable disease or not.

It is too early to say to what extent this masking of patients in the ambulance has prevented cross infections, but we believe it has lessened the number materially.

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# AN ANALYSIS OF GOVERNMENT CARDIOVASCULAR EXAMINATIONS

## AS CONDUCTED AT THE BASE HOSPITAL, CAMP HANCOCK, AUGUSTA, GA.

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These statistics have been compiled from the cardiovascular examinations of members of the Twenty-Eighth Division, N. G., recently completed. The total strength of the command approximated 35,000 men, of which number 1.11 per cent. were recommended for discharge, which recommendations form the basis of this analysis. While absolute statistics are of course not available, owing to the constantly changing personnel of the division, sufficient data from the cardiac examinations are available to form a figure basis for this report.

Familiar methods of physical examination were employed, plus the instrumental aid of the stethoscope, sphygmomanometer and polygraph. It is to be regretted that electrocardiography was not available, especially for the information which it would have afforded in differentiating the tachycardias, which may have been due to vagal or sympathetic nerve influence and hence extracardiac in origin, or which may have arisen from irritable or degenerative foci within the auricular or ventricular muscle. Further, the written record obtained from electrocardiography in borderline or in doubtful cases would be of profound statistical importance for future heart recruiting standards, when considered in connection with the subsequent sick reports of such men who are now accepted for service.

### THE RECORDING OF EXAMINATIONS

A blank, the form of which is given herewith, was filled out for each man examined. The individual records were made available for future reference by cross-indexing the serial number under the headings "Patient's Index" and "Diagnosis Index." In order to facilitate the work of the clerk who recorded the findings as called off by the examining physician, certain standard descriptive words were printed on the blank that required only an underscoring stroke of the pen to record. The form is self-explanatory.

### BASIS FOR REJECTIONS

The principles of interpretation of cardiac disease, as laid down in Circular 21, Surgeon-General's Office, July 14, 1917, were followed so far as any set of rules could govern the individual case being considered. Further than this, visible pulsations which were not due to emotional disturbance, accelerated pulse rates not attributable to the same cause, maximum cardiac impulses displaced downward or to the left, and any changes in rate, rhythm or volume of the pulse, were all accorded more significance than were the detections of cardiac murmurs, many of which disappeared on recumbency or following exercise. This most unconventional disappearance of physiologic or functional murmurs following exercise was attributed to a decreased tonicity of a strong heart when at rest; exercise increased the tonicity, the relaxed valve leaflets came again into apposition, and the murmur consequently disappeared. Full significance was of course accorded to a murmur which persisted at a given area and which was accompanied by accentuations of other sounds, provided it was transmitted along the usual classical lines for a given murmur, or accompanied by the characteristic thrills, by increased transverse diameters of given chambers of the heart, or by other frank evidences of cardiac disease.

RECORD OF ORIGINAL EXAMINATION

Serial No................
Cardiovascular Department, Base Hospital
Camp Hancock, Augusta, Ga.
Date.........................

Name ............ Age......Nativity..........Civil Occupation..........
Date of Federal Enlistment..............................
Rank...... Company..... Regiment..... Usual Weight...Height....
Home Address ......................................
Reason Referred ......................................
By Whom Referred.......................................
Previous History ......................................
General Appearance { Healthy, Pallid, Florid, "Mitral Facies."   Development { Muscular, Robust, Slender, Frail,   Mental State { Intelligent, Clear, Apathetic, Anxious.
Visible Pulsations, Edema....... { Pretibial Sacral, { Present: History of
Arteries.......................Pulse..............................
Apex: { Maximum Impulse . . Int. ..c-m. to L. of M-S line   Character..........   Postural Shift ............
Thrills....................   Tenderness..........Friction Rub.....

| Rates | Standing | Recumbent | Immediately After Exercise (Standing) | Two Minutes Later (Recumbent) | Final Normal Return (Recumbent) |
|---|---|---|---|---|---|
| Respiratory. | .......... | .......... | .......... | .......... | .......... |
| Ventricular. | .......... | .......... | .......... | .......... | .......... |
| Radial...... | .......... | .......... | .......... | .......... | .......... |
| Deficit?.... | .......... | .......... | .......... | .......... | .......... |

Cardiac Borders: { (4)....... M | S .........(5) A

|  | Brachial | Femoral |
|---|---|---|
| Blood Pressure: Systolic | ... | ........ |
| Diastolic | .. | ........ |
| Pulse Pressure. |  | ........ |

Transverse Diameter of Arch.........Cardio-hepatic Angle..............
Murmurs: { Apical Basal } Systolic, Presystolic: Diastolic: Systolic.   Transmission: { Over Precordium: To Axilla: To Back. Along Heart Border: To Vessels of Neck.
Accentuations: A..; T..; P..; M..;   Reduplication..................
Arrhythmia { None. Disappears on Exercise. Increases on Exercise.   Graphic Record.................
Clinical Tests: Wassermann..........Roentgen Ray...................
Urine...............................Renal Function.................
Remarks: ..................................................
...........................................................
...........................................................
Diagnosis: ................................................
Recommendation:—(1)—Acceptance. (2)—Discharge. (3)—Acceptance for Special Service. (Cross out two)
Record Clerk: .................................
Reviewed and approved by Dr. S. Calvin Smith, ..........
In Care of Cardiovascular Diseases.

The exercise test of hopping 100 times on one foot yielded most valuable information, when taken in connection with other physical signs; it frequently elicited testimony of cardiac hypertrophy and myocardial affections which it would have been difficult to obtain without its use. In those hearts which were within the government limits of acceptance and apparently normal, exaggerated pulse rate of perhaps 130, which followed immediately after exercise would gradually decrease in rate in successive five second counts and would approximate 115 within fifteen seconds thereafter, being within twenty or twenty-five beats of normal when the first minute had elapsed; at the end of two minutes, pulse and respiratory rate were quite normal for the individual. But in those patients who presented other corroborative evidence of heart affections, the exercise test caused both pulse and respiratory rate to remain abnormally high at the end of two minutes. Had it not been for the exercise test developing a pulse deficit in three young men who apparently enjoyed excellent health, auricular fibrillation would not have been first recognized, to be subsequently proved by polygraphic studies.

TABLE 1.—CAUSES OF REJECTION

| | Percentages | |
|---|---|---|
| Mitral insufficiency | 38.360 | |
| Mitral stenosis | 16.875 | |
| Double mitral | 11.350 | |
| Total | | 66.585 |
| Aortic regurgitation | .613 | |
| Aortic stenosis | .306 | |
| Total | | .919 |
| Associated Conditions: | | |
| Double mitral; aortic regurgitation; dilatation | .306 | |
| Double mitral; cardiac hypertrophy | 1.841 | |
| Double mitral; cardiac hypertrophy; tachycardia | .306 | |
| Double mitral; aortic regurgitation | 1.226 | |
| Double mitral; arteriosclerosis | .306 | |
| Double mitral; tachycardia | .920 | |
| Double mitral; chronic myocarditis | .306 | |
| Double mitral; chronic myocarditis; tachycardia | .612 | |
| Mitral stenosis; chronic myocarditis | .920 | |
| Mitral stenosis; cardiac dilatation | .612 | |
| Mitral stenosis; auricular fibrillation | .613 | |
| Mitral insufficiency; tachycardia | 3.684 | |
| Mitral insufficiency; chronic myocarditis | 4.298 | |
| Mitral insufficiency; cardiac hypertrophy | 5.217 | |
| Mitral insufficiency; cardiac hypertrophy; tachycardia | 975 | |
| Mitral insufficiency; aortic regurgitation | 3.672 | |
| Mitral insufficiency; aortic regurgitation; tachycardia | .612 | |
| Mitral insufficiency; cardiac dilatation; tachycardia | .306 | |
| Mitral insufficiency; chronic myocarditis; tachycardia | .612 | |
| Mitral insufficiency; aortic regurgitation: cardiac hypertrophy | .306 | |
| Mitral insufficiency; auricular fibrillation | .306 | |
| Aortic regurgitation; hypertrophy; chronic myocarditis | .306 | |
| Aortic regurgitation; Flint murmur | 1.226 | |
| Arteriosclerosis; cardiac dilatation | .306 | |
| Tachycardia; cardiac hypertrophy | .306 | |
| Totatl | | 30.044 |
| All other causes: | | |
| Cardiac dilatation | .306 | |
| Chronic myocarditis | .921 | |
| Tachycardia | .613 | |
| Arteriosclerosis; cardiosclerosis | .306 | |
| Cardiac hypertrophy | .306 | |
| Total | | 2.452 |
| | 100.000 | 100.000 |

Blood pressure estimates had a distinct value in determining rejection in early cases of aortic regurgitation. I chose to designate as "early" aortic regurgitant cases those patients who complained of precordial distress, who presented exaggerated breathing following sustained physical effort, who had a basal diastolic murmur indifferently transmitted along the right border of the heart, whose arteries were but slightly infiltrated, whose pulse, although quick, was not of the collapsing character described by Dominic Corrigan. Such early cases had not progressed to the degree of peripheral vascular relaxation which results in the Quincke capillary pulse, although it was interesting to note that dermographia was quite constantly present; the much sought for "pistol shot femoral" was not to be auscultated, nor was there clinical evidence of pronounced left ventricular preponderance. In such doubtful instances of aortic valvular disease, a comparison of the brachial and femoral systolic pressures, estimated when the patient was recumbent, showed a femoral increase of from 40 to 120 mm. of mercury, thus determining the rejection of the patient as physically disqualified for the service. The diastolic estimate was disproportionately low.

## CAUSES FOR REJECTION

Comment on Table 1 might confine itself to the large percentage of mitral lesions found (66.58) and to the relatively small percentage (0.91) of aortic lesions detected. That these lesions were not incurred in the service is evidenced by the absence of any history of illness since being mustered in, thus establishing that the valvular defect existed prior to enlistment. Nor do I incline to the view that the intensive training of Army life had magnified a previously insignificant valvular defect; there were no histories of a gradual "limitation in the field of cardiac response" which would make this point of view tenable. Any one of several hypotheses may be held as to why these mitral lesions were not detected at the time of enlistment; when one considers the rapidity with which physical examination of recruits must be conducted, amid noisy surroundings and the shuffling of feet, with scant time for differential study and no time for a sifting of previous history, there is little justice in criticising the recruiting physician. Then, too, this official is naturally skeptical of the thrill, of the sharp apical "slap," of the accented mitral first sound and of the scarcely perceptible murmur of mitral stenosis; for he knows from long observation that any or all of these physical signs may be counterfeited by the overacting heart of excitement or of hysteria in the young. Such patients may require rest in bed and comfortable familiarity with their surroundings before a definite diagnosis is reached; at the base hospital at Augusta it was not unusual to supplement the appraisal of cardiac values in excitable youths by examining them when they were asleep and hence not susceptible to emotional disturbances.

TABLE 2.—PREVIOUS DISEASES

| | Per Cent. |
|---|---|
| Abscesses | .15 |
| Abscessed teeth | 11.93 |
| Angina pectoris | .30 |
| Appendicitis | .46 |
| "Bronchitis" | .15 |
| Chickenpox | 5.50 |
| Chorea | .78 |
| Digestive disturbances | .78 |
| Diphtheria | 9.75 |
| Goiter | .15 |
| Gonorrhea | 10.53 |
| Influenza | .30 |
| Malaria | 1.50 |
| Measles | 52.60 |
| Meningitis | 30.89 |
| Mumps | 1.68 |
| Neuritis | 1.83 |
| "Pleurisy" | 1.83 |
| Pneumonia | 13.60 |
| "Quinsy" | 1.68 |
| "Rheumatism" | 22.32 |
| Scarlet fever | 15.00 |
| Smallpox | .30 |
| Syphilis | 1.33 |
| Tonsillitis | 35.93 |
| Tuberculous glands | .15 |
| Typhoid fever | 11.62 |
| Whooping cough | 6.73 |

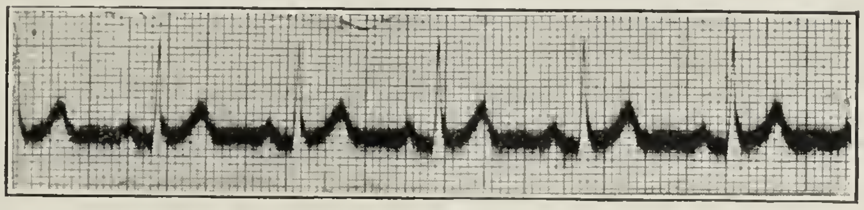
The relatively small percentage of aortic lesions that were found might be explained by the fact that aortic valvular involvements are usually rapidly progressive in developing to a degree at which they are accompanied by strong corroborative testimony of cardiac disease, and the recruit, as a consequence, is frankly sick at heart when he presents himself for enlistment and is promptly rejected.

### CLINICAL COMPILATION

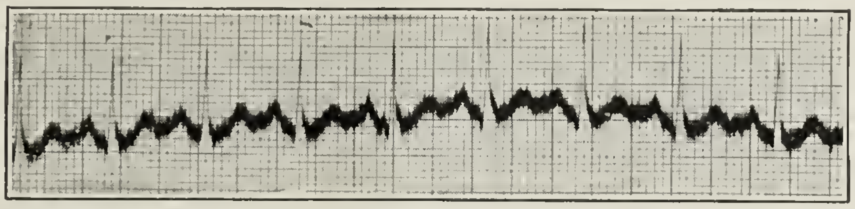
The average age of those examined was 23.59 years. Civil occupation was irrelevant as a causative factor in the conditions detected. Among military occupations, the Army cook seemed rather fated for dismissal from the service on account of heart disease. I was inclined to believe that these men chose cooking as a comparatively light occupation on account of being vaguely conscious that they could not "stand up" under the regular soldier's intensive gymnastics, drills and marches — a physical circumstance no doubt due to their as yet unsuspected cardiac lesions. Each patient was carefully questioned as to previous diseases; only one presented a history suggestive of circulatory failure. Precordial pain was surprisingly constant in the history of those who were subsequently rejected, being especially complained of as following continued exercise. Pain would thus seem to be a symptom of early cardiac disease, and should not be passed over without a thorough search for a heart lesion. Tenderness was present in less than 10 per cent. of those subsequently rejected, and when found was usually along the left border of the heart, being elicited by moderately heavy percussion.

### EXPERIMENTAL STUDY OF THE "EXERCISE TEST" PRESCRIBED BY THE UNITED STATES GOVERNMENT FOR THE GUIDANCE OF SPECIAL CARDIOVASCULAR EXAMINERS

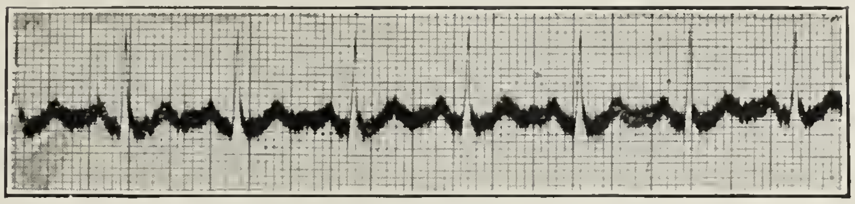
"The examination should include hopping 100 times on one foot, noting tachycardia and unusual dyspnea; after two minutes neither should be marked."



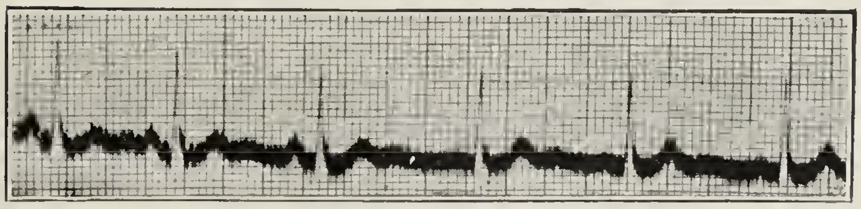
Electrocardiogram from an apparently normal heart before "hopping 100 times on one foot"; ventricular rate, 75; respiratory rate, 16 (Lead II, in this and following figures).



Curve from same heart immediately following 100 hops: ventricular rate, 120; respiratory, 30.



One minute later: ventricular rate, 105.



Two minutes later: ventricular rate, 75; respiratory, 16; both fallen to normal.

The streptococcic group of diseases — tonsillitis, "rheumatism," "quinsy" and abscessed teeth — in Table 2 hold their usual high percentage place as provocative factors in subsequent endocardial change. No credence is to be given to the small venereal percentages herein recorded; Army regulations inflict such penalties on the soldier who is so unfortunate as to develop a specific urethritis or an initial lesion that the man in the ranks, rather than forfeit pay and a curtailment of his personal liberties, may naturally be expected to deny venereal infection either past, present or future.

TABLE 3.—DISEASES OF CHILDHOOD

| | | Per Cent. |
|---|---|---|
| Measles | | 52.60 |
| Chickenpox | 5.50 | |
| Diphtheria | 9.79 | |
| Scarlet fever | 15.00 | |
| Whooping cough | 6.73 | |
| Total all other diseases of childhood | | 37.02 |

Measles, in these figures, assumes a percentage importance far in excess of all the other acute, infectious, contagious diseases of childhood combined. The percentages are given in Table 3.

It would be reading entirely too much into these figures to assume from them that measles plays an important etiologic part in the endocardial changes of later life; it is, however, quite permissible to call attention to the earlier incidence of measles in over 52 per cent. of the patients later referred for evidences of cardiac disease. That this historically "harmless" disease of childhood may be a precursor of eventual heart damage suggests itself in a plausible light when one reflects that the complications and sequelae of measles, such as middle ear involvements, pulmonic invasions and chronic catarrhal conditions of the upper respiratory tract, are frequently suppurative in character and hence as fully capable of affecting the heart as are other septic processes within the economy. It remains for the pediatrician and for the family physician to determine, by frequent heart examinations during the course of and at stated periodic intervals subsequent to measles, whether or not a distant relation between measles and endocarditis, as cause and effect, shall find its way into our literature.

### CLINICAL AVERAGES

I was struck by the large percentage (26.91) of thyroid enlargements in those who were examined for heart disease. This enlargement may have been a physiologic response of the thyroid gland to the demands that the hard and fast regulations of military life make on the nervous systems of those who have previously led a leisurely civilian existence; it may have been the result of frictional massage of the gland by the calisthenics and setting up exercises, which bring strongly into play the neck muscles of the soldier; or it may have been but an added touch of color to the clinical picture of heart disease. Whatever the cause, I am satisfied that it did not have the effect of increasing the pulse rate in the individual case, as one might at first thought suppose, from the averaged radial pulse rates, given in Table 4.

Eighty-eight per cent. of the men examined had pulse rates of 80 or more before exercise. The incidence of thyroid enlargement, mentioned in the preceding paragraph, had no bearing on the pulse rates when individually considered. Further, a studied effort was made to have the patient feel at ease during the examination; we do not believe that the pulse rate was increased by excitement or emotion. A third logical supposition might be that the men were overworked and "going stale" through overtraining, and that this was the responsible factor in the increased pulse rate, but on inspecting the records there is no appreciable difference between the pulse averages of those organizations which were examined when training first began and those organizations examined after four months of Army life. Antitobacco purists, on account of the prevalence of the habit in the Army, might read into these figures a pernicious activity of the fragrant leaf reflected in the pulse; there is nothing in the records either to refute or substantiate their statements. My conclusion then, from these figures and from further observations in the service is that "the average pulse rate of 72 per minute" is not the pulse rate to be found in active youths between 20 and 30 years of age; the radial rate may be expected to be ten or more beats higher than the classical average of 72.

TABLE 4.—AVERAGED RADIAL PULSE RATES

| | |
|---|---|
| Rate before exercise | 97.86 |
| Rate immediately after | 128.57 |
| Rate two minutes after | 92.69 |

The maximum apical impulse was measured from a definite and constant position on the chest wall, the midsternal line. This line was chosen in preference to the "midclavicular" or "nipple" line, both of which may be subject to either structural or to postural change. It was but the work of a second to draw the line from the base of the suprasternal notch to the ensiform cartilage, using the blued end of a celluloid centimeter rule for the purpose. The apical impulse was found to be normally located 7.5 cm. from the midsternal line in the fifth interspace. Mitral stenosis brought the apical impulse 2 or 2.5 cm. closer to the midsternal line; mitral insufficiency naturally threw it 2 cm. or more farther to the left of the accepted standard.

The transverse diameter of superficial cardiac dulness, which I had considered in civil practice as being normally between 9 and 11 cm., was distinctly increased in soldiers. While it was fully recognized that cardiac percussion is notoriously subject to many inaccuracies, it was employed for the reason that it was quite as dependable as any facility at hand for determining cardiac enlargement, in the absence of the accurate information afforded by orthodiography. In this group of cases, collectively considered, the diameter of the heart averaged slightly over 13 cm., percussed with the patient erect. Nor did the position of the apical impulse in mitral stenosis follow out the rule of downward displacement with the constancy which many authors teach us to expect; the apical impulse was in the sixth interspace in 48.98 per cent. of the mitral stenotic cases, and in the fifth interspace in the remaining 52.02 per cent.

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# STAINING FOR THE SPIROCHAETA PALLIDA IN SMEAR PREPARATIONS

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The difficulties encountered in making a diagnosis of a suspected primary lesion are well known. The use of a dark ground illuminator is sufficient evidence that the proper staining of the *Spirochaeta pallida* by the various methods described in standard books on pathologic technic is not an easy task.

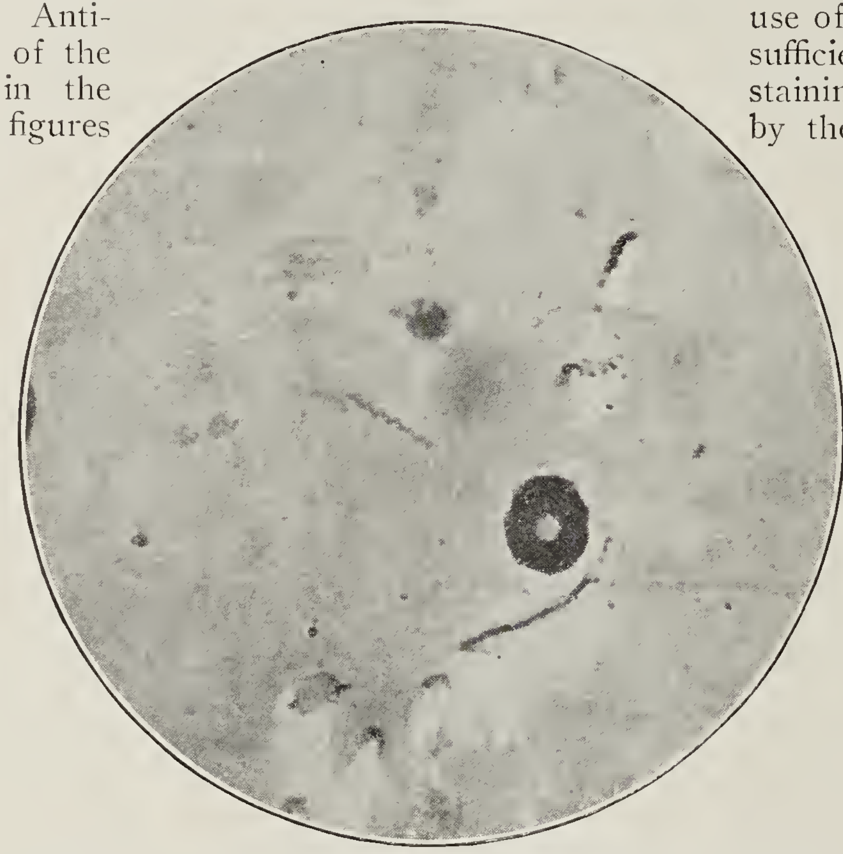

Fig. 1.—Smear made and stained by the simplified method. This smear and that given in Figure 2 were made from specimens examined with the dark field and reported negative, because no spirochetes could be found with the dark ground illuminator, after thorough search.

Thus, Mallory and Wright[1] give not less than four methods of staining, besides Burri's india ink method. Every one of the methods referred to is fairly difficult, making it impossible for men with no special laboratory training to obtain proper results. In fact, in this laboratory, employing Wright's method as described by Mallory and Wright, we have tried time and again to stain smears of cases in which numerous spirochetes were found with the dark ground illuminator, but with no success. Of course, that does not condemn the method; but it at least shows that it does not work in the hands of every one.

To obtain results with the dark ground illuminator, though easy at times, is as a rule a most difficult and time-consuming task. To spend a whole hour on an average case with the dark ground illuminator, searching for the spirochetes and then having to give up in disgust, is an experience familiar to any one who has used this method in a routine way. The desirability of having a specimen of such diagnostic import that will be a permanent specimen, one that can be filed away and referred to at any time in the future, similar to malaria specimens or tubercle bacillus smears, must be evident to any one. This point in itself would make the stained smears preferable to the dark field examination, provided the method of staining was sufficiently simple and would yield invariably good results. After trying out various modifications in staining, I found a method that fulfils these two conditions. It is easy of application, and with it I have found spirochetes in smears that were negative when examined from the wet specimen with the dark field illuminator. The method is as follows:

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[1] Mallory, F. B., and Wright, J. H.: Pathological Technique, Philadelphia, W. B. Saunders Company, 1915.

The surface of the lesion is cleaned with a wad of sterile absorbent cotton, soaked in sterile saline solution, and all of the dried exudate is removed. The patient is then told to squeeze the lesion between the forefinger and the thumb until serous exudate appears. The appearance of the exudate may be hastened by scraping the deeper parts or the ragged edges of the lesion with a broken wooden applicator or with a stiff platinum wire. The exudate thus obtained from the deeper parts of the lesion should be mostly a serous exudate; real bleeding should be avoided. A good smear is one in which only an occasional red blood cell is found. The smears can be made on clean slides by placing a drop of deep exudate, obtained with a broken applicator, a sterile toothpick or a platinum loop, on one slide and spreading it out thinly with the other slide. The slides should be not pulled, but slid apart. The smears are then dried in the air, and stained with Wright's blood stain in the ordinary way, except that instead of plain distilled water to dilute the stain, 1 per cent. solution of sodium carbonate in distilled water is employed. The film is covered with Wright's blood stain, to fix the smear, a sufficient quantity being used, a little in excess of what is used in staining blood smears. At the end of from one to two minutes, to the staining fluid are added from 45 to 50 drops of 1 per cent. sodium carbonate solution in distilled water to a slide, or as much as the film will hold without running over. The diluted stain is allowed to remain on the film for fifteen or twenty minutes, and is gently steamed all the while with the flame of an alcohol lamp, as in the staining of sputum for tubercle bacilli by carbolfuchsin. The slide is then lightly washed with water, dried between filter paper, and examined with the oil immersion lens. The spirochetes appear intensely violet on a pale blue background, and are easily found.

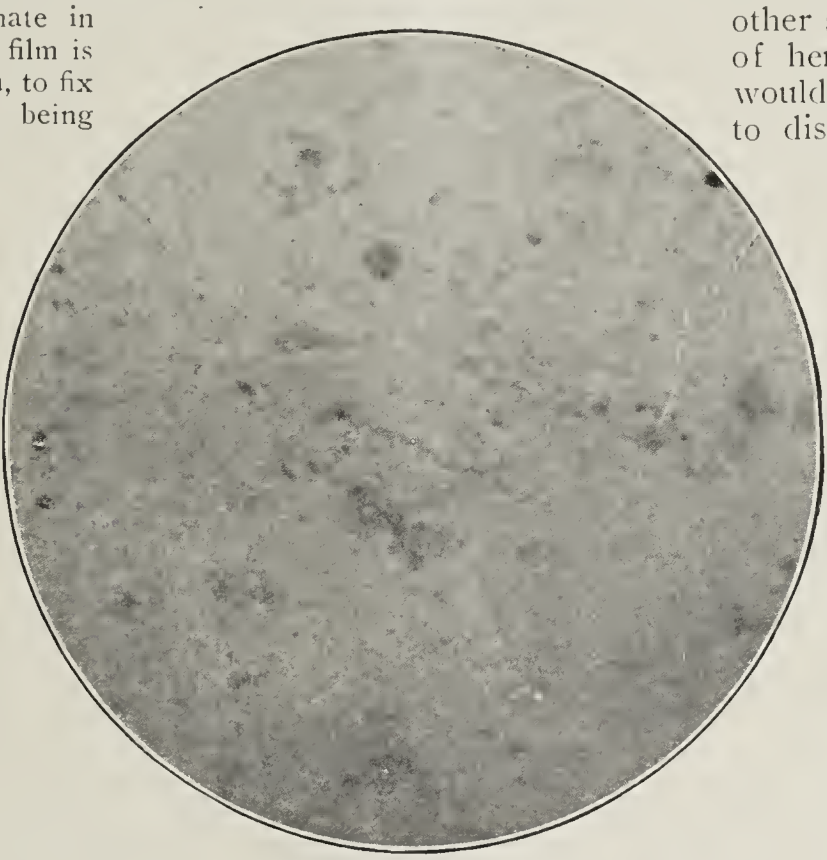
Fig. 2.—Another smear by the simplified method.

The advantage of this method is its simplicity; no special reagents or staining solutions are needed excepting 1 per cent. aqueous solution of sodium carbonate and Wright's blood stain. The results have certainly been most satisfactory.

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**Industrial Physicians and the Control of Cancer.**—The American Society for the Control of Cancer in conducting propaganda has enlisted the aid of physicians and surgeons connected with large industrial plants throughout the country, who come in close contact with large bodies of men and women. An outline of a lecture on the control of cancer has been prepared by the council of the cancer society and the attention of these physicians has been called to it. Considerable interest has been manifested and many requests for the lectures have been received, as well as replies commending this form of educational work. In this connection the cancer commission of Harvard University has established a service for the free diagnosis of cancer which was inaugurated, October 1, 1917. It offers to the physicians of Massachusetts an opportunity for free examination of pathologic material removed at operation. This service was established on the suggestion of the American society.

# PNEUMONIA AND EMPYEMA AT CAMP ZACHARY TAYLOR, KY.

## A PRELIMINARY REPORT

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AND
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Since the opening of the base hospital in September, 1917, there have been admitted to the medical service 274 pneumonia patients, 176 with the lobar and ninety-eight with the bronchopneumonia type. This series of cases has been most interesting and unusual, differing in several aspects from the well recognized picture of lobar pneumonia and bronchopneumonia. This variance in the disease picture has occurred in periodic waves due to the severity and character of the disease, the relation to measles, the incidence of empyema and other serious sequelae, the presence of hemolytic streptococci, etc. It would seem profitable, therefore, to discuss these cases chronologically.

The early cases, in September and October, about thirty in number, apparently conformed to the usual picture of lobar pneumonia, with sudden onset, chill, temperature, rusty sputum, localized areas of consolidation, etc. Although type determinations of sputum could not be made, because of inadequate laboratory facilities in the early days of the hospital, these pneumonias undoubtedly belonged to the more benign type of organisms (Type IV), as only one death occurred in the series. This patient, who apparently had a mild case, developed a severe pneumococcic meningitis three days after a typical crisis, and died within twenty-four hours. Because of insufficient equipment and nursing personnel at the base hospital at this early period of its organization, these patients were cared for in the wards of the Louisville City Hospital. To this hospital much credit is due for efficient medical and nursing care.

The first case definitely diagnosed bronchopneumonia occurred, October 22, ten days after the first measles admission. From then on, the number of cases of pneumonia following measles increased rapidly, paralleling closely the measles admissions, latterly decreasing pari passu. In contrast to the early benign lobar pneumonias, these bronchopneumonias following measles were most severe and fulminant. Developing usually during the third or fourth day of the rash, the pneumonic process was ushered in by an increase in temperature, respiratory rate, patchy areas of dulness, roughened bronchovesicular breathing, moist bubbling râles and, of particular interest, marked dyspnea and dusky cyanosis of the face. The latter two symptoms, interpreted as evidences of air hunger, increasing in severity with the progress of the pneumonitis, were most distressing and difficult to relieve. With fair degree of accuracy, one could often pick out the incipient pneumonias by noting the degree of cyanosis and blueness of the face, and by the same token could estimate the patient's chances of recovery.

From an epidemiologic standpoint, considerable interest attached to the time of the development of the pneumonia in relation to the period of hospitalization or discharge to quarters. Of a total of 102 cases of pneumonia following measles developing up to January 17, eighty-seven developed during the soldiers' stay in the hospital, while only fifteen were readmitted after discharge to quarters. In other words, the majority developed while in the hospital wards as close sequelae to the primary disease, either as contact or droplet infections from other patients, ward air or ward dust, or from the patient's own bacterial flora from mouth or nasopharynx, the minority developing after return to duty.[1]

At necropsy, the lungs of these patients contained scattered, small or large areas of bronchopneumonic consolidation, with often multiple peribronchial abscesses from which thick greenish gray pus could be expressed. Hemorrhagic and purulent tracheitis, bronchitis, bronchiolitis and bronchiectasis were usually present, while a markedly dilated right auricle served as evidence of antemortem cardiac failure.

About December 1, the fulminant atypical lobar pneumonias, later proved to be streptococcal in origin, began to appear and continued well past the middle of January. From the standpoint of the prodromes, these cases divide themselves into two classes: first, those starting insidiously with "sore throat," "cough," "grip," for a few days, progressing gradually until frank signs of consolidation could be elicited, and second, cases starting abruptly, severely, with sudden overwhelming prostration and collapse, profoundly toxic, progressing rapidly to death within three or four days, with symptoms so profound and acute as to suggest a general sepsis. These cases were most distressing. Because of the speed of development of the disease, and the evident urgency of the soldier's distress, little could be done to stay the progress of the disease, and one's utter helplessness in combating it

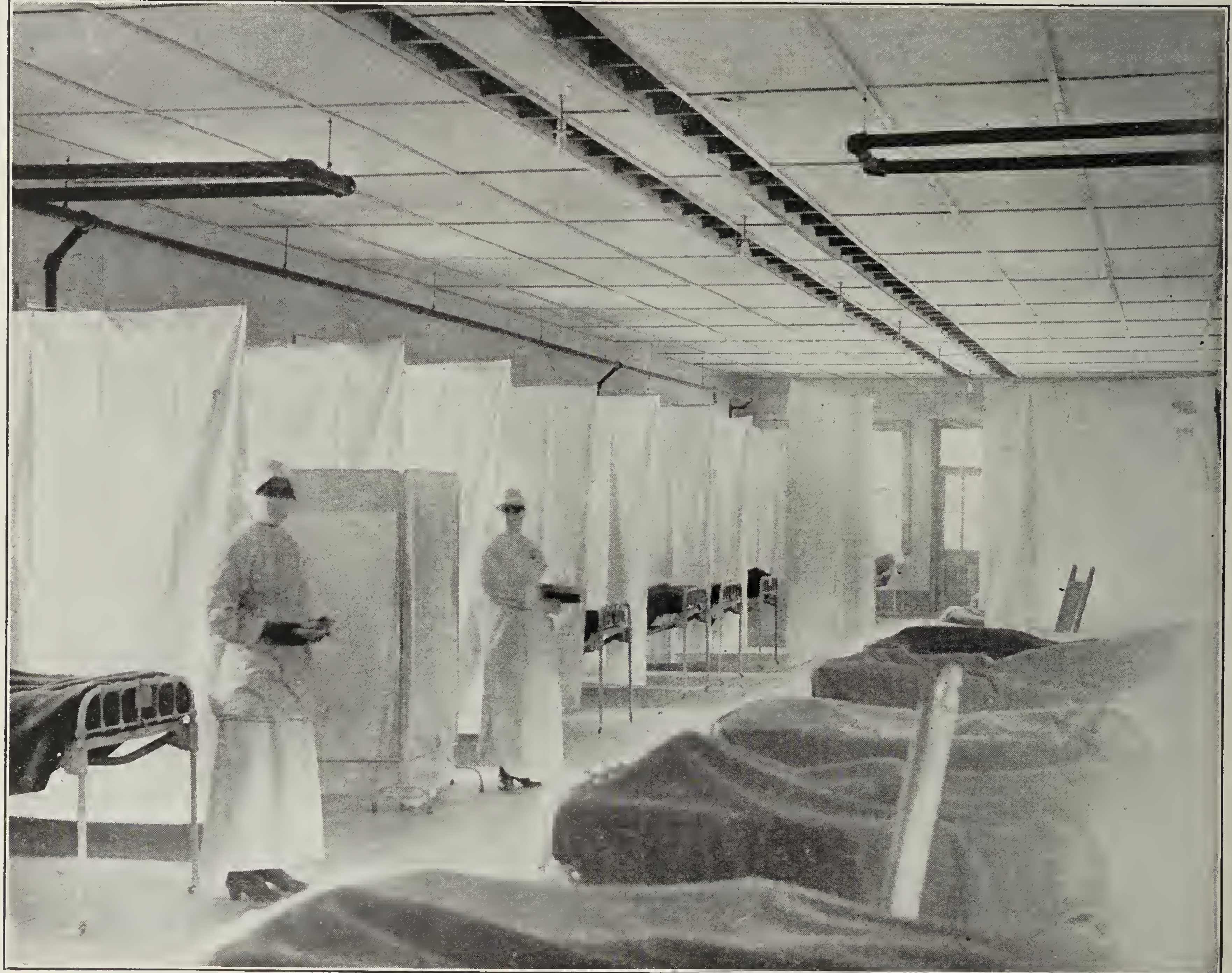

Fig. 1.—Ward in Base Hospital, Camp Zachary Taylor

This picture shows the cubicle method of isolation, method of heating and ventilating wards on ceiling, type of hospital bed, etc. Note face masks worn by nurses in attendance on cases of pneumonia.

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[1] The establishment of cubicle isolation, in compliance with orders from the office of the Surgeon-General, by hanging sheets on wires strung through the wards between each bed, was of material benefit in preventing the spread of pneumonia (Fig. 1).

was daily forced on us. Digitalis, caffein, venesection—nothing seemed to make the slightest impression.

In both of these groups of cases, empyema developed in an extremely high percentage, eighty-six cases in 274 pneumonias, an incidence of 31.4 per cent. In the four week period from December 17 to January 15, the empyema "epidemic" reached its height. Of 109 pneumonias, fifty-two developed pus in the pleural cavity, an incidence of almost 50 per cent.! This rise in the empyema cases, reaching its height Christmas week (fifteen out of eighteen lobar pneumonias developing empyema), was in marked contrast to the week of January 15 (of twenty-six pneumonias, only four empyemas). These variations in the empyema curve were quite separate and distinct from the pneumonic curve per se, and were probably due to the virulence (selective action?) of the invading organisms (hemolytic streptococci).

This series of eighty-six empyemas differed in several striking respects from the metapneumonic and parapneumonic empyemas usually seen. Many patients came into the receiving ward from the regiments with chests full of pus. In other cases, within an hour or two of admission to the wards, quantities of pus could be readily demonstrated. In both, a history of illness not to exceed twenty-four hours was often obtained. The extremely rapid development of the empyemas, often well within twenty-four hours, was demonstrated repeatedly by fluoroscopic and roentgenographic examination.

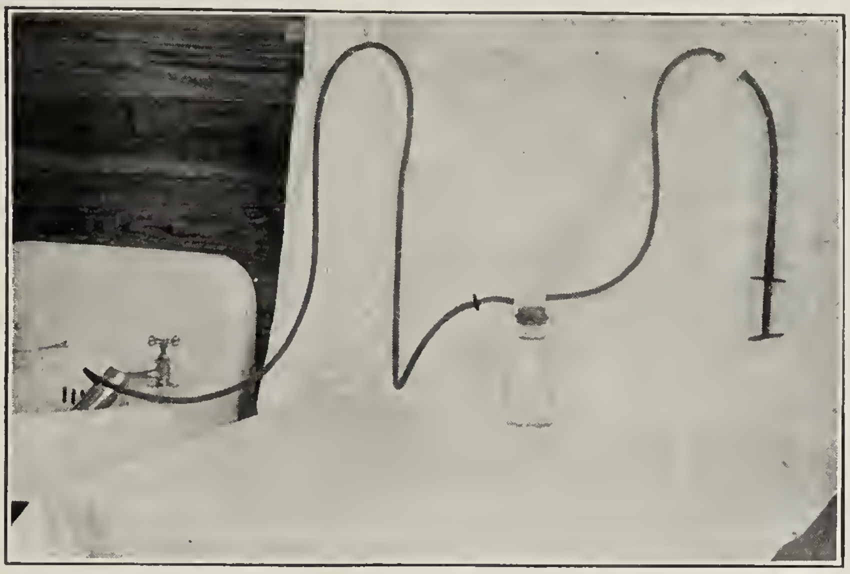

Fig. 2.—Brewer tube and attached water pump for continuous suction.

Physical signs were most misleading. Traube's space, displaced cardiac impulse, tubular breathing, and bronchophony giving little differential aid in doubtful cases. Dulness to flatness on percussion, particularly when associated with diminished breath sounds, were in most cases dependable. Intense loud tubular breathing, rasping in character, almost invariably meant fluid. This apparent paradox is probably explained by compression atelectasis, with ready transmission of bronchial sounds by the thick plural exudate.

Clinically, the severe prostration with flushed cheeks, hollow bright eyes, short grunting dyspnea, deep boring chest pain, and asymmetric chest excursion were most prominent. Later this severe pleural pain was relieved somewhat, owing probably to the separation of the inflamed surfaces by the developing exudate.

Many cases, diagnosed clinically massive lobar pneumonia, showed at necropsy widespread atelectasis with the lung compressed to half its normal size, but with little or no evidence of pneumonic consolidation. In these cases, purulent pericarditis was frequently associated, the pericardium containing a pint or more of thick, creamy pus.

Hemolytic streptococci were found in pure culture in a majority of the empyema fluids, fifty-two out of ninety-three examined, the remaining containing pneumococci or mixed organisms, or remaining sterile. The preponderance of streptococci was further emphasized by their presence in blood culture, pericardial pus, lung smears, and the heart's blood in these cases. Similar organisms were found widely distributed in various types of disease coming into the hospital at this time—almost universally in tonsil and throat smears, mastoid, middle ear and antrum pus, joints, abscesses, etc. The laboratory findings, together with complete absence of lung involvement in many instances, and the sudden overwhelming prostration and profound toxemia, with death in a few days, suggest that these so-called pneumonias are in fact true cases of streptococcic sepsis, with early localization in pleura and pericardium.[2]

Treatment has been disappointing. Of eighty-six patients with empyema, twenty have died, six have been discharged to duty, and sixty remain under treatment in the hospital. Rib resection has been ineffectual; no patient having this type of treatment left the hospital, while nine have died. Intercostal drainage with continuous suction from an attached water pump is being used at present with greatly improved results (Figs. 2 and 3). The routine of examination and handling of these patients at the present time is as follows:

1. Every patient showing bronchopneumonia and lobar pneumonia, severe sepsis, continued high temperature without demonstrable cause, severe continued dyspnea, particularly when accompanied by a sense of marked discomfort or pain on breathing, and a feeling of fulness or tightness in the chest shall be considered as having *potential* empyema, and shall be observed constantly with this possibility in view.

2. Each potential empyema patient shall be roentgenographed within forty-eight hours of admission, provided the patient's condition permits.

3. Each potential empyema patient shall be seen by the special empyema surgeon within forty-eight hours after admission, for consultation regarding exploratory thoracentesis.

4. A positive thoracentesis shall be followed immediately by the Potain treatment, as much fluid being withdrawn as is compatible with the patient's condition. A specimen of such fluid each time obtained shall be sent to the laboratory for examination.

5. In proved cases of empyema the patient shall be examined daily and roentgenographed, and tapped at least every third day. On the fluid's becoming opaque and of cream or purée consistency, the patient shall be transferred to the surgical service for continuous drainage with suction apparatus, unless ordered otherwise.

In explanation of the foregoing order, it should be emphasized that exploratory tapping and use of the

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[2] Jochmann (*Streptokokkensepsis,* Lehrbuch der Infektionskrankheiten, p. 137) calls attention to the fact that a streptococcus sepsis may progress with the picture of a lobar pneumonia in which the pneumonic process may be either the source of the sepsis or develop secondarily from it; and further, that the pleura may be the seat of a primary streptococcus empyema, later serving as the source of a streptococcus sepsis.

Potain treatment is not without danger. There have been several instances of collapse following both procedures in the several hundred times they have been used, in one case sudden death, probably due to suddenly lowered blood pressure (pleural vagosympathetic reflex [Capps and Lewis]). A number of other patients, although showing no ill effects at the time, have within twenty-four hours become markedly worse, with extremely low blood pressures, rapid thready pulse, drenching perspiration, pale clammy skin, either the result of the withdrawal of too large amounts of fluid, or the releasing into the circulation of overwhelming quantities of toxic substances. Recently the use of 0.5 per cent. cocain solution, anesthetizing down to and including the pleura, not moving the point of the needle around after pleural puncture, withdrawing the pus through the same syringe, and only a relatively small amount the first time, particularly if the fluid is clear, have resulted in no further mishaps.

### SUMMARY

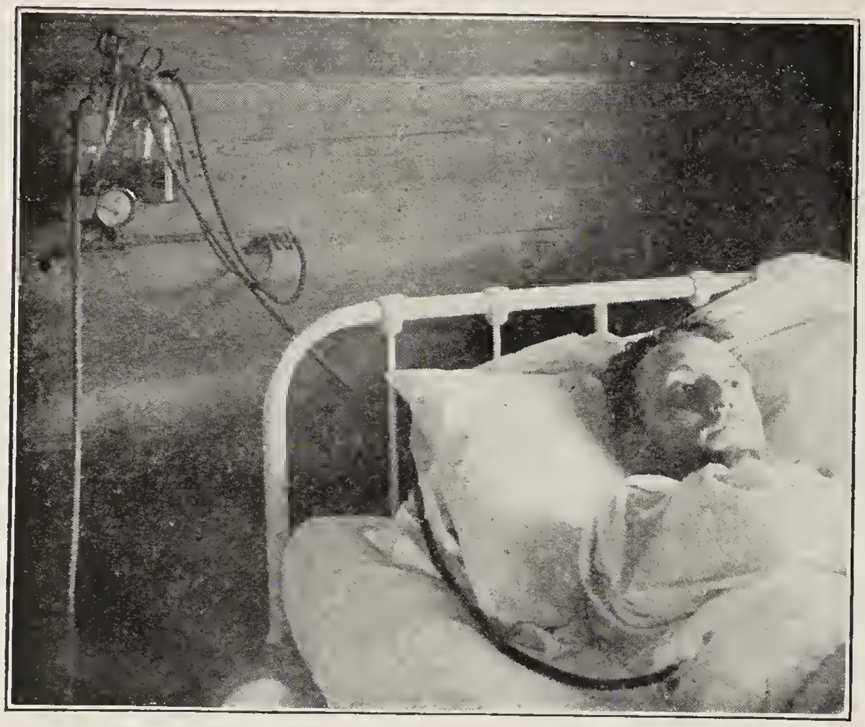

Fig. 3.—Apparatus for continuous chest drainage in place.

1. The bronchopneumonias and lobar pneumonias occurring at Camp Zachary Taylor, Ky., during the winter of 1917-1918, were most atypical, differing in mode of onset, clinical characteristics, incidence of empyema, presence of hemolytic streptococci, etc., from the usual picture of pneumonia.

2. Many cases diagnosed clinically lobar pneumonia showed at necropsy no evidence of pneumonic consolidation, but contained large amounts (3 liters [quarts] and more) of empyema pus and atelectatic lung tissue. Such cases may be considered examples of primary suppurative pleuritis.

3. The severity and rapidity of the onset, course and termination of many cases, the overwhelming prostration and toxemia with death measured in hours, the presence of hemolytic streptococci in empyema pus, blood cultures, metastatic abscesses in joints, cellular tissues, pericardium, middle ear, mastoid, meninges and brain, and the inefficacy of treatment all lend strong support to the view that these cases are true examples of streptococcus sepsis.

4. The empyemas of this series are notable from the standpoint of their incidence (31.4 per cent.); their early development, often primary; their rapid development within twenty-four hours; the presence of hemolytic streptococci; their occurrence as part of a general sepsis (distinct from pneumonia); the difficulties of interpretation of physical signs; the advantages of roentgenographic examination, and the difficulties and indications of various forms of treatment.

5. The character of the empyema fluid gradually changes, becoming progressively more turbid and heavier. The greatest benefit from surgical interference is obtained by delaying operation until the fluid becomes opaque, greenish gray and of cream or purée consistency. Operations instituted earlier or later are of less benefit. The use of intercostal drainage with attached water pump for continuous suction has been superior to other forms of surgical treatment. This method imposes a minimum of surgical trauma; prevents the aspiration of foreign material (secondary infection) and collapse of the lung from pneumothorax; allows the pus to escape gradually; maintains negative intrapleural pressure, and shortens the patient's period of invalidism.

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# GUNSHOT WOUNDS OF THE KNEE JOINT

## CASUALTY CLEARING STATION AND BASE HOSPITAL OBSERVATIONS ON EIGHTY-FIVE CONSECUTIVE INSTANCES, WITH A NEW METHOD OF DRAINING THE KNEE JOINT

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In 1916, in the service of the British expeditionary forces, France, there was much discussion among the medical officers regarding the best method of active care of these serious injuries. On the whole, there was a tendency to collate the different treatments and to watch for final results. In the late part of the year, a course of action crystallized out of this chaos. During 1916 at the general hospitals, victims of battle casualties were frequently received fresh from the trenches, when only slight operative interference had taken place. This was especially true of gunshot wounds of the knee. A perusal of the tabulation made at that time to cover these patients now seems unsatisfactory, although any desired line of procedure in treatment was then possible for the relatively untouched wounds. Sepsis predominated. Mortality was high, and nearly one half of these cases went on to high amputation. Now, a more or less uniform method of first treatment is in vogue at casualty clearing stations, which are more numerous than before and better equipped for the demands of the delicate surgical technic required for this type of wound.

The subject of gunshot wounds of the knee is so large that it merits division. The general opinions here expressed are the result of careful tabulation and study. It is desirable to consider these casualties on the assumption that the wounded are handled surgically within a short time after their injury. The question of the drainage of septic knee joints alone is large, deserving deep study. It will be mentioned here only in relation to the treatment of some patients of this series, and to suggest a newer method.

Individual records of each patient coming into the service were made for my personal use, observations in many instances extending over several months. A tabulation of eighty-five consecutive patients was prepared according to the following outline, and the figures given are based on a study of the table.

### OUTLINE FOR STUDY OF GUNSHOT WOUNDS OF KNEE JOINT

1. Type and location of wound related to a transverse line through patella:
    - (*a*) Was there exit and entrance?
    - (*b*) Was synovial surface alone involved?
    - (*c*) Was there fracture accompanying? Which bones?
    - (*d*) Was foreign body present? In joint? In bone?
    - (*e*) Was joint traversed by foreign body?
2. Type of first treatment:
    - (*a*) Where given? Field ambulance? Casualty clearing station? Base hospital?
    - (*b*) Was the joint opened by missile or by operation?
    - (*c*) Was the joint irrigated?
    - (*d*) Was joint "bipped"?
    - (*e*) Was foreign body removed? Or bone fragments?
    - (*f*) Was joint closed by sutures?
    - (*g*) Was joint left open?
    - (*h*) Was joint drained by foreign material, e. g., gauze, gutta percha, tube?
3. Were splint and extension used?
4. General data:
    - (*a*) Condition of patient on admission.
    - (*b*) Joint pain, swelling, redness, discharge (pus or synovial fluid).
    - (*c*) Temperature curve.
    - (*d*) Cultures made. Results.
    - (*e*) Was joint aspirated? Drained?
    - (*f*) Other secondary operations.
    - (*g*) Condition on discharge from hospital.
    - (*h*) Probable prognosis.

### GENERAL PROCEDURE IN ROUEN DISTRICT

There are several important reports on this type of wound. The most interesting general collection of knee injuries was made by Barling[1] in the Rouen hospital district, from June to December, 1916. It is, of course, understood that any final record of these patients is impossible because wounds and a large part of their treatment occur in one country, while subsequent care and the final disposition of the patient take place in another, in scattered hospitals. Like every other man who studies these gunshot wounds, Barling discovered that the statistics clearly reveal a high proportion of patients whose wounds required early excision, removal of the damaged bone and any retained foreign body, joint irrigation, and closure by suture, and later followed a course of satisfactory healing which required no further surgical interference. The findings in 845 knee joints operated on in the Rouen district are presented in Table 1.

TABLE 1.—RESULTS OF EIGHT HUNDRED AND FORTY-FIVE OPERATIONS ON THE KNEE JOINT

| Classification of Wounds | No. of Cases | Percentages |
|---|---|---|
| 1. Total number cases of injury to knee operated on | 845 | .... |
| 2. With bone injury | 438 | .... |
| 3. Without bone injury | 407 | .... |
| 4. Wound excised and closed | 322 | .... |
| 5. Cases under (4) requiring further operation* | 82 | 25.5 |
| 6. Wound excised and packed | 336 | .... |
| 7. Cases under (6) requiring further operation* | 128 | 38.4 |
| 8. Excision of knee | 42 | .... |
| 9. Arthrectomy, partial or complete | 15 | .... |
| 10. Excisions or arthrectomies amputated | 13 | 22.8 |
| 11. Deaths after excision or arthrectomy | 13 | 22.8 |
| 12. Amputation without excision | 151 | .... |
| 13. Deaths under Class 12 | 49 | 32.4 |
| 14. Total amputations | 164 | 19.4 |
| 15. Total mortality | 72 | 8.5 |

* One hospital with a large number of cases was unable to separate the cases under items 4 and 6.

### SUMMARY OF RESULTS IN EIGHTY-FIVE CASES

In our present series of eighty-five patients, the synovial lining of the joint was opened by the missile in every instance. There were two deaths. In both cases the patients suffered bone injuries at the knee, and one died from a gas infection of his arm, which was amputated, the knee apparently doing nicely. In reality, then, there was only one death caused by the knee injury, due to generalized sepsis, since no secondary operation was performed.

The synovial surface alone was involved in forty-two instances, in three of which, or 7 per cent., amputations were made. There were bone injuries accompanying forty-three knee wounds, in six of which, or 14 per cent., amputations were made. We might suppose, then, that a knee gunshot wound which causes simultaneous bone injury is twice as liable to go on to amputation as one without bone injury. Clinically, there seems to be a higher ratio. In twenty-five patients, foreign bodies were present in the joint, in eighteen patients they were present in the bone.

The amputations numbered nine, or approximately 10 per cent., though Barling figures 20 per cent. Six of these had complicating bone injury. The foreign body was removed in seven. The wounds of six of the nine patients were excised early at casualty clearing stations or field ambulances. One was excised late at the base and two were never operated on. In addition to these nine, there were three patients who may possibly have gone on to amputation later in England. There is no record of them after leaving the base hospital. They were under observation a long time and were finally sent away during a rush of the wounded needing beds.

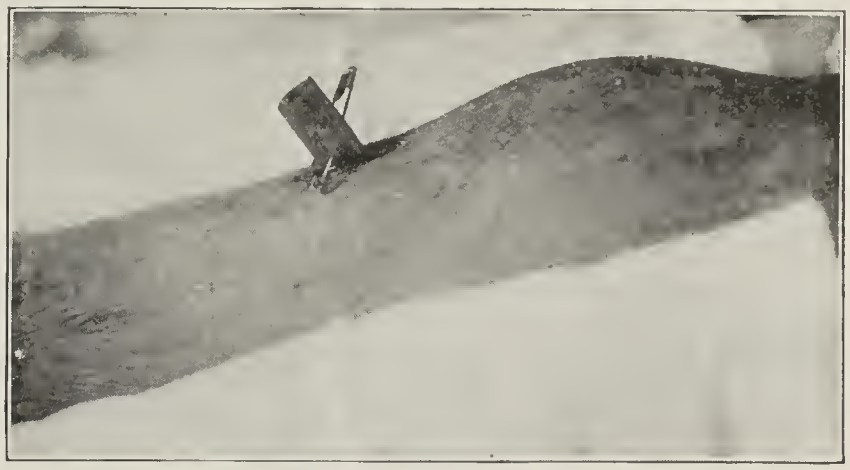
Fig. 1.—Drainage tube inserted in upper margin of subcrural pouch.

Looking at the figures from another standpoint, we find that sixty-six of the eighty-five patients suffered penetrating shots, with no wounds of exit. The results are as set forth in Table 2.

TABLE 2.—RESULTS OF TREATMENT OF SIXTY-SIX PATIENTS

| | No. Patients | Percentages |
|---|---|---|
| Death | 1 | .... |
| Loss of limb | 8 | 12 |
| Fair result (meaning stiff knee or markedly impaired function, but the leg saved) | 11 | 16.5 |
| Good result (a movable knee promising a high degree of function) | 27 | 40 |
| Excellent result (with hope of nearly normal function) | 19 | 29 |

The through and through perforating shots (wounds of exit and entrance) were found in nineteen instances. The results were as follows: one case of death from gas infection of the arm; one case of loss of limb or 5 per cent.; two, or 10 per cent., in which the results were fair; ten, or 50 per cent., in which the results were good, and five, or 25 per cent., in which the results were excellent.

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[1] Barling, H. G.: Brit. Med. Jour., 1917, 2, 277.

We might believe, then, that the result depends not so much on whether a wound is penetrating or through and through as it does on other factors, namely, early surgical excision and the presence or absence of concomitant bone injury.

Taking the early treatment into consideration, we find that in eighty-five instances, sixty-five were treated as early as possible by wound excision and joint closure, leading to fifty-five fair to excellent results. Of the sixty-five patients in whom early excisions were made, thirty-eight had bone complications, six suffered amputations and two died.

Tracing them further from the standpoint of secondary surgery, we find that forty-seven wounds healed cleanly, demanding no surgical interference; four demanded secondary aspiration, all of them giving good results, and thirteen demanded secondary operation, six of them being the amputations mentioned in the foregoing.

The general results of the series of eighty-five were excellent in twenty-five instances; good in thirty-six, fair in thirteen; loss of limb in nine, and death in two.

GENERAL DIRECTIONS

In the light of results of recent experience, after a knee joint injury, the soldier should be splinted at the first dressing post and not be allowed to walk on the leg. All operations should be done at the casualty clearing stations, within twenty-four hours after the wound is received, when possible, or better yet, within eight hours. During pushes, this arrangement is not possible, as a selection of patients for the base hospital must be made. Under such severe battle circumstances, the following types of knee injury may be evacuated at once.

1. Wounds which show no inflammation, are quiescent, and lack pain.
2. Small clean wounds of entrance and exit, or entrance alone, probably caused by rifle bullet.
3. Wounds with no serious bone or blood vessel complications.
4. Wounds in which foreign bodies are not evident and the joint is not painfully distended.

Wounds of the posterior aspect of the knee are more favorable for transportation, since they drain out by gravity. On the anterior aspect, they may drain into the joint during the journey. The Thomas splint, with extension and flannel bandages from toe to thigh, should be used.

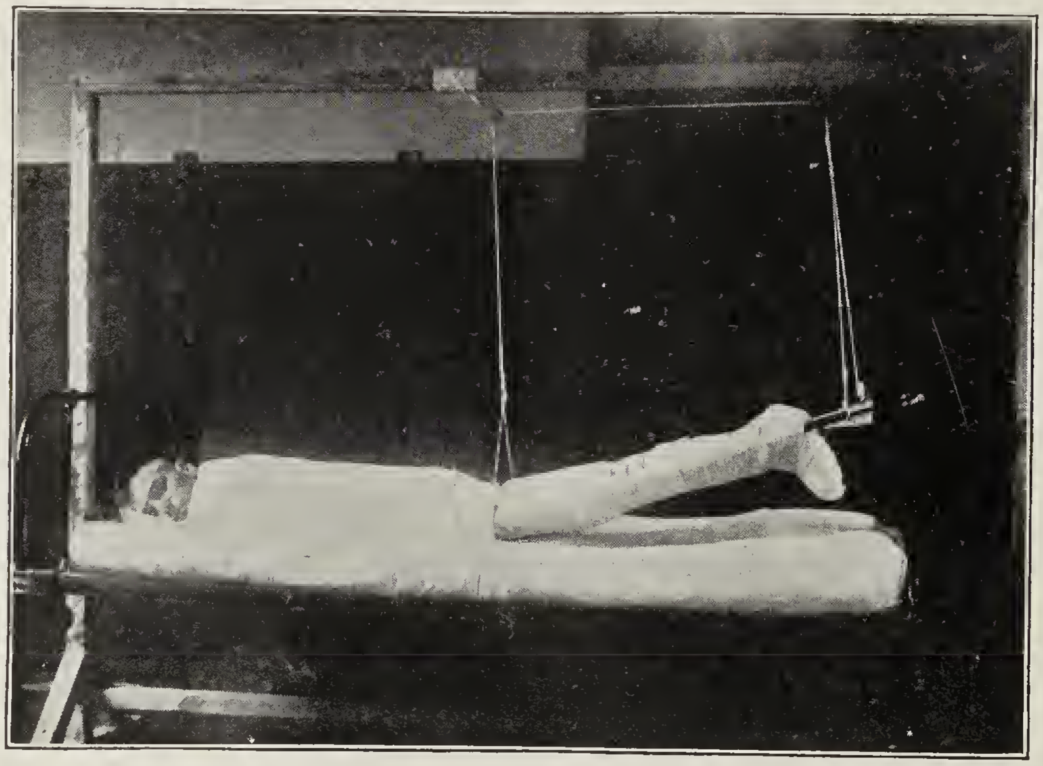
Fig. 2.—Prone position with subcrural drainage. When turned, the Thomas splint is easily supported by the same ropes.

Types of knee injury to be retained at the casualty clearing station are:

1. Those complicated by serious bone or blood vessel injury.
2. Distended painful joint, or early signs of septic inflammation.
3. Foreign body visible or palpable after it has opened joint.
4. Large superficial wound generally caused by shell fire, opening into the joint. Sepsis is certain to spread into the joint and immediate operation is wanted.

Early operative treatment is either radical or conservative. Radical treatment calls for either amputation or resection.

Amputation is advised if severe blood vessel injury exists, or even a large hematoma with probable infection in the popliteal space; if severely comminuted fractures into the joint exist; if gas infections of the periarticular tissues are present, or if sepsis has already set in, and the patient is in a poor general condition. Resection is advised if a comminuted fracture leaves little normal joint surface. Most of these fractures result later in amputations. Only those that are resected very early do well.

Conservative treatment is reserved for the penetrating and through and through wounds, even in the presence of fractures not sufficiently extensive to indicate resection or amputation. If the patella is shattered, it is removed, its periosteum is spared, and the synovial membrane is closed, if possible. If the presence of a foreign body is even suspected, the patient should not be operated on until there are roentgenograms in both lateral and anteroposterior planes.

OPERATIVE TECHNIC

Every knee joint gunshot wound should be operated on if time and circumstances permit. The most innocent appearing may lead to serious trouble. The successive steps are as follows:

1. First come careful skin shaving and disinfection. The leg should be held up off the table by an overhead swing.
2. The track of the missile is completely, carefully and slowly excised with a sharp scalpel, but no scissors. The sliding of the tissues over each other is avoided and the contused edges are removed in one piece. Sufficient skin opening is made to permit access to the foreign body or the joint surface. Fresh towels and instruments are then displayed. No fingers or instruments are inserted through the solid wound into the joint, since not only may infection be carried in, but the foreign body may be pushed into an inaccessible area. The comminuted bone and foreign bodies are removed. The synovial surface should not be sponged, or irritated or exposed for any longer time than necessary. It matters little about the length of the skin incision, but the amount of skin removed should be sparing to avoid undue tension in the

closure. Skin plastics may be performed. If the foreign body is buried in bone, it is removed, and with it the surrounding damaged bone.

3. The joint may be irrigated with physiologic sodium chlorid solution. Various operators use ether, flavine, proflavine or eusol. As far as I can tell, the solution used makes little difference. Mechanical cleansing without joint trauma is desired.

4. The wound is closed in layers. The synovia is closed by stitching, to bring only smooth surfaces in contact, and the skin and superficial tissues are closed snugly unless there is great edema and contusion. In that case, a small drain may be put down to the closed synovial surface, not into the joint. If the synovia cannot be closed, a gauze pack is placed down to its surface. Injection of formaldehyd solution, glycerin, ether or other irritants into the closed joint is of doubtful value.

5. A Buck's extension is attached to a Thomas splint on the leg, and flannel bandages cover all. For comfort and steadiness, the application of the splint should be exact, requiring skilled attention. Most patients should be retained from twenty-four to forty-eight hours before transportation. Dressings and splints are not disturbed unless there is pain, fever or looseness.

Each operation takes from forty minutes to two hours. When aseptic healing is in progress and the joint is not painful, slight passive motions may be started, the second week. Should the joint become distended, should temperature rise and sepsis seem to be starting, an aspiration may be performed to decide the character of the intra-articular fluid and to obtain a culture. Staphylococcus infection is less to be feared than streptococcus. With rest, it may even subside after aspiration. Objections to aspiration are found in the wounding of the synovial surface and leakage of the infected joint contents through the puncture hole into poorly resisting periarticular tissues, resulting in a rapidly spreading sepsis. The joint surface has as much resistance as, if not more than, the periarticular tissues.

Why should these wounds be excised, the synovial edge trimmed and the joint irrigated, after the foreign bone fragments are removed? Because, without a doubt, the synovial surface is almost as able to take care of itself as the peritoneum, if given a chance, and the resistance of the joint surface is greater than we have been led to believe. After trimming and irrigating, the operator closes the joint snugly, and its own resistance will often do the rest. If the joint is not so treated, and if it opens into the unexcised tract of a missile which becomes septic, it is ultimately contaminated by the extension of the infection. This fact can be proved by many clinical observations, the joint infection coming on late after the wound infection has developed and seeped into the articular surface. This is what happened to most of the septic joints in the early part of the war. If infection arises extra-articularly from the closing of the joint after wound excision, it is recognized and the joint is drained, and thereby saved. We employ this principle constantly in operations in fractures of the patella. Splinting prevents motion, and hence favors an early healing of the sutured synovia. It also saves the patient from pain and loss of sleep — two important factors, if sepsis supervenes.

One has only to follow these patients from clearing station to base hospital to be convinced of the value of this treatment, even if gross statistics did not confirm it fully.

### TREATMENT OF SEPTIC JOINT

When septic joint threatens to follow conservative treatment, or no operative treatment at all, what shall be done? Gray,[2] and Rankin[3] advise early radical incision and drainage. I am inclined to side with Page,[4] who says that no classical drainage of the knee joint is satisfactory and that joint excision after infection is valueless. Early amputation is advisable. Amputation must be looked on as a means of saving life. Long courses of joint sepsis, despite radical drainage, give too high a mortality. Early amputation gives a lower mortality and a satisfied living patient. Not that every septic knee should be amputated, but it is probably true that more should be so treated. The joints are drained repeatedly until the patient's resistance and vitality are so low that late amputation results in death or generalized sepsis. A drained joint may result in a useless leg which must be removed within a year.

In July and August, 1917, I began to drain these septic knees very early through the upper part of the subcrural pouch. A small rubber tube was introduced into the joint just after aspiration and the making of a confirmatory culture. Remarkable relief followed the small incision and drainage. Some patients went on to recovery, but others had to endure more extensive drainage or amputation. It was finally decided to drain them thus very soon after cultural proof of intra-articular infection has been obtained, and then, with the leg firmly held in a Thomas splint, to turn the patient over on his face in order to let the joint exudate run out of the small opening, which in this way has become the most dependent point of the joint. The entire joint surface, even down between the bones and the crucial ligaments, was thus drained. When the patient is in dorsal decubitus, it is difficult to drain the knee joint completely, on account of its topography. Lateral incisions must be made very low down and must be sufficiently extensive to drain both the subcrural area and the real joint surface. No knee joint that I have dissected has failed to show full and open connection between the articular surface and the subcrural pouch. Localized infections of the knee joint are almost impossible. Many times in necropsies on these amputated legs, fresh fibrinous or even fibrous adhesions walling off pockets have been found, but the whole joint was also infected. Lateral plus transverse incisions, through the lateral ligaments at the joint level as far down as is safe in order to avoid important structures, will still leave a pocket for the accumulation of pus, but may save a joint. Some joints among this series of patients were saved by this precaution. The crucial ligament should be cut across at the same time, if a stiff knee is anticipated.

For the first stage of knee joint infections, however, even for those that threaten to become severe, subcrural drainage and inversion treatment are suggested. I was ordered to a casualty clearing station in August, and a serious trial of this treatment was interrupted until my return to the base hospital in October. In that month, Mayo-Robson[5] also advised the use of this method, but did not state whether he had attempted it. At that time, there were three patients under treatment for knee joint infection in one of my wards.

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[2] Gray, H. M. W.: Brit. Med. Jour., 1917, 2, 278.
[3] Rankin, W.: Brit. Med. Jour., 1917, 2, 287.
[4] Page, C. M.: Brit. Med. Jour., 1917, 2, 282.
[5] Mayo-Robson, A. W.: Brit. Med. Jour., 1917, 2, 450.

### SUBCRURAL POUCH DRAINAGE AND INVERSION TREATMENT

The joint is proved septic, and should be taken at the earliest stage. Under anesthesia, an opening 1 inch long is made in the midline of the thigh at the upper margin of the pouch. The quadriceps extensor muscle fibers are separated longitudinally by a pair of Mayo scissors, and the joint synovial surface is carefully opened through its upper reflection only. The lower synovial wall should not be damaged. A medium-sized rubber tube extending just into the joint is sewed into place (Fig. 1). The incision around the tube is left wide open to permit the secretion to run out, instead of backing into the thigh tissues. A Thomas splint and extension are applied, the leg being supported by cross pieces of perforated metal both anteriorly and posteriorly, and being thoroughly padded and so bandaged that the portion over the wound can be removed for dressing without loosening the splint. The patient is then put to bed, a Balkan frame is rigged over him, and for a couple of hours night and morning, he is turned over on his face (Fig. 2). Later these periods are extended until he can lie thus for hours at a time.

If the tube clogs with pus and débris, it can be mechanically washed out with physiologic sodium chlorid solution or eusol until it is freely open. The joint may thus be partly irrigated, if desired. When the discharge becomes serous, pus ceases and temperature falls, the tube is removed and the small wound is allowed to heal, the joint being safely started on its own resistance looking toward recovery. The splint is, of course, retained until the joint is quiet and painless.

Six patients have been treated by this method of drainage and inversion and observed for a long period. In four cases the results were very good, one patient recovering from a gas infection of the joint. One had a doubtful outcome and one required amputation. There seems to be a distinct field for this type of treatment, which necessitates comparatively few operations on patients who would otherwise be subjected to extensive drainage, incisions and prolonged suppuration.

Patients so treated should be in the early stage of joint infection, before erosion of the cartilage has taken place and before the infected contents of the joint have mechanically burst or pathologically necrosed through the synovial surface to set up a suppurative periarthritis. This early attention is all-important. If the infection is retained within the joint surface, the synovia, with the help of sensible gravity drainage for its exudate, will rise nobly to do battle. If the periarticular surfaces are also seriously invaded by the pyogenic infection, we cannot expect joint drainage alone to produce a subsidence. It is important, therefore, to follow a technic as described. The operative opening into the joint must not open an avenue for infection into the thigh. In one instance, a secondary and, fortunately, a superficial thigh abscess had to be evacuated after the joint had quieted down. Drainage tubes must be given careful attention, the character of the discharge must be noted, and the tube removed as early as consistent. A bacteriologic control of the joint discharge might aid. A snug splint will not allow knee motion. The patients need encouragement and even anodynes when they are first turned over, but they are soon willing to help turn themselves, understanding that a special effort is being made to save them from more serious operation or amputation.

A vertical position of the limb at right angles to the body in the Thomas splint also places the subcrural pouch in a dependent position, but the drainage is not absolute as in the prone position, and there is more tendency for progressive infection of the thigh tissues.

### RULES FOR TREATMENT OF WAR WOUNDS

The following principles governing treatment of war wounds of the joints were adopted at the Interallied Surgical Conference, in March and May, 1917. They corroborate some of the facts set forth in this article.

1. At the dressing station, wounds of the joints should be immobilized with great care, in an appropriate apparatus.

2. At the clearing station, all injured joints in which the wound is extensive, the joint tissues are lacerated, or the missile is retained, and especially when a fracture is present, should be operated on, if possible, during the first six or eight hours after the patient's arrival. The French surgeons extend this rule to all cases, except certain bullet wounds with a punctiform orifice and without fracture.

3. Roentgenoscopy is indispensable in every case.

4. The operation should include a wide aseptic arthrotomy with excision of the tract, a complete exploration of the joint, a systematic removal of foreign bodies and splinters, and a cleaning and curetting of the lesion in the bone. This should be followed either by complete closure, or by closure of the capsule with superficial drainage. A compressing dressing should be applied.

5. Resection, typical or atypical, should be practiced only when there is considerable damage to the bone. In the knee, the operation should be primary, whereas in the elbow and shoulder a secondary operation is preferable.

6. In severe suppurative arthritis, the first measure should be a wide arthrotomy with complete immobilization and progressive disinfection of the wound. If this treatment fails, then resection should be practiced: with separation of the articular surfaces by extension. In very grave cases immediate resection is required.

### REPORT OF A PATIENT ON INVERSION TREATMENT

Patient 56 in series, a driver R. J. O., 1722, A. F. A., Forty-Third Battery, sustained a shell wound of the left knee. The usual excision treatment was performed at the casualty clearing station, and two days later he was admitted to General Hospital No. 18. The following day his temperature rose to 102.2 F. The knee was painful, and aspiration of the joint revealed a cloudy sanguineous fluid which on culture showed the staphylococcus. The next day's notes said: "The knee joint area as a whole is slightly swollen, edematous and distended. Subcrural pouch not tender to pressure. On the inner side of the joint over the head of the tibia is a slightly ragged wound (stitches removed) discharging pus. This does not seem deep, and the puffiness around the anterior knee tissues extends to the tibial tubercle. The joint was closed off by the primary operation, but while undoubtedly involved (the culture showed organisms) the ultra-articular infection does not appear virulent. Temperature, 100.4. It is possible that the condition is an osteomyelitis of the tibial head as the roentgen ray shows a grazing damage of the bone. A natural reaction within the knee may save it. Skin wound opened widely and hot dressings applied."

Two days later it was necessary to drain the joint, the subcrural pouch was opened, and the patient was put on inversion treatment. After six weeks, the notes said: "Temperature about normal for past thirty days. Slight swelling about the knee, and the wound is practically closed. The patient's general condition is very good, the joint is quiescent and will probably be stiff.[6] Evacuated to England."

## *Special Article*

# SYNTHETIC DRUGS III *

JULIUS STIEGLITZ, PH.D., SC.D., CHEM.D.
CHICAGO

Since the publication of the last article in this series, information supplementary to that given previously has been received as follows:

*Neo-Arsphenamin.*—An importing license has been granted by the Federal Trade Commission to the Diarsenol Company, Inc., 475 Elicott Square, Buffalo, for the Canadian brand of neo-arsphenamin, Neodiarsenol. Licenses for neo-arsphenamin have also been issued to the Takamine Laboratories, New York; Farbwerke-Hoechst Company, New York, and Dermatological Research Laboratories, Philadelphia. The price has not been fixed at yet, but the understanding is that the market price will be about $2.25 per 0.6 gm. ampule.

*Holocaine Hydrochloride* (see Article II, p. 689).—This may be obtained from the Farbwerke-Hoechst Company, 111 Hudson Street, New York, which still has supplies of the German-made article at the price of 50 cents and 45 cents per gram in containers of 1 and 5 gm., respectively. As the drug may be easily prepared from acetphenetidin, the manufacture of the product in this country with a view to its sale at a lower price is being encouraged.

*Barbital-sodium,* introduced as veronal-sodium (see Article I, p. 537), has been submitted by the Abbott Laboratories, Ravenswood, Chicago, under their license to manufacture barbital, and is being examined by the chemical laboratory of the American Medical Association.

## THE STATUS OF SYNTHETIC AND RELATED DRUGS CONSIDERED ESSENTIAL (CONCLUDED)

6. *Cardiac Stimulants.* — Caffein and its combinations with sodium benzoate, citric acid, etc., is available from a number of American firms. No shortage has been reported.

Ouabain (G-Strophanthin-Thoms; crystallized strophanthin) is being supplied in ampules by Hynson, Westcott and Dunning, Baltimore, who are enjoying the counsel of Prof. R. A. Hatcher of the Cornell University Medical School in controlling the purity and the keeping quality of their preparation. Merck & Company report their stock as exhausted and not likely to be replenished in the immediate future. The committee has been endeavoring to interest another large manufacturing house in this drug because it is not considered in the interest of the public welfare that the country should be dependent on any single source of supply in the case of any essential drug, any source of supply being exposed to destruction by fire or other calamity.

In those few cases in which the drug digitalis or its galenic preparations cannot be used, digipuratum and digitoxin are available in good quantities from Merck & Company, 45 Park Place, New York, and digipoten from the Abbott Laboratories.

Attention is called here to the report on the therapeutic use of digitalis preparations by Dr. R. A. Hatcher,[1] which was written at the request of this committee to help meet the present emergency situation.

7. *Local Antiseptics.*—Of the various preparations containing colloidal silver or silver in combination with a protein, quite a number are normally manufactured in this country, and physicians should have no difficulty in securing supplies. Thus silver protein, Squibb (E. R. Squibb & Son, New York), Argyrol, a silver vitellin (manufactured by the A. C. Barnes Company, Philadelphia), Novargan, a silver proteinate, and Collargol, a colloidal silver preparation (both manufactured by the Heyden Chemical Works, Garfield, N. J.), Protargol, a silver proteinate (manufactured by the Bayer Company, Inc., New York,), and Cargentos, a colloidal silver oxid (prepared by the H. K. Mulford Company, Philadelphia) may be mentioned in this class.

The various antiseptics based on the work of Dr. Dakin and Dr. Carrel are now manufactured in this country. The preparations of the Calco Chemical Company, Bound Brook, N. J., the Monsanto Chemical Company, St. Louis, and of the Abbott Laboratories, Ravenswood, Chicago, have been accepted as of standard strength by the Council on Pharmacy and Chemistry. New and Nonofficial Remedies, 1918, contains standards for these products.

8. *Varied.*—There has been considerable inquiry for guaiacol preparations. The Lyster Chemical Company, 61 Broadway, New York, is said to be making a specialty of these preparations. The manufacture of these products as well as of the derivatives of creosote has been recommended to a number of firms.

The supplies of the important *mydriatic* euphthalmine (see New and Nonofficial Remedies, 1918, p. 55) are reported as exhausted, and the former agents of the German preparation, Schering and Glatz, have stated that they do not contemplate manufacturing the product. As this drug is used only in small quantities, too small apparently to interest commercial houses, arrangements are being made to have it manufactured in a university laboratory under license of the Federal Trade Commission.

The manufacture of salophen is being studied by the Antoine Chiris Company, New York, and in the chemical laboratory of the University of Chicago work on the process is being carried out with the view of insuring better yields in its manufacture.

Physicians interested in products which they may consider essential and which have not been referred to in this series of articles, and physicians who have reason to believe that extortion is being practiced in the charges for any synthetic drug, are urged to communicate with the author, whose committee will be glad to give the reports careful consideration.

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[6] A letter from the patient states that he is gradually acquiring the use of the joint.

* The information conveyed in these articles is based on the latest reports to the writer; it is probably not complete as to all details, but is published now to avoid further delay in bringing the main facts before the medical profession. The writer will be glad to receive information to be used later according to his best judgment.

[1] Hatcher, R. A.: Digitalis Therapy and the Present Shortage in Drugs, THE JOURNAL A. M. A., Nov. 3, 1917, p. 1524.

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SATURDAY, MARCH 30, 1918

## RESPIRATION AND THE CARBON DIOXID CAPACITY OF THE BLOOD

The more recent study of what is commonly termed acidosis has shown that the underlying phenomena that may be postulated to explain it are far more diverse and complex than was formerly assumed. The original conception was primarily concerned with the excessive production of acid in some form or other in the body. Subsequent investigations have made it clear that the organism has an unexpectedly large capacity for maintaining its neutrality, despite the appearance of unusual quantities of acid. This forms one of the conspicuous factors of safety. One acid factor is constantly present in the form of the continually produced carbon dioxid. It is carried away from the cells in the tissue fluids and blood in solution as sodium bicarbonate, and the excess can be promptly eliminated through the process of breathing, thanks to the usual responsiveness of the respiratory center to even the slightest increment in acidity in the circulation. Acids other than carbonic displace the carbon dioxid from the blood, so that the total acid factor present is scarcely altered from the standpoint of hydrogen ion concentration. Owing to this regulatory mechanism, it is practically impossible to detect any undue production or accumulation of acids in the blood by estimating its reaction; for the balance of acids and alkalis is kept essentially unaltered until very extreme conditions arise. These facts have often been emphasized in The Journal.

When other acids displace part of the carbonic acid of the blood, the carbon dioxid tension of the blood decreases; and since the carbon dioxid tension of the alveolar air varies directly with that of the arterial blood, it has been customary to estimate this respiratory factor as a measure of acidosis. Lately, however, attention has been centered even more on the altered capacity of the blood plasma to bind carbon dioxid when acid production is increased in the body. If the available bases neutralize other acids, they cannot combine with their usual quota of carbonic acid. D. D. Van Slyke, in particular, has emphasized the importance of measuring the carbon dioxid combining capacity or the "alkali reserve" of the blood as an index of acidosis more reliable than the estimation of the content of carbon dioxid in the alveolar air.

Yandell Henderson[1] and his collaborators have pointed out that alterations in respiration introduce still further complicating factors into the problem of estimating the existence of acidosis. It is shown by them that when in an otherwise normal organism respiration is stimulated to excessive vigor by pain, or by a drug like ether (or probably by any condition that lowers the threshold and increases the sensitivity of the respiratory center), the blowing off of carbon dioxid produces a reduction in the carbon dioxid content of the blood. This condition very soon leads to (and in respect to $p_H$ is probably in part compensated by) a reduction also in the carbon dioxid capacity (alkali reserve) of the blood. Apparently alkali passes out of the blood into the tissues. Thus the acid-base equilibrium, or carbon dioxid alkali balance, of the blood is restored at a level much below normal, and a condition simulating true acidosis, but in certain respects markedly distinct from it, results. The feature to be emphasized is that the content of not only the carbonic acid but also the sodium carbonate remains low. Henderson believes that, unlike a true acidosis, the total alkali in the body remains, so far as we can judge, unaltered; it is merely abnormally distributed. A reversed condition is brought about by diminished breathing. When the respiratory center is depressed, as by morphin, says Henderson, or when, by the administration of high concentrations of carbon dioxid in the air breathed, the alveolar carbon dioxid is raised, the carbon dioxid content of the blood is also raised. This causes (and in respect to the $p_H$ of the blood is probably compensated by) an increase in the carbon dioxid capacity or "alkali reserve" of the blood, due apparently to the passage of alkali from the tissues into the blood. Thus a pseudo-alkalosis or, if one thinks only in terms of $p_H$, a carbon dioxid acidosis, is produced. Here both the carbon dioxid and the sodium carbonate in the blood are above normal. Probably, we are further told, the total alkali in the body is unaltered and is merely redistributed.

The views just outlined place primary emphasis on alterations in breathing rather than on metabolic changes as the starting point of alterations in the carbon dioxid carrying capacity of the blood. Henderson and Haggard,[1] working at the Yale Medical School, have tested their hypotheses in relation to the known phenomena of ether anesthesia. According to them the disturbance of the carbon dioxid capacity of the blood by ether appears from these experiments to be wholly dependent on disturbance of respiration. If the anesthesia is managed so that respiration is but little increased, the lowering of the carbon dioxid capacity of the blood is slight. Ether hyperpnea, however, causes a very great reduction. Down to the critical level between 33 and 36 per cent. by volume, the process is spontaneously reversible and the animal recovers. Below this level it appears to be irreversible, and death ensues. According to the Yale physiologists, light etherization, such as is otherwise most effective in lowering the carbon dioxid capacity, and most harmful to the subject, loses this influence when administered with sufficient carbon dioxid to maintain the alveolar carbon dioxid at a normal level.

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[1] Henderson, Yandell, and Haggard, H. W.: Respiratory Regulation of the Carbon Dioxid Capacity of the Blood, I, High Levels of Carbon Dioxid and Alkali, Jour. Biol. Chem., 1918, **33**, 333; II, Low Levels of Carbon Dioxid and Alkali Induced by Ether: Their Prevention and Reversal, ibid., p. 345; III, The Effects of Excessive Pulmonary Ventilation, ibid., p. 355; IV, The Sequence of Trauma, Excessive Breathing, Reduced Carbon Dioxid Capacity, and Shock, ibid., p. 365.

Henderson has long insisted on the dangers underlying overventilation in anesthesia, owing to the acapnia that results.[2] The sequence of events to be taken into account are thus summarized by him: Under ether the alkali reserve of the blood follows and is controlled by the carbon dioxid content, and the carbon dioxid content is in turn dependent on the alveolar carbon dioxid, which is determined by the breathing.

## INTRAGASTRIC CONDUCTANCE

The introduction of the stomach tube as an instrument for use in clinical diagnosis is sufficiently recent to enable many of us to recall and survey from personal recollection the helpful contributions which this aid in technic has afforded. It is one of many devices and procedures that have tended to make possible more accurate measurements in a field in which guesswork and assumption previously prevailed. History shows that every instrument of precision applicable in medicine has tended to advance our science and practice to a decidedly higher plane; this is true likewise of devices that permit the application of more exact methods of analysis. It is worth while, perhaps, to emphasize this fact; for one might hastily conclude that progress in the development of instruments and instrumentation has been applicable solely to surgery or mechanotherapy. As a matter of fact, the catheter, the trocar and the gastric sound are useful alike for diagnostic and for therapeutic ends.

The employment of newer forms of instruments, like the duodenal catheter and the modified gastric tube of Rehfuss, have facilitated chemical exploration of more remote portions of the alimentary tract, in the one case, and the removal of contents at frequent intervals, in the other instance. Here, evidently, greater accuracy in analysis of samples of contents, and consequently a clearer insight into the sequence of secretory and digestive phases, have been made possible. The device for the determination of intragastric conductance newly described by Bergeim[3] of the laboratory of physiologic chemistry at the Jefferson Medical College, Philadelphia, gives promise of additional helpfulness in the same field of clinical investigation. It consists of a retention stomach tube in the form of an electrolytic cell which permits the determination of intragastric conductances at any desired interval of time without disturbance or removal of gastric contents. The tip of the device contains a thermocouple which makes possible intragastric temperature determinations and corrections, and an aspiration tube by means of which samples of gastric contents may, if desired, be collected for analysis.

The usefulness of the intragastric conductance apparatus as an aid in diagnostic gastric measurements depends on the fact that the conductance of most biologic fluids is dependent on their content of salts of strong acids and bases. The specific conductance of any solution depends only on the number of ions present and the mobility of those ions, being thus more specific than the cryoscopic index, which is influenced also by the molecules of undissociated substances. Strong acids and bases or the salts of strong acids and bases are very completely dissociated in solution in the concentrations commonly encountered in physiologic fluids. Weak acids and bases and their salts are but slightly dissociated, and neutral organic substances, not salts, do not ionize. These facts led to the hope that estimations of conductance might in many cases at least furnish an index to the concentration of hydrochloric acid in the stomach. Bergeim pointed out that a determination of this character would possess the advantage over titration methods of obtaining the desired data at as frequent intervals as required without any disturbance or removal of gastric contents.

Test experiments have apparently demonstrated the value of the new procedure. Bergeim has already noted that aside from the swallowing of saliva, the conductance of which is low, intragastric conductance, after the first hour or so of digestion, is almost always considerably modified by the regurgitation of pancreatic juice or bile or both, and possibly to a lesser extent by pyloric and duodenal secretions. The conductance of pancreatic juice and bile being usually very low as compared with that of the gastric contents at maximum acidity, regurgitation tends markedly to lower intragastric conductance as well as activity. Conductance, however, rises relative to free hydrochloric acid, on account of the higher salt content of these regurgitated secretions. After the ingestion of mineral acid, neutralization is brought about in the same manner as during digestion. The progress of these studies of the gastric response to food and intragastric digestion, examined in new ways, will be watched with interest.

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[2] Bryant, John, and Henderson, Yandell: Closed Ether and a Color Sign, The Journal A. M. A., July 3, 1915, p. 1.

[3] Bergeim, Olaf: Gastric Response to Foods, I, The Determination and Significance of Intragastric Conductance, Am. Jour. Physiol., 1917, 45, 1.

### LEGISLATION FOR INCREASED RANK FOR MEDICAL OFFICERS

On several occasions The Journal has emphasized the importance of legislation for increased rank and authority for officers of the Medical Reserve Corps. Specifically it has urged enactment of the recently introduced Owen-Dyer Bill. It has been suggested that modification of this bill would be necessary to secure its passage, but that such modification need not be serious. In any event, some such legislation is not only desirable, but also vitally necessary if common justice is to be rendered to the Medical Reserve Corps, and if the best results are to be achieved by the Medical Department. Apparently the only active opposition thus far has come from the general staff and the Secretary of War. If the newspapers of the country mirror public opinion, certainly the public is in favor of this legislation.

As the Brooklyn *Eagle* says, "The logic of this proposition appeals to every mother whose son is in a home camp or in the country's service abroad. It is inexorable logic. All that the Owen Bill, now pending, does is to give Army surgeons the ranks corresponding to those the Navy grants. It is not a radical, not a revolutionary measure, but it will put an end to conditions greatly injurious to the health protection of American soldiers." The Buffalo *News* thinks that "inasmuch as the measure is calculated to facilitate the work of the Army Medical Corps and benefit the troops by precluding dangerous delays in medical relief, etc., its passage will be welcomed and approved of by every one," and the New York *Globe* states that "the request of the officers of the Medical Reserve Corps to be placed on the same footing as the regular Army medical officers seems to be a perfectly reasonable one. . . . The call of the Army to the medical profession has been enthusiastically responded to. . . . Remediable legislation ought to be enacted without delay and the doctors of the country should help the volunteering members of their profession to win the recognition to which they are entitled by urging their representatives and senators to support the Owen-Dyer Bill." The Chicago *Herald* presents the case for both sides, and states that "lives can be saved and the strength of the Army kept up, medical men think, more easily if greater power commensurate with responsibility were in the hands of the doctors and sanitarians. A decision should be reached without prejudice, and unless it can be lucidly shown that higher ranks for medical officers can have definite disadvantages, General Gorgas' bills should be enacted." The Boston *Herald* notes that the cream of the medical profession of the United States is now included in the Medical Reserve Corps. "They labor under a serious handicap by reason of their inferior rank. . . . Titles ought to correspond to responsibilities. . . . When we realize that in all our wars disease has been responsible for more than 70 per cent. of the mortality, we can get some realization of the importance of the service which we call on the Medical Reserve Corps of the Army to render." The Philadelphia *Record* doubts whether Secretary of War Baker is "seriously against" the legislation. "From an unprejudiced point of view," it says "there would seem to be no good reason why physicians and surgeons who are rendering invaluable service in saving lives and protecting the health of the soldiers should not be raised to a rank commensurate with the importance of their work, especially if that is the case in other armies than our own. The opposition to this apparently simple act of justice betrays the same spirit which fought against the idea that enlisted men in the Army and Navy should be given every opportunity to rise to the highest honors."

In fact, the press is practically unanimous in favoring this legislation. With this encouragement, the physicians of the country should redouble their efforts to let Congress know that the medical profession wishes an early and favorable consideration of legislation for fair treatment of their confrères in military service.

## *Current Comment*

### WARTIME ATTITUDES TOWARD DIETARY REFORMS

Any careful observer of the effects of the conditions that the war has brought about in relation to food and diet may observe at work two somewhat contrary tendencies. For one group of our population, representing the most conscientious endeavor to "do one's duty" in the face of the admonition that food will win the war, there is actually a danger of self-imposed denials that may be detrimental to the best welfare of its members; whereas another group, enjoying perhaps for the first time the advantages of high wages and larger incomes, feels the temptation to indulge in unwonted dietary extravagances. The time has come when the indifferent representatives of the latter group must be brought to a realization of their full duty. On the other hand, it may well be asked whether the earnest conservationists are not in danger of impairing their health and vigor by undue dietary restrictions and unwonted substitutions that may lead to lack of appetite and insufficient food intake. Dr. Percy G. Stiles[1] of the Harvard Medical School has given some timely advice to the zealous lest they impose on themselves extreme and ill advised denials. Since a considerable part of our food intake is utilized as fuel to support muscular activity, the added needs of all persons who are engaged in strenuous work must never be forgotten. Sugar furnishes nearly one seventh of the total energy of the American people. As Stiles puts it, the replacement of this is an operation of vast magnitude. We must also bear in mind, what has repeatedly been emphasized by The Journal, that the food needs of growing children are proportionately large, so that they must not be restricted in proportion to their size. An adolescent boy may require more food than a hard working man. Even in war time health and vigor must be conserved in fullest measure, for only thus can the best service be rendered. In making the new adjustments of these days, it is above all essential to preserve a proper mental balance. Hence we commend this salutary advice by Stiles:

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[1] Stiles, P. G.: War Time Diet and Health, Health News, 1918, **13**, 28.

> It is within our power to determine whether we will magnify our privations or find an intellectual pleasure in grasping the problem and watching the process of its solution. We may dwell on the unwelcome restrictions or we may with greater advantage rejoice in the new spirit of cooperation. It is likely enough that the dissatisfaction we are tempted to feel with our daily food arises chiefly from the unhappy undercurrent that is in every mind. The terrible facts of the war are to be resolutely faced, but we shall do well to preserve our mental balance by sane recreation, good reading, and other interests detached from this colossal horror. If we can keep a philosophic temper we can make light of dietetic trammels.

## WATER WASTE IN CHICAGO

Chicago pumps from Lake Michigan a daily average of 259 gallons per capita. This is the largest amount of water furnished by any waterworks system in the world. The original character of Lake Michigan water is exceptionally satisfactory, but at times the water near the shore becomes more or less contaminated by neighboring towns and to some extent by the city itself. The water supply is not contaminated uniformly and continuously, but its pollution depends largely on weather conditions and the presence of passing vessels. At times also the water becomes highly turbid, owing to the stirring up of the lake by storms and by temperature changes. It is believed by many authorities that eventually Chicago will demand filtration of the supply in order to eliminate impurities and excessive turbidity. The expense of filtering the enormous volume of water now pumped is practically prohibitive, and it would seem as if the volume should be materially reduced if filtration is ever to be carried out. There is no question that a large part of the water pumped through the mains of Chicago is wasted — not used. If the pumpage could be reduced to 125 gallons per capita, a substantial saving would be effected. Cleveland and Milwaukee, also large industrial cities on the Great Lakes, report a daily pumpage per person of 113 and 118 gallons, respectively. It is estimated that nearly 100,000 tons of coal annually are wasted at the Chicago pumping stations in pumping the unnecessary quantity of water that now passes through the mains. All responsible waterworks superintendents and engineers are agreed that the only remedy for this situation is the establishing of universal metering as a policy. It is hardly necessary to point out that metering does not restrict the proper use of water, but merely diminishes the waste. Universal metering in Chicago would also insure an abundant supply at sufficient pressure for all consumers in all parts of the city. It is estimated that in thirty-three years universal metering will save the city $135,000,000. Additional tunnels, cribs and pumping stations will not be needed throughout this period. The prejudice that exists against metering in some quarters is unreasonable and not based on facts. Here is an important measure of conservation which in the long run will be of advantage to the health as well as to the finances of the whole community. The movement to meter the water supply of Chicago should have the active support of every physician.

## BONITA, THE BEAUTIFUL

Last week the Propaganda department had a brief history of the Braun family, "Professor John F., Himself," and "Professor Kate A., Herself," now of Peru, Ind. The number of aliases assumed by this family of quacks was mentioned and some of the names were given. Braun for a while called himself "Rev. D. R. Schiller"; Mrs. Braun has appeared under many names, some of them being "Delia Deimling," "Hulda De Muth" and "Mary A. Rose." The latest name with which the Brauns juggle seems to be "Bonita." Now come some Indiana newspapers recording the arrest at Rochester, Ind., of "Miss Bonita Rose of Peru and her brother Oliver Rose." According to the papers, "Bonita . . . enjoyed a few days of fine business" and "it is thought the couple extracted about $500 for their few days service in Rochester." The advertising matter announcing Bonita's coming indicate that "Professor Braun, Himself," had not lost his old skill as a press agent. Here is a sample:

> "Bonita, a noble, beautiful character, was born of poor parents in an obscure American village. This sweet and unpolluted flower of love and kindness has sympathies as wide as the world. She is a perpetual surprise, even to those who know her best. And there is something about her no one has ever been able to explain, not even herself."

This beautiful "unpolluted flower"—whose "mother, Mrs. Mary Rose . . . is also a 'healer' "—is out under bond.

## LITERATURE ON RECONSTRUCTION AND REEDUCATION

Among the recent bulletins on reconstruction and reeducation of the disabled soldier to reach The Journal is the March, 1918, number of "Reconstruction," a bulletin issued by the Invalided Soldiers Commission, 22 Vittoria Street, Ottawa, Canada. It is well illustrated and in addition to special articles on various phases of the work, contains news items, question and answers, and contributions from disabled soldiers presenting their points of view. Another series includes Nos. 4 and 5 of the bulletins issued by the Red Cross Institute for Crippled and Disabled Men, New York City. No. 4 is entitled "A Statistical Consideration of the Number of Men Crippled in War and Disabled in Industry," by I. M. Rubinow. The contents are well described by the title. No. 5, a pamphlet of seventy-five pages, is written by Major R. L. Todd of the Canadian Army Medical Corps, and is entitled "The French System of Return to Civilian Life of Crippled and Discharged Soldiers." It is a complete study of French methods and experience in this work. Bulletins 5 and 6, issued by the Federal Board for Vocational Education, have also just come to hand, the former entitled "Vocational Rehabilitation of Disabled Soldiers and Sailors" based on a study made by Dr. John Cummings, and No. 6, "The Training of Teachers for Occupational Therapy for the Rehabilitation of Disabled Soldiers and Sailors," by Elizabeth G. Upham. Bulletin No. 5 is divided into five parts, the first concerning general principles and policies; the second a complete review of foreign legislation and experience; the third, the size of the problem; the fourth, an outline for an exhaustive study and report, and the fifth, a reprint of the bibliography of the war cripple compiled by Douglas C. MacMurtrie of the Red Cross Institute for Crippled and Disabled Men. The contents of Bulletin 6 are indicated by the title. These pamphlets may be secured by writing to the Federal Board for Vocational Education at Washington. The division for reconstruction and reeducation of disabled soldiers of the Surgeon-General's Office of Washington has issued two bulletins, in mimeograph for Army use only, consisting of abstracts, translations and reviews of the recent literature on this subject. The first bulletin was issued in January and the second is just received. Together they bring the subject up to date. The recent publications here mentioned are only a few of the many that have been issued since the beginning of the war. Even a cursory reading emphasizes the much to be regretted fact that the great bulk of this material is reduplication. What is needed today, particularly in this field, is coordination and cooperation. Let us emphasize: coordination is especially needed in the literary field. Such reduplication means not only waste of work and expense, but also discouragement for those who are interested in this tremendously important subject.

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**Acetic Acid and Acetone from Beets.**—G. Mezzadroli, an Italian scientist, conceived the idea of utilizing the bacilli contained in both sour milk and beet juice in directly transforming the saccharose in beet juice into lactic and acetic acids as by-products in the manufacture of alcohol and sugar. The bacilli concerned as he designates them are lactic acid invertors and acetic acid invertors. The details of the conversion are given in the *Scientific American*, March 9. Beet juice containing about 10 per cent. of sugar is sterilized for half an hour at 120 C. and then planted with a pure culture of the lactic acid convertor which in a few hours causes it to become highly acid. After several neutralizations with sterile sodium carbonate the acid formation ceases, with the exhaustion of the sugar. The 100 grams of saccharose taking part in the fermentation yields 60 to 80 per cent. of lactic acid, 10 to 20 per cent. of acetic acid and 1 to 7 per cent. of alcohol, with traces of acetone and the higher alcohols. The acetic convertor is even more efficacious than the lactic, but the yield of acetic acid has not exceeded that of the ordinary acetic fermentation. The test amount, 100 grams, of saccharose gave 40 to 50 per cent. of acetic acid, 10 to 20 per cent. of lactic acid and 1 to 2 per cent. of acetone. It is believed that it will be possible to obtain acetic acid by this process without passing through the intermediate stage of alcohol.

# Medical Mobilization and the War

### Amendments Affecting Medical Officers

Amendments have been proposed in the Senate to the National Defense Act to the effect that members of the Medical Reserve Corps or contract surgeons on active duty for twelve years subsequent to 1898 shall be eligible to appointment as first lieutenant in the Medical Corps, subject to examination, and any officer who fails to pass the physical examination by reason of disability incurred in the service shall be retired with pay and allowance of first lieutenant of the Medical Corps.

### Personnel of the Medical Department

For the week ending March 23, the personnel of the Medical Department of the Army included:

Medical Corps: 799, including 1 major-general, 66 colonels, 102 lieutenant-colonels, 177 majors, 2 captains and 451 lieutenants.

Medical Reserve Corps: 18,138, including 1,090 majors, 4,229 captains and 12,819 lieutenants. On active duty: 14,911, including 983 majors, 3,685 captains and 10,243 lieutenants.

Medical Corps, National Guard: 1,236, including 12 lieutenant-colonels, 257 majors, 151 captains and 816 lieutenants.

Medical Corps, National Army: 81, including 3 brigadier-generals, 12 colonels, 59 lieutenant-colonels and 7 majors.

The Dental Corps, 209; Dental Reserve Corps, 5,280, of whom 1,346 are on active duty; Dental Corps N. G., 259; Veterinary Corps, 24; Veterinary Reserve Corps, 1,425, of whom 806 are on active duty; Veterinary Corps N. G., 57; Veterinary Corps N. A., 297; Sanitary Corps, 990, and Ambulance Service, 142, constitute the remainder of the commissioned personnel.

The DISCHARGES in all branches of the service to date are:

| | Number | | | |
|---|---|---|---|---|
| Causes | MRC | MC.NG | DC,NG | San C. |
| Physical disability | 461 | 35 | 6 | 4 |
| Inaptitude | 180 | 10 | 0 | 1 |
| Other branches of the service | 377 | 18 | 2 | 42 |
| Domestic troubles | 30 | 0 | 0 | 1 |
| Needed by the community | 35 | 1 | 0 | 0 |
| Deaths | 42 | 3 | 0 | 0 |
| Dismissals | 0 | 2 | 0 | 0 |
| Resignations | 131 | 42 | 5 | 8 |
| | 1,256 | 111 | 13 | 56 |

### Reconstruction Aids

Reconstruction hospitals for the training and reeducation of the wounded and crippled soldiers of the war will soon be established by the medical department of the Army. It is reported that there is now a demand for specially trained women to give remedial exercises and massage to returned soldiers. The members of this force will be called reconstruction aids, 100 of whom are said to be needed immediately, with many more in the near future. The Surgeon-General has announced regulations for the examination of applicants for these positions, who must be graduates of training schools for nurses and furnish one letter of recommendation from an orthopedic surgeon and another from the principal of a school who knows the applicant personally. The Surgeon-General refers women who wish to take this training to the following certified schools: American School of Physical Education, 44 Botolph street, Boston; Boston School of Physical Education, 105 South Huntington Avenue, Boston; Posse Normal School of Gymnastics, 779 Beacon Street, Boston; New Haven Normal School of Gymnastics, 1446 Chapel Street, New Haven, Conn.; Normal School of Physical Education, Battle Creek, Mich., and Reed College, Portland, Ore. The course of training comprises instruction in anatomy, physiology, personal hygiene, the theory of massage and remedial exercises, theory of bandaging, and practice in the last three subjects.

### FROM AN M. R. C. OFFICER IN FRANCE

Somewhere in France, Feb. 26, 1918.

The censor permits me to state that I am in France, in the zone of the armies; that I am chief surgeon in a hospital attached to the X...... corps, Y...... army, in the Z...... sector. I shall try, in fear and trepidation, to convey to you the information that twelve of Our Boys—of whom two are officers—are at this moment sharing the benefits of this establishment with their French comrades. Mr. Censor may even allow me to state that the hospital grounds can still boast of artillery emplacements, trenches and entanglements, although the veterans of the French army are now busily removing these reminders of the terrific conflicts of 1914-1917; which fact, if you only stop to think of it, indicate to my mind that the general staff is not paying much attention to Hindenburg's recent boast that he would dine in Paris on April fool's day!

When I look back to the strenuous days of Fort Benjamin Harrison, and recall the "angor animi" which overwhelmed me when, as C. O. of my company, I shouted "right front in line" instead of "on right into line," thus scattering my men all over the railroad track and causing our esteemed instructor to yell "look at you, look at you; just like a flock of sheep"! I realize that the scene has shifted quite considerably and that other matters, equally vital, now occupy our thoughts!

### AEROPLANE RAIDS

Everything is topsy-turvy; as I write in bed, a glorious full moon illuminates the country around me, but heavy black curtains over my window and a tightly closed door, prevent me from gazing at it, no lights being allowed to appear from the outside for fear of attracting the attention of an enemy night prowler of the air. "Damn the moon," remarked an officer to me, as we gazed skyward before retiring, "this means a visit from Fritz tonight."

A clear day means "good visibility" and, while I am strolling along the high road, enjoying the beautiful scenery, Fritz, sitting in the basket of his "sausage" stationary balloon back of yonder hill, is probably telephoning a Boche battery words to this effect: "Idiotic Yankee on high road; three thousand yards; give him hell"! Fortunately you hear the whizz of the coming shell, jump into the trench which borders the road and crouch low until the beastly thing has exploded. Other shells may follow the first one, or Fritz may only have wished to notify you that promenading along the high road was not a healthy occupation, and you retrace your steps in the trench until a turn of the road hides you from those invisible but all-seeing eyes.

Aeroplane bombs give you no warning; you hear the faint purring of the engine, several thousand feet above you, and recognize its nationality by . . . beg pardon, Mr. Censor, but the aeroplane itself is invisible! You take to the nearest shelter and trust that the bomb will not make a direct hit. A terrific "wrrang" loudly informs you that the bomb has touched ground and exploded. As aeroplanes travel rapidly, if the first bomb has fallen near you, you are perfectly safe and crawl out to take a look around; if the explosion is a distant one, you crouch and wait—perhaps for your turn to come!

Protection against shell fragments is easily obtained. Tiers of sand bags, baskets filled with earth or gravel or two parallel sets of chicken wire, 1 foot apart, strung around the hut or ward and filled in with earth, keep you perfectly safe. If the bomb should happen to hit the roof . . . that's another matter! Hospitals are now provided with bomb-proof dugouts and, if the alarm is sounded soon enough, patients and personnel can be placed in absolute safety, even against a direct hit.

### A CAMOUFLAGED HOME

It is a long way from the "pup tent," which we were taught to put up or take down in three minutes and forty-five seconds, to the wooden huts in which the officers M. C. now live! Its roof and walls are camouflaged; double chicken wire and earth surround it; doors and windows are tightly closed and curtained at night, as long as any light is burning. In one corner is the cot, surrounded by a 3-foot wall of sand bags, giving one the illusion of a bath tub! You remove a few clothes—none when the moon is shining—take a running jump and clear the sand bags; excellent exercise just before retiring! Having accomplished this acrobatic feat, you place your gas mask and helmet where you can instantly grab them, test your flashlight to see if it has not "gone dead," pull the woolen "crusader's head gear" which loving fingers have knitted for you, over your head, and settle down to dream of enameled bath tubs with hot running water, Castile soap and Turkish towels! Instead of the rumble of the elevated train or the honk honk of the autos on the boulevard, the dull boom of heavy cannon, or short, angry bark of anti-aircraft guns, soothe you to sleep.

### A REGIMENTAL AID POST

Let me try and picture to you a typical French regimental aid post, the only kind we shall have as long as trench warfare exists:

To reach it, you zigzag through an evacuation trench from 1 to 4 miles long, 7 feet deep and 4 wide, twisting from right to left until your head is dizzy and you have to lean against the earth, remove your helmet and mop your brow while your semicircular canals are readjusting themselves!

The bottom of the trench may be dry in places, if "duck-boards," drainage, soil and climate are all willing that it be so; more often than not, you flounder, slip and splash in the mud and water. Trench evacuation is computed on the basis of four stretcher-bearers per wounded, per kilometer, per hour, which gives one an exact idea of its difficulties. My sympathy and admiration go out to the brave and sturdy men who have to carry a wounded soldier through these mud holes; their work is herculean.

Relay stations are placed five hundred yards apart, in which one or more squads of stretcher-bearers are posted. The station is a dugout, from 10 to 20 feet below the surface of the ground, heated by a small wood-burning stove with a chimney running up the side of the stairway, and lighted by acetylene lamps. The stairway is 3 feet square and placed at an angle of 45 degrees, so that in descending or ascending, the steel helmet demonstrates its immense value, as it bumps against the supporting beams. To watch a loaded stretcher carried down at this perilous angle is a never to be forgotten sight. Should the stretcher bearers get caught in a barrage fire they take refuge, with their wounded, in the relay station.

The particular regimental aid post which I am going to try and describe, is built two stories deep, the first room 16 feet, the second 30 feet below the surface of the ground. Each room is 60 feet long, 18 wide and 7 feet high, securely walled and beamed and divided into three compartments by wooden partitions. The same standard type stairway connects the two rooms.

Behind the lower room runs a gallery 4 feet wide, 7 high and 500 yards long, which connects the aid station with the rest of the Troglodyte village. Over two thousand men live there underground, their health apparently none the worse for the change.

### GAS ATTACKS

The upper stories are used as mess rooms, offices, store rooms, etc.; the lower ones as sleeping quarters for officers and men. At each end of the village, the underground gallery has a camouflaged exit, so that in case of a surprise attack at one end, officers and men can escape from the opposite side. Protecting all of the upper entrances are pyramids of sand bags, so that shell fragments cannot fly down the stairways. As a protection against gas attacks, each entrance has a stout sheet of canvas hanging in front of it, immediately behind which is a double door which fits snugly and closes accurately. Six feet down the stairs, a second canvas sheet is placed, and finally, another 6 feet further down a second door and third canvas sheet complete the antigas system. A gas shell can be recognized by the soft "psstt" which it makes when it explodes, very different from the high-explosive "bang."

At the first gas-shell explosion the guard sounds a siren, horn or wooden rattle. Gas masks are immediately applied by officers and men, and every stairway is closed. A hospital corps man seizes a large sprayer (similar to the ones used by fruit growers), filled with a solution of sodium or potassium bicarbonate, and rapidly sprays all three of the canvas sheets. Having done so, he stands between the second door and second sheet and continues to spray the second canvas as long as the attack lasts. The sheet is kept moist but not dripping. At the same time chlorinated lime powder is sprinkled on the floors, especially at the bottom of the stairways. Each of the lower rooms has, at one end, a ventilating shaft, 6 inches square, extending vertically from the ceiling and ending 1 foot above the surface of the earth. A tin cap on a spring hinge enables the shaft to be closed during a gas attack. Attached to the inner side of the cap is a long string which passes down the air shaft into the room. At the first alarm the soldier nearest the shaft has orders to pull the string taut and fasten it to a convenient nail.

### OPERATING ROOMS

The operating and dressing room, 16 by 10 by 7 feet, is located immediately in front of the stairway. It is amply lighted by four acetylene lamps and well ventilated. The operating table is a simple but adequate one, and the field instrument case contains all of the necessary instruments for first-aid surgery of the ordinary type. Sterilizing is done by boiling over a very efficient Primus lamp. The surgeon in charge, a captain, had trained one of his orderlies to give ether or ethyl chlorid anesthesia, and a second orderly acted as assistant.

As in all sanitary formations in the zone of the advance, the amount of operative work depends on the activity of the sector. In periods of ordinary "strafing," thorough excision of lacerated tissues is done; fractures are set and immobilized with traction; hemorrhages are checked by direct ligation of the artery in the wound, and shock is treated by giving hot drinks, lowering the patient's head and placing him in a "cellule chauffante," a hot chamber improvised by means of blankets and an alcohol lamp, hot air being conveyed under the blanket through a metal or wooden chimney.

Sterilization of the wound after excision en masse of all lacerated tissues (débridement) is obtained by means of ether in all deep lacerated wounds or perforating wounds; by tincture of iodin in superficial wounds. The first injection of 500 units of antitetanic serum is given, with morphin whenever indicated. No attempt is made to perform esquillectomy (removal of loose bone fragments), or to remove shell fragments unless they appear within the wound and can be easily extracted. Tracheotomies for manifest edema of the glottis are performed here, but no intracranial, intrathoracic or intra-abdominal surgery is attempted. In other words, the surgeon aims to render a majority of the simpler wounds aseptic, but he, very properly, makes no attempt to do any reparative work amid surroundings which are manifestly inadequate for such procedures.

During active fighting, when as many as two hundred cots are occupied by wounded men, nothing is done except to cleanse the wound with ether and apply a sterile dressing. Antitetanic serum and morphin are given, the former in all cases, the latter when deemed necessary. Put tersely, the regimental surgeon does as much as he can under the circumstances. After almost four years of war, the French sanitary service has learned that a service which lacks elasticity and quick adaptability, is bound to fail. Given the proper staff and personnel, a certain latitude must be allowed each regimental surgeon in order that he may be able to render the best service to the greatest number of wounded in the shortest space of time.

## NEWS OF THE CANTONMENTS

### Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

March 16, 1918.

Lieuts. Hendricks and Good, M. C., and Lieuts. Fink and Shannon, D. C., have been promoted to the grade of captain.

The family of Major Thompson, surgeon to the One Hundred and Ninth Field Artillery, is staying at "The Lenwood."

The large base hospital at Camp Hancock has received an additional quota of trained nurses, and an extra building has been erected to accommodate them.

### Thirty-First Division, Camp Wheeler, Macon, Ga.

March 22, 1918.

Camp Wheeler has passed through a severe winter with a high sick rate, but has survived, and is now doing better. The sick rate is moderate, considering that the Thirty-First Division is now more than half draft men. Measles, mumps and pneumonia have practically disappeared. Meningitis was never a menace. Venereal disease has increased during the last month. In spite of a strenuous campaign against immoral houses in Macon, the number of prostitutes has increased. Lieutenant Miner, who works with the Fosdick Commission, has succeeded in securing the conviction of some prominent offenders. Keepers of so-called hotels, really houses of prostitution, have been prosecuted under the 5-mile law, and brought to justice.

Orders for inspection tours by officers of the base hospital have resulted in visits to the neighboring camps by Major Lund, and visits to this camp by Major Halsted of Camp Hancock, and Major Babcock of Fort McPherson.

Thirty-five officers from the base hospital have been selected for service abroad. It is not known how soon they will go, but it is said that there was a scramble to get on the list.

Lieutenant-Colonel Keenan of the sanitary train was at Oglethorpe during the week. Major Patterson accompanied a casual detachment to Camp Merritt.

Lieutenants Bertolet and Leavett have been transferred from the sanitary train to the base hospital.

The long awaited examination for promotion of first lieutenants, M. C. of the National Guard, took place, March 12 and 13. All lieutenants with one year's service were examined. A similar examination for dental surgeon will take place at once.

Major R. C. Turck has been made sanitary inspector of the camp. Major Loren Greene is now sanitary inspector of the Thirty-First Division.

Lieut. William A. McKeever, M. R. C., has been discharged on account of physical disability, and has gone to his home in Philadelphia.

A beginning has been made in the training of convalescents and defectives, in the convalescents at the base hospital. As the war goes on, and the need for first class men becomes greater, this work will assume more and more importance. Men who were or have become unfit for first line duties must be made fit for such other duties as they can perform. Many men not competent for the infantry or artillery can be used in the Quartermaster Corps, the Veterinary Corps, the Ordnance Corps, the Medical Corps and in other places.

Major Turck is sick in the base hospital, but is expected to be out soon.

Eight new ward buildings, of two wards each, are being constructed at the base hospital. They will furnish accommodations for 600 patients.

Two hundred negro draft men have arrived for sanitary work about the camp. They will be of great assistance in drainage and other work. The drainage of the swamp areas within the camp is going on rapidly under the direction of Major Turck and Captain Mitchell. Swamps in Camp Wheeler will soon be a thing of the past. It is hoped to have the work completed before the real mosquito season.

### Thirty-Third Division, Camp Logan, Houston, Texas

March 18, 1918.

The wisdom of selecting camps in the more southerly states for most of the training activities of the new Army is becoming more apparent every day. We have had scarcely a day during the winter in which some outdoor work could not be carried on. Even on the windiest and coldest days we see aeroplanes flying as usual, and the absence of snow and wind has contributed to render the drill, trench work, etc., possible at all times.

#### PERSONAL

Major J. M. Willis, commanding officer of the base hospital, has been promoted to the rank of Lieutenant-Colonel, Medical Corps, National Army.

Major Harry D. Orr, recently director of ambulances, Thirty-Third Division, has received a similar promotion and been placed in command of the Thirty-Third Division sanitary trains.

The visiting English and French officers have given us all a much more intimate knowledge of what may be expected in France than we could possibly attain from other sources, and they are very closely followed by our officers who are receiving instructions from them.

Major J. H. Blackburn, M. R. C., chief of surgery in our base hospital, has just returned from a tour of the hospitals at Camp Beauregard, Alexandria, La., Camp Pike, Little Rock, Ark., and Camp Bowie, Fort Worth, Texas.

Major O. H. Campbell, M. R. C., of Camp McArthur, Waco, Texas, has visited this hospital during the present week, and Major J. N. Hall, M. R. C., of our hospital is to visit three of the neighboring cantonments shortly. This is all in pursuance of the plan to have the chiefs of departments compare notes with others in similar work for the benefit of the service.

Colonel Willis is soon to make a similar tour for conference with other commanding officers.

#### SURGICAL WORK

Major Blackburn furnishes the following data as to the surgical work in the base hospital:

Personnel of the surgical division, base hospital staff: Major J. H. Blackburn, M. R. C., chief; Capt. W. F. McManus, M. R. C.; Capt. C. H. Parks, M. R. C.; Capt. S. M. Strong, M. R. C.; Capt. W. B. Carroll, M. R. C., orthopedic department; First Lieut. F. L. Patterson, M. R. C., brain surgery; Capt. F. M. Barnes, M. R. C., oral and plastic surgery; First Lieut. W. P. Barton, M. R. C.; First Lieut. J. G. Murfin, M. R. C.; First Lieut. F. N. Haggard, M. R. C.; First Lieut.

O. C. Brown, M. C. N. G.; First Lieut. S. F. Weitzner, M. R. C., roentgenologist.

During the period from Sept. 15, 1917, to Jan. 31, 1918, there were discharged from the service, through the base hospital, 1,748 patients. Those suffering from disabilities which may be classified as surgical were 639 in number, about 36 per cent. Classified as to anatomic regions there were 199 cases involving the feet and legs, including flatfoot (170 cases), hallux valgus, talipes varus, genu valgum and loose bodies in the knee joint. During this time four men with hallux valgus were operated on making a total of 203 cases. There were fifty-four cases of diseases of the joints, the larger percentage of these being in the lower extremities and including arthritis, ostearthritis, synovitis, ankylosis, dislocations and subluxations.

The diseases of the bones not classified above were twenty-eight in number, and included periostitis, osteomyelitis, necrosis, fractures and exostoses. There were ninety-three deformities of varying character in addition to these of sufficient degree to interfere with the work of the patients as soldiers. A large percentage of these involved the lower extremities; thus we find practically 50 per cent. of the surgical cases of such character and so situated as to interfere with locomotion.

In addition to the deformities above mentioned, there were seven deformities of the spine, including scoliosis, kyphosis, spondylitis and torticollis.

Aside from the flatfoot cases, the largest single class was found to be goiters, of which there were 151. In this class were included simple cystic goiters which were large enough to interfere mechanically on exertion. There were a number of classical cases of exophthalmic goiter in which there were exophthalmos, enlargement of the thyroid and tachycardia. In addition there were a large number of men who under the stress of Army life had developed a tachycardia with a pounding impulse over the precordia, a marked tremor, and very poor cardiac response after exercise. Some of these had slight enlargement or slight exophthalmos, and in some neither of these signs was present.

Fifty-nine hernia patients were discharged. In addition there were ninety-two patients operated on, making a total of 151 cases of hernia.

Diseases of the vascular system were 20 in number, and included varicose veins of the legs, varicocele, phlebitis and hemorrhoids. There were 106 men with hemorrhoids, varicocele and varicose veins operated on, making a total of 126 cases.

There were nine cases of diseases of the testicles, including atrophy, nondescent, orchitis and hydrocele.

Other conditions found in small numbers include peritoneal adhesions producing pain in the abdomen, ischiorectal abscess, congenital absence of the pectoral portion of the pectoralis major muscle, and dyspituitarism with feminine type of development. There were also three cases of myositis of the forearm, two being typical cases of Volkmann's contracture, and the third involving the extensor muscles of the forearm rather than the flexors.

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## Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

MARCH 25, 1918.

### CONVALESCENT INFIRMARY

Conservation of man power will be one of the principal objects of the convalescing infirmary of the base hospital. Work on the twelve new two-story buildings for this institution was started this morning. They will provide accommodations for 800, increasing the capacity of the hospital to 2,000 patients. Lieut.-Col. Will L. Pyles, superintendent, has received word from Surgeon-General Gorgas, at Washington, D. C., that the additional twelve regular wards for the hospital, which for a time were contemplated, will not be erected. The new buildings are being put up on the west end of the main plant, on the south side of Washington Avenue, between Lincoln Avenue and the Preston-Street Road. They will cost approximately $360,000.

The convalescing infirmary will serve three purposes. Convalescents will be treated there, certain patients will be kept under observation, and the place will be a reconstruction camp for selects suffering from minor physical defects. The infirmary will cover a 10-acre tract. In the center will be a recreation building of the Red Cross. The wards will be connected by long corridors with the main hospital so that the patients may go to the mess hall without exposing themselves to inclement weather.

Drafted men having flat feet, ruptures, or other defects will be put in the infirmary with a view to remedying their trouble and making ablebodied men of them for active military service. It is said that a number of recruits have been discharged for physical disqualifications who could have been saved for Uncle Sam had they been subjected to special treatment.

### CONTAGIOUS DISEASES AND FACE MASKS

A new system has been inaugurated in the handling of soldiers suffering from contagious diseases in the effort to avert epidemics. Masks are worn by patients having respiratory ailments during their removals from the regimental infirmaries or barracks to the base hospital, and while they are in the receiving ward. This prevents others with whom they come in contact from breathing the germs. Separate ambulances are used in conveying such patients.

Different entrances are used in admitting them at the hospital and they are segregated from the moment they are classed as "suspects" of communicable diseases by the medical officers of their respective organizations. This is expected to improve the general health conditions at Camp Zachary Taylor.

### PASSES TO CAMP

Orders regarding visitors at Camp Zachary Taylor practically close the cantonment to the public with the exception of the regularly established visiting periods, Wednesday and Saturday afternoons and Sundays. Only civilians having passes will be permitted within the reservation and no passes will be issued other than to persons having business dealings with the government.

Passes will not be given to women, the order directs. Persons having relatives or friends at the camp may call at the base hospital or the hostess house, but they cannot enter the grounds except during visiting hours. However, they may call by telephone from these stations to the commander of the unit in which the soldier they are anxious to see is serving, and he may be sent to the hospital or hostess house to meet them.

### BASE HOSPITAL

The sick report of Camp Zachary Taylor at the present time is higher than it was during the bad weather. It is stated the reason for this is that a soldier is not discharged from the base hospital until he is able to go from the hospital to the drill field. The sick report shows more than 1,700. The report has been boosted considerably since the new draft arrived on account of many diseases being found among them which under the new regulations hold them in the Army. Three hundred are quarantined with measles, 78 have pneumonia, 16 erysipelas, 2 meningitis, 7 chickenpox and 1 smallpox.

### PERSONALS

First Lieut. Val E. Miltenberger reported in compliance with War Department orders and was assigned to duty as sanitary inspector of the Eighty-Fourth Division, which place was made vacant when Major Luther R. Poust was made camp sanitary officer and assistant of the division surgeon, Lieut.-Col. John H. Allen. Major Poust is in the East, having been granted a leave of absence. Col. Albert M. Triby, of the Surgeon-General's Office, who is on a tour of inspection of the cantonments throughout the country, is at Camp Zachary Taylor.

Major Walter Hamburger of the base hospital has been ordered to the following camps to confer with the medical officers: Major Alfred Friedlander, M. R. C., Camp Sherman, Chillicothe, Ohio; Major Ernest E. Irons, M. R. C., Camp Custer, Battle Creek, Mich.; Major Joseph A. Capps, M. R. C., Camp Grant, Rockford, Ill.

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## DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

### From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending March 15, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (DISEASE ONLY)

| | |
|---|---|
| All Troops | 1,566.0 |
| National Guard Camps | 975.1 |
| National Army Camps | 2,075.0 |
| Regular Army | 1,279.1 |

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

| | |
|---|---|
| All Troops | 50.6 |
| National Guard Camps | 40.2 |
| National Army Camps | 58.8 |
| Regular Army | 44.2 |

3. ANNUAL DEATH RATE PER 1,000 (DISEASE ONLY):

| | |
|---|---|
| All Troops | 7.5 |
| National Guard Camps | 4.2 |
| National Army Camps | 9.1 |
| Regular Army | 7.9 |

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING MARCH 15, 1918

| Camps | Pneumonia | Dysentery | Malaria | Venereal | Measles | Meningitis | Scarlet Fever | Deaths | Annual Admission Rate per 1,000 (Disease Only) | Noneffective per 1,000 |
|---|---|---|---|---|---|---|---|---|---|---|
| Wadsworth | 9 | .. | .. | 21 | 9 | 1 | 2 | 2 | 590.0 | 22.7 |
| Hancock | 6 | .. | .. | 26 | 12 | .. | 1 | 3 | 390.6 | 23.6 |
| McClellan | 4 | .. | .. | 19 | 17 | 1 | ... | 0 | 814.2 | 30.3 |
| Sevier | 5 | .. | .. | 35 | ... | .. | ... | 1 | 1,201.9 | 68.2 |
| Wheeler | 12 | 1 | 1 | 43 | ... | . | ... | 6 | 1,107.1 | 41.6 |
| Logan | 9 | .. | 1 | 40 | 12 | 1 | ... | 0 | 1,093.9 | 39.2 |
| Cody | 12 | .. | .. | 5 | ... | 2 | ... | 3 | 511.7 | 33.0 |
| Doniphan | 6 | .. | .. | 10 | 1 | .. | 1 | 4 | 1,521.3 | 43.1 |
| Bowie | 14 | .. | .. | 34 | 2 | 2 | ... | 2 | 1,616.7 | 59.2 |
| Sheridan | 1 | .. | .. | 62 | 1 | .. | 1 | 0 | 573.8 | 25.5 |
| Shelby | ... | .. | .. | 23 | ... | .. | ... | 5 | 1,217.5 | 49.3 |
| Beauregard | 10 | .. | 1 | 31 | 1 | 2 | ... | 1 | 1,213.8 | 49.3 |
| Kearny | 3 | .. | .. | 2 | 1 | .. | 7 | 1 | 1,172.7 | 49.7 |
| Devens | 17 | .. | .. | 33 | 9 | .. | 6 | 3 | 1,381.2 | 41.3 |
| Upton | 27 | .. | .. | 63 | 5 | .. | 1 | 15 | 1,855.3 | 35.6 |
| Dix | 11 | 2 | .. | 27 | 13 | .. | 6 | 2 | 3,075.0 | 53.5 |
| Meade | 30 | .. | .. | 21 | 2 | 2 | 24 | 5 | 929.8 | 36.0 |
| Lee | 11 | .. | .. | 124 | 5 | .. | ... | 6 | 1,666.3 | 60.8 |
| Jackson | 22 | 1 | .. | 109 | 5 | 3 | 1 | 3 | 1,790.5 | 56.3 |
| Gordon | 7 | .. | .. | 133 | 10 | 1 | ... | 4 | 1,533.6 | 42.8 |
| Sherman | 15 | .. | .. | 51 | 19 | .. | 24 | 8 | 2,231.1 | 64.1 |
| Taylor | 20 | .. | .. | 17 | 30 | 2 | 2 | 5 | 1,960.5 | 70.4 |
| Custer | ... | .. | .. | 12 | 1 | .. | 3 | 1 | 1,040.0 | 43.7 |
| Grant | 19 | .. | .. | 19 | 13 | 2 | 28 | 1 | 878.2 | 31.5 |
| Pike | 11 | .. | 11 | 148 | 20 | .. | 12 | 7 | 3,320.7 | 79.6 |
| Dodge | 16 | .. | .. | 51 | 61 | .. | 16 | 7 | 2,432.3 | 65.4 |
| Funston | 18 | .. | 1 | 13 | 6 | 2 | 1 | 5 | 4,058.5 | 117.3 |
| Travis | 24 | .. | 5 | 33 | 53 | .. | ... | 6 | 3,167.0 | 68.4 |
| Lewis | 7 | .. | .. | 35 | 41 | 1 | 25 | 3 | 1,875.5 | 83.5 |
| Northeastern Dept. | 3 | .. | .. | 32 | ... | .. | ... | 1 | 1,075.7 | 34.1 |
| Eastern Dept. | 6 | .. | .. | 26 | 16 | 3 | ... | 4 | 1,542.0 | 36.8 |
| Southeastern Dept. | 3 | .. | .. | 73 | 9 | 1 | 7 | 5 | 958.4 | 43.6 |
| Central Dept. | 13 | .. | 1 | 29 | 19 | .. | 17 | 4 | 1,593.3 | 45.0 |
| Southern Dept. | 9 | .. | 1 | 102 | 32 | .. | 11 | 7 | 1,040.7 | 40.2 |
| Western Dept. | 9 | .. | .. | 33 | 50 | 1 | 27 | 7 | 995.0 | 26.8 |
| Aviation, S. C. | 21 | 1 | 2 | 91 | 134 | 4 | 25 | 21 | 1,522.8 | 48.2 |
| Camp Greene | 9 | 1 | 2 | 42 | 22 | 1 | 6 | 0 | 696.5 | 23.5 |
| Camp Fremont | 1 | .. | .. | 28 | 9 | .. | 2 | 0 | 1,072.9 | 45.9 |
| El Paso | ... | .. | .. | 8 | 5 | .. | 3 | 0 | 1,436.3 | 8.0 |
| Columbus Bks. | 2 | .. | .. | 23 | 2 | .. | 3 | 1 | 2,079.3 | 55.5 |
| Jefferson Bks. | 5 | .. | .. | 96 | 6 | .. | 4 | 1 | 2,606.0 | 121.5 |
| Fort Logan | 1 | .. | .. | 2 | 8 | .. | 2 | 0 | 2,520.0 | 86.0 |
| Fort McDowell | ... | .. | .. | 6 | 7 | .. | 1 | 1 | 1,396.0 | 45.0 |
| Fort Slocum | 9 | .. | .. | 11 | 1 | .. | ... | 1 | 2,305.8 | 47.9 |
| Fort Thomas | 2 | .. | .. | 3 | ... | .. | ... | 1 | 995.4 | 57.4 |
| D. B. Alcatraz | ... | .. | .. | .... | ... | .. | ... | 0 | 652.0 | 15.0 |
| D. B. Fort Leavenworth | ... | .. | .. | 3 | 1 | .. | ... | 0 | 1,486.0 | 34.0 |
| A. A. Humphreys | ... | .. | .. | 5 | 1 | .. | ... | 0 | 1,111.0 | 11.1 |
| J. E. Johnston | ... | .. | 1 | 12 | 2 | 1 | ... | 0 | 755.6 | 31.4 |
| Camp Merritt | 17 | .. | .. | 79 | 9 | .. | 26 | 4 | 2,304.6 | 84.4 |
| Camp Stuart | 28 | .. | .. | 19 | 7 | 4 | 1 | 9 | 1,681.3 | 46.4 |
| West Point, N. Y. | ... | .. | .. | .... | 16 | .. | ... | 1 | 1,509.8 | 20.3 |
| Edgewood | ... | .. | .. | 1 | .. | .. | ... | 0 | 2,036.1 | 26.1 |
| General Hospitals | 3 | .. | .. | 28 | 7 | .. | 1 | 3 | | |
| Nat'l Guard Depts. | 2 | .. | .. | 22 | 16 | .. | ... | 0 | | |
| Nat'l Army Depts. | 7 | .. | 4 | 62 | 67 | .. | 15 | 4 | | |
| Total (all troops) | 496 | 6 | 31 | 2,136 | 795 | 37 | 312 | 184 | 1,566.0 | 50.6 |

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

| | All Troops in U. S., Week Ending Mar. 15, 1918 | Regulars in U. S., Week Ending Mar. 15, 1918 | National Guard, All Camps, Week Ending Mar. 15, 1918 | National Army, All Camps, Week Ending Mar. 15, 1918 | Expeditionary Forces, Week Ending Mar. 7, 1918 |
|---|---|---|---|---|---|
| Pneumonia | 21.0 | 16.9 | 14.1 | 29.5 | 36.5 |
| Dysentery | 0.2 | 0.2 | 0.1 | 0.3 | 1.0 |
| Malaria | 1.3 | 0.8 | 0.4 | 1.9 | 0.4 |
| Venereal | 90.6 | 90.4 | 54.6 | 109.8 | 48.5 |
| Paratyphoid | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Typhoid | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Measles | 33.7 | 43.6 | 8.7 | 33.9 | 16.2 |
| Meningitis | 1.6 | 1.8 | 1.4 | 1.5 | 0.6 |
| Scarlet fever | 13.2 | 16.3 | 1.9 | 17.2 | 21.2 |

## ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

*To New York City, Hoboken, N. J., Camp Merritt, N. J.,* for duty, and on completion *to his proper station,* Brig.-Gen. CHARLES RICHARD.

*To Allentown, Pa.,* for inspection, and on completion *to his proper station,* Col. THEODORE C. LYSTER.

*To Baltimore, Md.,* for inspection, and on completion *to his proper station,* Col. WESTON P. CHAMBERLAIN.

*To Fort Oglethorpe* for inspection, and on completion *to his proper station,* Col. ELLIOTT C. BRACKETT.

*To Camp Kearny,* Linda Vista, Calif.; *Camp Fremont,* Pala Alto, Calif., for conference, and on completion *to his proper station,* from Camp Cody, Lieut.-Col. JACOB M. COFFIN.

*To Mineola, Long Island, N. Y.,* for inspection, and on completion *to his proper station,* Lieut.-Col. PEARCE BAILEY.

*To Waynesville, N. C.,* for duty, and on completion *to his proper station,* Lieut.-Col. EARL W. BRUNS.

*To Army Medical School* for duty, Major CLARENCE L. COLE.

*To Camp Gordon,* Atlanta, Ga., for duty, from Camp McClellan, Major LUTHER H. REICHLEDERFER.

*To Fort Riley* for duty, from Camp Doniphan, Major WILLIAM S. LAWRENCE. For instruction, having passed the preliminary examination for appointment in the Medical Corps, Lieut. ROY M. COX.

*To Metuchen, N. J.,* for duty, from Allentown, Major CHARLES C. HILLMAN.

*To Camp Greene,* Charlotte, N. C., base hospital, from Camp Greene, Lieut. PAUL B. STRAIT.

*To Columbus Barracks, Ohio,* for duty, from Philadelphia, Lieut. WILLIAM L. STRANES.

*To Newport News, Va.,* for temporary duty, from Army Medical School, Lieut. ROYAL K. STACEY.

*Resignation* of Lieut. CHESTER C. BULLARD is accepted.

## ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

### Alabama

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. ALFRED C. SMITH, Shawmut.

*To Fort McHenry, Md.,* for duty, Lieut. HARRY C. EDMUNDSON, Birmingham.

*To Fort Oglethorpe* for instruction, Capt. HUGH BOYD, Scottsboro; Lieuts. ARTHUR JOHNSON, Clanton; ROBERT H. COKER, East Tallassee; THEODORE M. BLAKE, Fruitdale; JOHN P. SCALES, Livingston; from Camp Beauregard, Lieut. FLOYD L. ABERNETHY, Flomaton; from Camp Sherman, Lieut. ALBERT D. McFADDEN, Ariton.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Lieut. JAMES O. MORGAN, Piedmont.

*To Laurel, Md.,* for duty, from Fort Oglethorpe, Lieut. JAMES F. BEAN, Brundidge.

*To Los Angeles, Calif.,* for duty, from Camp Kearny, Lieut. GUY E. STEWART, Attalla.

*To New Orleans, La.,* for instruction, and on completion *to Camp Shelby,* Hattiesburg, Miss., base hospital, Lieut. JOSEPH A. MAXWELL, Tuscaloosa.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Capt. THOMAS H. STREET, Alexander City.

*To New York City* for instruction, from Camp Bowie, Lieut. CHARLTON S. HARRIS, Birmingham.

*To Walter Reed General Hospital,* Takoma Park, D. C., for duty, from Newport News, Major EUGENE DuB. BONDURANT, Mobile. For duty, on completion of instruction at Philadelphia, Lieut. LONNIE W. GROVE, Tuscaloosa.

### Arizona

*To Fort Riley* for instruction, Lieuts. FRED O. LION, Clifton; JEROME McM. LEONARD, Douglas; THOMAS J. BOULDIN, St. Johns; ROY R. KNOTTS, Yuma.

### Arkansas

*To Army Medical School* for instruction, Lieuts. JAMES J. ROCK, Iowa City; AMOS E. ROBINSON, Leachville.

*To Camp Logan,* Houston, Texas, for duty, from Camp Joseph E. Johnston, Capt. EDWIN BLEDSOE, Little Rock.

*To Camp Pike,* Little Rock, Ark., base hospital, from Camp Pike, Lieut. FRANK L. CASTLEBERRY, Paragould.

*To Dansville, N. Y.,* for temporary duty, from Fort Oglethorpe, Lieut. CARL S. BUNGART, Fort Smith.

*To Fort McPherson, Ga.,* for duty, Major WILLIAM A. SNODGRASS, Little Rock.

*To Fort Oglethorpe* for instruction, Lieuts. HERBERT S. WATSON, Earle; FRED R. MORROW, Green Forest; GROVER C. WEBB, Hector; CHARLES E. BYLER, Lepanto; LOUIS D. H. DONALDSON, Parma; MOSES C. HUGHEY, Rector.

*To Houston, Texas,* Signal Corps Aviation School, for duty, from Fort Riley, Lieut. NICHOLAS W. RIEGLER, Little Rock.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Capt. ALFRED C. HEARN, Arkadelphia.

### California

*To Camp Fremont,* Palo Alto, Calif., base hospital, Capt. JAMES T. DISHER, Los Angeles.

*To Camp Kearny,* Linda Vista, Calif., for duty, from Camp Kearny, Capt. LEWIS D. REMINGTON, Monrovia.

*To Fort Des Moines,* for duty, from Camp Kearny, Capt. WILLIAM J. CHAMBERS, Los Angeles.

*To Fort Riley* for instruction, Lieut. EARL L. LUPTON, Los Angeles.

*To Mineola, Long Island, N. Y.,* Hazelhurst Field, for duty, from San Francisco, Capt. HENRY W. HORN, San Francisco.

*To Newport News, Va.,* for temporary duty, from Fort Riley, Capt. WILLIAM W. ROBLEE, Riverside.

*To San Diego, Calif.,* Rockwell Field, Aviation Section Signal Corps, for duty, Lieuts. FRANCIS X. AMMAN, Jr.; MILTON D. W. JEFFS. Los Angeles.

*To San Francisco, Calif.*, for duty, Capt. FRANK L. DOANE, Red Bluff.

*To Western Department* for duty, Lieut. LLOYD B. CROW, San Francisco.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. ERNEST P. WOODWARD, Los Angeles.

## Canal Zone

*To Allentown, Pa.*, Concentration Camp, for duty, from Fort Riley, Major THOMAS J. LEARY, Cristobal.

## Colorado

*To Camp Dix,* Wrightstown, N. J., for duty, from Fort Riley, Lieut. LOUIS O. BOLTON, Cedaredge.

*To Camp Dodge,* Des Moines, Iowa, for duty, from Camp Dodge, Lieut. PHILIP WORK, Pueblo.

*To Camp Logan,* Houston, Texas, base hospital, from Philadelphia, Lieut. TOM R. KNOWLES, Colorado Springs.

*To Fort Oglethorpe* for instruction, from Camp Sherman, Lieut. ORION A. GRANTHAM, Johnstown.

*To Fort Riley* for instruction, Lieut. OSCAR A. DUNCAN, Crawford.

*To Pittsburgh, Pa.*, for instruction, and on completion *to Camp Sevier,* Greenville, S. C., base hospital, from Fort Riley, Lieut. AUGUSTINE S. CECCHINI, Denver.

## Connecticut

*To Army Medical School* as tuberculosis instructor, from Camp Grant, Capt. CHARLES H. TURKINGTON, Fitchfield. For instruction, Lieuts. RALPH L. WHITE, New Canaan; FRED W. COMSTOCK, BURTON E. LOVESEY, New Haven; JOHN W. CALLAHAN, Norwich.

*To Camp Gordon,* Atlanta, Ga.; *Camp Wheeler,* Macon, Ga.; *Camp Hancock,* Augusta, Ga.; *Camp Jackson,* Columbia, S. C., base hospitals, and on completion *to his proper station,* from Camp Sevier, Major JOHN S. DYE, Waterbury.

*To Camp Wheeler,* Macon, Ga., for temporary duty, and on completion *to Camp Shelby*, Hattiesburg, Miss., for duty, from Camp Bowie, Capt. OTTO G. WIEDMAN, Hartford.

*To Fort Oglethorpe* for duty, from Fort Hamilton, Lieut. LEONARD J. LOEWE, Higganum. For instruction, Lieut. SIMON B. KLEINER, New Haven.

*To Newport News, Va.*, for duty, from Fort Oglethorpe, Lieuts. SAMUEL E. WITT, Chesterfield; JAMES P. McMANUS, Hartford.

*To New York City,* Neurological Institute, for intensive training, Capt. WILLIAM R. MILLER, Southington. *Bellevue Hospital,* for instruction, and on completion *to Camp Upton*, Long Island, N. Y., base hospital, Lieut. ANDREW J. JACKSON, Waterbury. On completion *to Fort McPherson, Ga.,* for temporary duty, Lieut. RAYMOND H. RYDER, Waterbury.

*To Rockefeller Institute* for instruction, and on completion *to Williamsbridge, N. Y.,* for temporary duty, Capt. FRITZ C. HYDE, Greenwich.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. NAPOLEON B. LEWIS, Norwich.

## Delaware

*To Cape May, N. J.*, for temporary duty, from Philadelphia, Lieut. EDWIN H. LENDERMAN, Wilmington.

*To Fort Oglethorpe* for instruction, Lieuts. JAY H. McCLELLAN, Pinehurst; HENRY R. KRITZER, Wilmington.

## District of Columbia

*To Camp Dix,* Wrightstown, N. J., for duty, and on completion *to his proper station,* Major SCOTT D. BRECKENRIDGE, Washington.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Camp Meade, Lieut. HARRY C. KING, Washington.

*To Fort Riley* for instruction, Capt. OTTO L. MUENCH, Washington.

*To New York City,* Neurological Institute, for instruction, and on completion *to Camp Meigs,* Washington, Major HARRY H. KERR, Washington. Bellevue Hospital, for instruction, and on completion *to Camp Meade,* Annapolis Junction, Md., base hospital, from Camp Wadsworth, Lieut. SIDNEY C. COUSINS, Washington. From Fort Oglethorpe, Lieut. PAUL S. PUTZKI, Washington.

## Florida

*To Camp Wheeler,* Macon, Ga.; *Camp Gordon,* Atlanta, Ga.; *Camp Hancock,* Augusta, Ga.; *Camp Jackson,* Columbia, S. C., base hospitals, and on completion *to his proper station,* from Camp Joseph E. Johnston, Major HARRY A. PEYTON, Jacksonville.

*To Fort Oglethorpe* for instruction, from Camp Meade, Major HERRMAN H. HARRIS, Jacksonville. For instruction, Lieuts. JOHN D. GABLE, Bonifay; RALPH D. MURPHY, St. Petersburg.

## Georgia

*To Army Medical School* for instruction, Lieuts. DANIEL O. KELLEY, Lawrenceville; THOMAS B. KING, Sandersville.

*To Atlanta, Ga.,* School of Technology, for duty, from Atlanta, Capt. JOHN H. HALL, Lieut. ERNEST S. COLVIN, Atlanta.

*To Camp Hancock,* Augusta, Ga., for duty, from Fort Oglethorpe, JAMES Q. FOLMER, Atlanta.

*To Camp Sherman,* Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. STEPHEN T. BROWN, Atlanta.

*To Fort Oglethorpe* for instruction, Lieuts. HOMER L. REDD, Atlanta; WILLIAM O. SHEPARD, Blakely; RALPH J. GREENE, Bluffton; HOMER BOWEN, Claxton; THOMAS R. MOYE, Ebbeville; REUBEN T. CAMP, Fairburn; HAMPTON M. BARKER, KARL H. BARTH, Flintstone; CLEVELAND D. WHELCHEL, Gainesville; LOUIS B. ROYAL, Girard; WALLACE H. CLARK, La Grane; MELL AYCOCK, Monroe; FRANCIS M. BURKHALTER, Nashville; EVERETT STOTHART, Savannah; MASTIN L. PIPES, Ty Ty; CLAUDE H. SULLIVAN, Zebulan; from Camp Beauregard, RALPH E. HAMILTON, Douglasville.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Lieut. HORACE F. STILTNER, Chickamauga.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieuts. ALVAH W. WHITE, Box Springs; WILBUR M. SCOTT, Devereaux.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Zachary Taylor,* Louisville, Ky., base hospital, from Fort Oglethorpe, Lieut. PAUL P. LANE, Waycross.

*To Rochester, Minn.,* for instruction, and on completion *to his proper station,* from Fort Oglethorpe, Lieut. JOHN A. WHITE, Albany.

*To West Point, Miss.,* for duty, from Fort Oglethorpe, Lieut. ERNEST R. HARRIS, Bethlehem.

*To Williamsbridge, N. Y.,* for duty, from Fort Oglethorpe, Capt. WILLIAM C. HUMPHRIES, Acworth.

*To the inactive list,* from Atlanta, Major WILLIAM C. LYLE, Augusta.

*Honorably discharged,* Lieut. EUGENE THOMPSON, Lumber City.

## Idaho

*To Army Medical School* for instruction, Lieut. SIMON HOPPER, Cambridge.

*To Philadelphia, Pa.,* University Hospital, for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. ELTON B. ROGERS, Winchester.

## Illinois

*To Army Medical School* for instruction, Lieuts. RICHARD F. GREENING, FRED M. SMITH, Chicago; BRUCE A. HARRISON, Colchester; BENJAMIN H. HUGGINS, Evanston; SAMUEL M. HUBBARD, Ridgefarm; HENRY F. HOESLEY, Woodstock.

*To Allentown, Pa.,* Concentration Camp, for duty, from Philadelphia, Lieut. EVERETT P. COLEMAN, Canton.

*To Camp Bowie,* Fort Worth, Texas, for duty, from Camp Bowie, Lieut. CHARLES W. MONROE, Arthur.

*To Camp Cody,* Deming, N. M., for duty, from Fort Riley, Lieuts. JESSE H. ROTH, Kankakee; JAMES T. BREAKEY, Mason.

*To Camp Custer,* Battle Creek, Mich., as tuberculosis specialist, from Fort Oglethorpe, Lieut. EDWARD BUCKMAN, Chicago.

*To Camp Devens,* Ayers, Mass., base hospital, from New York City, Capt. THOMAS W. MORGAN, Virden.

*To Camp Dodge*, Des Moines, Iowa, base hospital, Capt. DUNCAN B. McEACHERN, Chicago.

*To Camp Doniphan,* Fort Sill, Okla.; *Camp Bowie,* Fort Worth, Texas, and *Fort Riley,* for conference, and on completion *to his proper station,* from Camp Dodge, Major JOSEPH L. MILLER, Chicago.

*To Camp Jackson,* Columbia, S. C., base hospital, Lieut. WILLIAM T. ELLIOTT, Chicago.

*To Camp Logan,* Houston, Texas, for duty, from Fort Riley, Lieut. WALTER C. BISSON, Charleston.

*To Camp McClellan,* Anniston, Ala., base hospital, from Camp McClellan, Lieut. WALTER S. CONN, Naperville.

*To Camp Meade,* Annapolis Junction, Md., base hospital, on completion of instruction at Philadelphia, Capt. FRANK W. BRODRICK, Sterling.

*To Camp Sheridan,* Montgomery, Ala., base hospital, from Camp Sheridan, Capt. GEORGE C. SHOCKEY, Melrose Park.

*To Camp Sherman*, Chillicothe, Ohio; *Camp Zachary Taylor,* Louisville, Ky.; *Camp Custer,* Battle Creek, Mich., base hospitals, and on completion *to his proper station,* from Camp Grant, Major JOSEPH A. CAPPS, Chicago. Base hospital, from Philadelphia, Capt. ROBERT A. NOBLE, Bloomington. For duty, from Fort Oglethorpe, Lieut. ALEXANDER W. BURKE, Chicago.

*To Camp Wheeler,* Macon, Ga., for temporary duty, and on completion *to his proper station,* from Camp Logan, Lieut. THOMAS J. RIACH, Kankakee.

*To Camp Zachary Taylor,* Louisville, Ky.; *Camp Sherman,* Chillicothe, Ohio; *Camp Grant,* Rockford, Ill.; *Camp Dodge,* Des Moines, Iowa, base hospitals, and on completion *to his proper station*, from Camp Pike, Major HUGH McKENNA, Chicago.

*To Chicago, Ill.,* base hospital, Lieut. EARLE B. FOWLER, Chicago. Presbyterian Hospital for instruction, and on completion *to Camp Custer,* Battle Creek, Mich., base hospital, Lieut. FRANK M. WELDY, Chicago. On completion *to Camp Grant,* Rockford, Ill., from Fort Riley, Lieut. WILLIAM J. PICKETT, Chicago.

*To Fort Oglethorpe* for instruction, Lieuts. DOLPHUS R. COMPERE, RUSSELL M. JOHNSON, THADDEUS S. PIERZYNSKI, GERHARD J. TERELL, Chicago; HENRY K. HOOKER, Dewitt; from Camp Custer, Lieut. GRANT J. GRAY, Chicago; from Camp Sherman, Lieuts. ROY M. MONTFORT, Danville; JOSEPH C. BROOKHART, Greenup.

*To Fort Riley* for instruction, from Camp MacArthur, Capt. MICHAEL L. GALLAGHER, Chicago. Base hospital, Lieuts. VIVIAN J. NEALE, DANIEL C. WEYMOUTH, Chicago; ORA R. SAUL, Dana. For duty, from Fort Riley, Lieuts. LAZARUS COHLER, BRONISLAUS J. MIX, Chicago.

*To Fort Sill, Okla.,* base hospital, from Fort Riley, Lieut. MICHAEL B. GUTHRIE, Chicago.

*To Garden City,* Long Island, N. Y., for duty, from New York City, Lieut. GROVER C. OTRICH, Belleville.

*To Hoboken, N. J.*, for temporary duty, from Camp Custer, Major JOSEPH R. HOLLOWBUSH, Rock Island.

*To Jefferson Barracks, Mo.,* for duty, from Camp Sherman, Capt. RUSSELL E. ADKINS, Chicago.

*To Lakewood, N. J.,* for temporary duty, from Washington, D. C., Lieut. WILLIAM W. GAILEY, Bloomington.

*To Middletown, Pa.,* Aviation Section Signal Corps, for duty, from Fort Oglethorpe, Lieut. CLINTON L. MONTGOMERY, Blue Island.

*To New Orleans, La.,* Charity Hospital, for instruction, and on completion *to his proper station,* from Camp Pike, Capt. RAYMOND C. GILLOGLY, Newman; from Camp Sherman, Lieut. MAURY H. McRAE, Chicago.

*To Newport News, Va.,* for duty, from Camp Lee, Capt. MARSHALL WALLIS, Normal; from Fort Oglethorpe, Capt. OSMAN A. COSS, Saunemin; from Fort Riley, Lieut. BENJAMIN RAPPAPORT, Chicago.

*To New York City*, and *White Plains, N. Y.*, for inspection, and on completion *to his proper station,* Major JOHN A. HORNSBY, Chicago. *To New York City,* Bellevue Hospital, for instruction and on completion *to Camp Wadsworth*, Spartanburg, S. C., base hospital, from Fort Riley, Capt. FRANK C. SIBLEY, Carmi. For instruction and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. RELZA N. SHERMAN, Fairmount. On completion *to Camp Lee,* Petersburg, Va., base hospital, from Fort Oglethorpe, Lieut. CHESTER W. TROWBRIDGE, Oak Park.

*To Philadelphia, Pa.,* University Hospital, for instruction, and on completion *to Camp Lee*, Petersburg, Va., base hospital, from Fort Riley, Lieut. HORACE M. FRANCIS, Woodstock. On completion *to Camp McClellan,* Anniston, Ala., base hospital, from Fort Riley, Lieut. GEORGE F. RENDLEMAN, Anna.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Sherman*, Chillicothe, Ohio, base hospital, Lieut. WALTER C. MOHR, Chicago.

*To Rochester, Minn.*, for instruction, and on completion *to Camp Custer*, Battle Creek, Mich., base hospital, from Fort Riley, Lieut. HOWARD S. PERRY, Chicago.

*To Rockefeller Institute* for instruction, and on completion *to Camp Devens,* Ayer, Mass., base hospital, from Fort Riley, Capt. FREDERICK A. FISHER, Chicago.

*To Washington, D. C.,* for duty in the Surgeon-General's Office, from Washington, D. C., Major FRANK BILLINGS, Chicago.

*To Williamsbridge, N. Y.*, for duty, from Fort Oglethorpe, Lieut. EDWIN S. GILLESPIE, Wenona.

*Honorably discharged,* Lieut. WILLIAM H. MILLER, Chicago. On account of physical disability existing prior to entrance into the service, Lieut. ARTHUR W. DOWNS, Chicago.

Resignation of Capt. ELDORADO W. SCOTT, Chicago, accepted.

### Indiana

*To Army Medical School* for duty, from Army Medical School, Capt. KARL C. EBERLY, Fort Wayne. For instruction, Lieuts. BENJAMIN F. WRAY, Camden; SHERMAN L. McKINNEY, Huntingburg; IRVIN E. HUCKLEBERRY, Salem.

*To Belleville, Ill.,* Signal Corps Aviation School, for duty, from Fort Oglethorpe, Lieuts. WESLEY M. HALL, E. Enterprise; BLAINE A. BLOSSER, Fremont.

*To Boston, Mass.,* for duty, from Fort Oglethorpe, Lieut. ELMO R. ROYER, N. Salem.

*To Camp A. A. Humphreys,* Accotink, Va., base hospital, from Fort Ethan Allen, Capt. OMER A. NEWHOUSE, Montezuma.

*To Camp Custer,* Battle Creek, Mich., base hospital, from Fort Oglethorpe, Capt. JAMES H. WALKER, Jeffersonville.

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. JULIUS J. GROSVENOR, Richmond.

*To Camp Fremont,* Palo Alto, Calif., as division psychiatrist, from Camp Fremont, Major FRANK F. HUTCHINS, Indianapolis.

*To Camp Hancock,* Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. WILLIAM L. ROYSTER, Indianapolis.

*To Camp John Wise,* San Antonio, Texas, for duty, from Indianapolis, Lieut. BERNARD J. LARKIN, Indianapolis.

*To Camp Zachary Taylor,* Louisville, Ky., as tuberculosis specialist, Lieut. STEPHEN C. MARKLEY, Richmond.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction and on completion *to Camp Sherman*, Chillicothe, Ohio, for temporary duty, Capt. WILBUR W. ROSS, LaPorte.

*To Fort Oglethorpe* for instruction, Capt. FRANKLIN T. KILGORE, Daleville; from Camp Sherman, Capt. AMZI W. HON, Indianapolis. For instruction, Lieuts. DAVID L. LUTES, Columbia City; FRED N. WILLIAMS, Tell City.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. PAUL A. GARBER, Sidney.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Capt. SAMUEL G. JUMP, Selma.

*To New York City,* Bellevue, Hospital, for instruction, and on completion *to Camp Greene,* Charlotte, N. C., from Fort Oglethorpe, Lieut. JOHN E. FREED, Terre Haute.

*To Rochester, Minn.,* for instruction and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Capt. GEORGE W. KIRBY, Goshen.

*Honorably discharged,* Lieuts. JESSE L. STOWERS, Indianapolis; EARL L. WHITE, Rochester.

### Iowa

*To Army Medical School* for instruction, Lieuts. JOHN H. McCALL, Allerton; HARRY F. KIESLING, Dayton; THOMAS B. HERRICK, Manson; EUGENE H. McCAFFREY, Maquoketa; OSCAR H. BANTON, Nora Springs; CHARLES T. FARLOW, Yetter.

*To Camp Bowie,* Fort Worth, Texas, for duty, from Camp Bowie, Lieut. CARLES D. BUSBY, Brooklyn; from Camp Shelby, Lieut. PERCY B. BATTEY, Indianapolis.

*To Camp Cody,* Deming, N. M., for duty, from Fort Riley, Lieut. HARRY F. RUBEL, Struble.

*To Camp Upton,* Long Island, N. Y., for duty, from Fort Riley, Lieut. WALTER F. SCHMALTZ, Mount Ayr.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Capt. WILLIAM M. TROTTER, Maxwell.

*To Fort Riley,* base hospital, Lieut. SEWARD WHITE, Olin. For duty, from Fort Riley, Lieut. REX V. HENRY, Hedrick. For instruction, Lieut. ARTHUR M. WASHBURN, Burlington; from Camp Dodge, Lieut. ADAM H. KONIGMACHER, Missouri Valley.

*To Philadelphia, Pa.,* University Hospital, for instruction, and on completion *to Camp Sevier,* Greenville, S. C., Capt. JAMES R. BRADY, Sioux City.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Hancock*, Augusta, Ga., hase hospital, from Fort Riley, Capt. WILLIAM L. HEARST, Cedar Falls.

*To Rochester, Minn.,* for instruction, and on completion *to Camp Grant,* Rockford, Ill., base hospital, from Fort Riley, Lieut. ALVIN H. HANDRICKSON, Sioux City.

*To Washington, D. C.*, for duty, from Camp Lee, Major EDWIN A. MERRITT, Council Bluffs.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. PAUL NICOLAI, Des Moines.

### Kansas

*To Army Medical School* for instruction, Lieut. IRL E. HEAPSTED, Burrton.

*To Camp Cody,* Deming, N. M., for duty, from Fort Riley, Lieut. DANIEL A. HOLLAND, Cambridge.

*To Camp Doniphan,* Fort Sill, Okla., base hospital, from Fort Riley, Lieuts. BOYD F. EYE, Ottawa; WALTER O. QUIRING, Shawnee.

*To Camp Logan,* Houston, Texas, for duty, from Fort Riley, Lieut. CHARLES A. THOMAS, Edna.

*To Camp Taliaferro,* Fort Worth, Texas, for duty, from Fort Riley, Lieuts. GEORGE E. BRETHOUR, Dwight; JOHN O. DINGUS, Mound City.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to Camp Grant,* Rockford, Ill., hase hospital, from Fort Riley, Lieut. FRANK W. SHELTON, Independence.

*To Fort Des Moines, Iowa,* for duty, from Camp Pike, Lieut. CLARENCE C. HARVEY, Emporia.

*To Fort Oglethorpe* for instruction, Lieut. JOHN RUDBECK, Seneca.

*To Fort Riley* for duty, from Fort Riley, Capt. CHARLES J. McGEE, Leavenworth. Base hospital, Lieut. GEORGE JENNINGS, Simpson. For instruction, Lieuts. CYRUS C. MORRISON, Toronto; CHARLES A. WYATT, Wakarusa; DUFFIELD R. KRUGER, Waldron.

*To Houston, Texas,* Ellington Field, for duty, from Fort Riley, Lieut. WILLIAM S. FLEMING, Ness City.

*To New Orleans, La.,* Charity Hospital, for instruction and on completion *to Camp Shelby,* Hattiesburg, Miss., base hospital, from Fort Riley, Lieut. HENRY H. HAERLE, Niles.

*To Newport News, Va.,* for duty, from Camp Jackson, Lieut. ROBERT C. DAVIS, Kansas City.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Lee,* Petersburg, Va., base hospital, from Fort Oglethorpe, Capt. JOHN F. RUDELPH, Belle Plaine. On completion *to Camp Dix,* Wrightstown, N. J., base hospital, from Fort Riley, Lieut. CLARENCE W. HALL, Hutchinson.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Capt. JAMES C. BUTLER, Stafford.

### Kentucky

*To Army Medical School* for instruction, Lieuts. JOHN N. HARRALSON, Grayham; WALTER B. HUGHES, New Port.

*To Camp Bowie,* Fort Worth, Texas, for duty, from Camp Bowie, Lieut. JAMES D. BIGGS, Greenup.

*To Camp Custer,* Battle Creek, Mich., base hospital, from Philadelphia, Capt. BENJAMIN F. ZIMMERMANN, Louisville.

*To Camp Dodge,* Des Moines, Iowa, base hospital, from Fort Oglethorpe, Capt. STEPHEN C. McCOY, Louisville.

*To Camp Pike,* Little Rock, Ark., as tuberculosis specialist, Capt. FRANK B. DEWITT, Rockport.

*To Fort Oglethorpe* for instruction, Capts. GEORGE W. PAYNE, Bradwell; SAMUEL M. RICHIE, Dwarf; HUBERT B. BLAYDES, LaGrange; Lieuts. EDWARD ADAMS, Boas; CHARLES HUNT, Clinton; WILLIAM M. WATKINS, Louisville; DAVID H. BUSH, Mt. Sterling; FREDERICK C. WEBER, Newport; YANDELL Y. MILLER, Pryorsburg. For duty, from Camp Beauregard, Lieut. CHARLES F. VOIGT, Valley Station.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. WILLIAM F. PEEBLES, Clinton.

*To Metuchen, N. J.,* for duty, from Fort Oglethorpe, Capt. DALFERES P. CURRY, Bowling Green.

*To New Orleans, La.,* Charity Hospital, for instruction and on completion *to Camp Beauregard,* Alexandria, La., hase hospital, from Fort Oglethorpe, Major PHILIP E. STEWART, Paducah. On completion *to Camp Bowie,* Fort Worth, Texas, from Fort Oglethorpe, Lieut. CARL E. ABELL, Louisville. On completion *to Camp Hancock,* Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. HARRY P. HONAKER, Horse Cave.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Capts. CLAYTON W. SHOW, Alexandria; JAMES H. HARPER, Gimlet; SAMUEL R. HAROVER, Maysville; Lieut. RANDOLPH DADE, Hopkinsville.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Zachary Taylor,* Louisville, Ky., base hospital, Lieut. SAMUEL B. MARKS, Lexington.

*To Portland, Ore.,* for duty, from Camp Lewis, Lieut. TIMOTHY T. GIBSON, Middlesboro.

*To Rockefeller Institute* for instruction and on completion *to Camp Sherman*, Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Capt. JOSEPH C. SHERRILL, Louisville. On completion *to Williamsbridge, N. Y.,* for duty, from Fort Oglethorpe, THOMAS H. KELLY, Covington.

*Honorably discharged,* Lieut. PRATHER B. CURLIN, Hickman.

### Louisiana

*To Army Medical School* for instruction, Lieut. CHARLES E. HAMILTON, Sunset.

*To Fort Oglethorpe* for instruction, Lieuts. RUFFIN T. PERKINS, JOHN C. McSWEEN, New Orleans; from Camp Beauregard, Lieut. GEORGE R. UPTON, New Orleans.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. WILEY H. BILLINGSLEY, Shreveport.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Lieut. WILLIAM L. STONE, Homer.

*To Jackson Barracks, La.,* for duty, from Jackson Barracks, Lieut. EDWARD J. HUHNER, New Orleans.

*To Newport News, Va.*, for duty, from Fort Oglethorpe, Capt. ARTHUR R. CHOPPIN, Boyce.

*To Walter Reed General Hospital,* Takoma Park, D. C., for temporary duty on completion of instruction at Philadelphia, Major KARL W. NEY, New Orleans.

*To Watervliet*, New York, for duty, from Fort Oglethorpe, Lieut. WILLIAM McL. HAYES, New Orleans.

### Maine

*To Camp Devens*, Ayer, Mass., base hospital, from Philadelphia, Capt. WALTER E. WHITNEY, Bangor.

*To Camp Stewart*, Newport News, Va., for duty, from Fort Oglethorpe, Lieut. HENRY E. MARSTON, North Anson.

*To Fort Oglethorpe* for instruction, Capts. HENRY M. CHAPMAN, Bangor; WALTER J. HAMMOND, Enfield; from Camp Sherman, Capt. SUMNER C. PATTEE, Searsport. For instruction, Lieut. FREEMAN F. BROWN, Vinalhaven.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. JOHN L. PEPPER, Madison.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Devens,* Ayer, Mass., base hospital, Lieut. NEIL A. FOGG, Freeport.

*To Philadelphia, Pa.,* for instruction, and on completion *to Camp Meade,* Annapolis Junction, Md., base hospital, Lieut. HAROLD S. PRATT, Farmington.

### Maryland

*To Camp Wadsworth,* Spartanburg, S. C., base hospital, from Fort Oglethorpe, Lieut. HUMPHREY D. WOLFE, Mt. Washington.

*To Fort Oglethorpe* for instruction on completion of his sick leave, from Camp Meigs, Capt. IRA C. TYNDALL, Berlin. For instruction, Lieut. EUGENE P. COWGILL, Mt. Ranier.

*To Fort Thomas, Ky.,* for duty, from New York City, Lieut. HENRY E. AUSTIN, Baltimore.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Capt. CHARLES T. C. BUCKNER, Baltimore.

*To New Orleans, La.,* for instruction, and on completion *to Camp Wheeler,* Macon, Ga., base hospital, from Fort Oglethorpe, Lieut. CLARENCE M. REDDIG, Baltimore.

*To New York City,* Cornell Medical College, for instruction, from Camp Doniphan, Lieut. FRANK N. HOPPMEIER, Hagerstown.

*To Philadelphia, Pa.,* University Hospital, for instruction, and on completion *to Hoboken, N. J.,* for duty, from Camp Joseph E. Johnston, Lieut. HEVANNESS K. PELREKIAN, Baltimore.

## Massachusetts

*To Baltimore, Md.,* Johns Hopkins Medical School, for temporary duty, Capt. JAMES B. AYER, Boston.

*To Camp Custer,* Battle Creek, Mich., for duty, from Camp Custer, Capt. OSCAR L. SPENCER, Lynn.

*To Camp Devens,* Ayer, Mass., base hospital, Major JOHN J. DOWLING, Boston. Base hospital, and on completion *to his proper station,* from Camp Upton, Major ELLIOTT P. JOSLIN, Boston.

*To Camp Dix,* Wrightstown, N. J., base hospital, from New York City, Capt. ALFRED P. CHRONQUEST, Hawthorne.

*To Camp Meade,* Annapolis Junction, Md., *Camp Dix,* Wrightstown, N. J., *Camp Upton,* Long Island, N. Y., base hospitals, and on completion *to his proper station,* from Camp Devens, Major P. JOSLIN, Milford. *To Camp Meade* for conference, and on completion *to Camp McClellan,* Anniston, Ala., for duty, from Fort Slocum, Capt. WALTER J. OTIS, Waverly. Base hospital, from New York City, Lieut. BERNARD A. GODVIN, Boston.

*To Camp Wheeler,* Macon, Ga., base hospital, from Camp Wheeler, Lieut. FRANK C. LEAVITT, Belmont.

*To Cape May, N. J.,* for temporary duty, from Philadelphia, Lieut. CARL B. HUDSON, Boston.

*To Danville, N. Y.,* for duty, from Camp Custer, Lieut. MERRICK LINCOLN, Worcester.

*To Fort Oglethorpe* for instruction, Capt. EDWARD J. SCANNELL, Boston; from Camp Devens, Capt. PARKER N. CORT, Springfield. For instruction, Lieuts. ELIE J. LA LIBERTE, Fall River; ARTHUR A. PATTEY, Lawrence; ELISHA S. LEWIS, Princeton; EDWARD ROSEN, Revere; EDWARD H. EWING, Stoughton; HUGH L. SIMMONS, Worchester; from Army Medical School, Lieut. BURTON E. HAMILTON, West Roxbury.

*To Fort Slocum, N. Y.,* for duty, from Boston, Lieut. CHARLES E. RODERICK, Taunton.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieuts. ARTHUR O. McLAUGHLIN, Haverhill; ROBERT C. SELLEW, Mill River; EMMETT E. LIGHT, Springfield.

*To Hoboken, N. J.,* for duty, from Fort Oglethorpe, Capt. JOHN D. R. WOODWORTH, Lieut. LOUIS F. SALERNO, Boston.

*To Newport News, Va.,* for duty, Capt. JOHN FENNESSEY, Dorchester; from Fort Oglethorpe, Lieuts. CLARENCE B. LIVINGSTON, Lowell; JOSEPH J. COSGROVE, Westfield.

*To Otisville, N. Y.,* for temporary duty, from Camp Logan, Capt. GEORGE L. SCHADT, Springfield.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Walter Reed General Hospital,* Takoma Park, D. C., for temporary duty, Lieut. GEORGE W. BLOOD, Fall River.

*To Philadelphia, Pa.,* for instruction and on completion *to Camp Meade,* Annapolis Junction, Md., base hospital, Lieut. EZEKIEL PRATT, Arlington.

*To Rockefeller Institute* for instruction, and on completion *to his proper station,* from Brooklyn, N. Y., Lieut. DANIEL J. SULLIVAN, Boston.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Capt. JOHN M. MALONEY, Springfield.

## Michigan

*To Army Medical School* for instruction, Lieuts. EDWARD S. HUCKINS, Bay City; ZINA B. BENNETT, LAWRENCE N. HOST, Detroit; FRANK V. CARNEY, St. Clair.

*To Camp Logan,* Houston, Texas, for duty, from Fort Riley, Capt. LOUIS N. YERKES, Elk Rapids.

*To Camp Meade,* Annapolis Junction, Md., base hospital, and on completion *to his proper station,* from Camp Upton, Major NELLID B. FOSTER, Ann Arbor.

*To Camp Taliaferro,* Fort Worth, Texas, for duty, from Fort Riley, Lieuts. WILLIAM E. DORAN, Colon; PAUL M. CLIFFORD, Detroit.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to Camp Grant,* Rockford, Ill., base hospital, from Fort Riley, Capt. LOUIS H. CHAMBERLIN, Grand Rapids.

*To Corpus Christi, Texas,* for duty, from Camp Gordon, Lieut. BERNARD FRIEDLAENDER, Schewaing.

*To Danville, N. Y.,* for duty, from Camp Devens, Lieut. BRUNO J. SAWICKI, Detroit.

*To Fort Des Moines, Iowa,* for duty, from Camp Dodge, Capt. WALTER S. SHARPE, Dowagiac.

*To Fort Oglethorpe* for instruction on completion of instruction at Evans Dental Institute, Philadelphia, Capt. NELSON MACARTHUR, Detroit. For instruction from Camp Custer, Capt. WILLIS E. CHAPMAN, Cheboygan. For instruction, Lieuts. FRED H. BLANCHARD, WILLIAM J. KANE, HENRY R. LEIBINGER, Detroit; WILLIAM L. BRIDGMAN, Houghton; from Camp Custer, Lieuts. JOHN E. HESLOP, Edenville; ELIHU A. MARTINDALE, Hillsdale.

*To Fort Riley,* base hospital, Lieut. CLYDE L. D. McLAUGHLIN, Vermontville. For duty, from Fort Riley, Lieuts. LADISLAUS R. KAMINSKI, Detroit; ANDREW J. DINSMORE, White Pine Mine.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. RICHARD F. BOONSTRA, Detroit.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Capt. JOHN J. McCORMICK, Jackson; Lieut. HENRY J. PYLE, Zeeland.

*To Washington, D. C.,* for duty in the Surgeon General's Office, on completion of instruction at Philadelphia, Capt. GROVER O. PEMBERTHY, Detroit.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. RICHARD C. LYLE, Bridgeport.

## Minnesota

*To Army Medical School* for instruction, Lieuts. JOHN W. BELL, NORTON T. JOHNSON, RUSSELL E. OLSON, Minneapolis; JOSEPH W. JESSON, ARTHUR E. MARK, St. Paul; CHARLES F. SNELL, Twin Valley.

*To Camp Cody,* Deming, N. M., for duty, from Fort Riley, Lieut. CHARLES D. RICHMOND, Jeffers.

*To Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. WILLIAM J. McKILLIP, Duluth.

*To Camp Taliaferro,* Fort Worth, Texas, for duty, from Fort Riley, Lieut. THOMAS F. McCORMICK, Minneapolis.

*To Fort Oglethorpe* for duty, from Camp Pike, Lieut. THOMAS G. CLEMENT, Vernon Center.

*To Fort Riley* for instruction, Lieuts. GUSTAF T. NORDING, BENJAMIN J. SHALETT, Minneapolis.

*To Houston, Texas,* Signal Corps Aviation School, for duty, from Fort Riley, Lieut. SAMUEL R. FRAKER, Cass Lake.

*To Washington, D. C.,* for duty in the Surgeon General's Office, from Fort Oglethorpe, Capt. WILLIAM M. CHOWNING, Minneapolis.

## Mississippi

*To Camp Beauregard,* Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. ALFRED L. LEWIS, Natchez.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. LEE K. MAYFIELD, Inverness.

*To Fort Oglethorpe* for duty, from Rockefeller Institute, Lieut. SWINTON L. LANE, Scott. For instruction, Lieuts. EDWARD G. ABERNETHY, Algoma; HUGH W. PRIDDY, Charleston; THOMAS F. BERBEROVITCH, ROBERT L. PEYTON, Jackson; JAMES H. SLAUGHTER, Plattsburg; from duty as a private at Camp Beauregard, Lieut. SAMUEL H. WOOD, Plattsburg

*Honorably discharged* on account of physical disability incurred in line of duty, Capt. WALTER R. McKINLEY, Columbus.

Resignation of Lieut. TIMOTHY D. WELCH, Ellisville, accepted.

## Missouri

*To Army Medical School* for instruction, Lieuts. BURTON MALTBY, Liberty; GULPH W. GROVE, Sedalia.

*To Augusta, Ga.,* base hospital, from Fort Oglethorpe, Capt. ROBERT E. SCHLUTER, St. Louis.

*To Austin, Texas,* State University, for duty, from Austin, Lieut. JOHN E. TIMBERMAN, Marston.

*To Camp Cody,* Deming, N. M., for duty, from Fort Riley, Lieut. ALFRED W. HARRISON, Warrensburg.

*To Camp Grant,* Rockford, Ill., for duty, from Fort Riley, Lieut. LINUS M. RYAN, St. Louis.

*To Camp Greene,* Charlotte, N. C., base hospital, from Philadelphia, Lieut. CHARLES H. SHUMAKER, St. Louis.

*To Camp Jackson,* Columbia, S. C., *Camp Lee,* Petersburg, Va., *Camp Greene,* Charlotte, N. C., base hospitals, from Camp Wadsworth, Major LLEWELLYN SALE, St. Louis.

*To Camp John Wise,* San Antonio, Texas, for duty, from Camp Shelby, Lieut. MAURICE R. WILLIAMSON, St. Louis.

*To Camp Lewis,* American Lake, Wash., for duty, from Fort Riley, Lieut. OTTO E. SCHOENFELD, Lathrop.

*To Camp Logan,* Houston, Texas, for duty, from Fort Riley, Lieut. WILLIAM C. BRADLEY, St. Louis.

*To Camp Pike,* Little Rock, Ark., for duty, from Fort Riley, Lieut. MITCHELL H. SHELBY, Charleston.

*To Camp Taliaferro,* Fort Worth, Texas, for duty, from Fort Riley, Capt. CHARLES ALFRED SMITH, Osceola; Lieuts. LEWIS H. LONG, Denver; LEWIS C. CALVERT, Weston.

*To Chicago, Ill.,* for duty, and on completion *to his proper station,* Major FREDERICK W. BAILEY, St. Louis. Presbyterian Hospital, for instruction, and on completion *to Camp Grant,* Rockford, Ill., base hospital, Lieut. LUDWIG O. MUENCH, St. Louis. On completion *to Camp Zachary Taylor,* Louisville, Ky., base hospital, Lieut. JOHN W. HALLBERG, Kansas City.

*To Dallas, Texas,* for duty, from Fort Riley, Capt. FRANCIS M. VESSELLS, Perryville.

*To Dansville, N. Y.,* for duty, from Camp Dix, Capt. ELBERT J. LEE, Jr., St. Louis; from Fort Riley, Lieut. EUGENE D. McCARTHY, St. Louis.

*To Fort Leavenworth, Kan.,* for duty, from Fort Riley, Lieut. JASPER LE. R. ATHERTON, Springfield.

*To Fort McPherson, Ga.,* base hospital, Lieut. JOSEPH W. KIMBERLIN, Kansas City; from Fort Yellow Stone, Wyo., Lieut. CLARENCE E. ERNEST, Kansas City.

*To Fort Oglethorpe* for instruction, and on completion *to his proper station,* from Camp Shelby, Capt. EDWARD L. COOLEY, St. Louis. For instruction, Lieut. TRENTIS V. MILLER, Sikeston.

*To Fort Riley* for instruction, Capts. ALFRED M. CANAWAY, Albany; WILLIAM I. FULTON, Mt. Vernon; WARREN W. BLAND, Vandalia; Lieuts. EDWARD E. ROBINSON, Adrian; EDWARD FORD, Bloomfield; WILLIAM O. FINNEY, Chaffee; WILLIAM J SHELTON, De Kalb; LOUIS E. ROLENS, Dixon; EDWIN E. WHITESIDE, Elvins; THOMAS A. GRACE, Excelsior Springs; HERBERT R. BOOTH, Hamilton; MILLER C. COOMBS, Joplin; RICHARD B. PLATTS, Kansas City; THOMAS H. EGBERT, Kennett; PERCY C. NEUNLIST, Old Monroe; HIRAM S. WINTERS, Oran; EDGAR L. GARDNER, Rushville; THOMAS J. WILKIN, Saline; HENRY A. MEYERS, Sedalia; GEORGE W. H. PRESNELL, Sikeston; LEVI S. LONG, St. Joseph; JOSEPH M. BLAKEMORE, St. Louis; BURR H. EMERSON, Stockton; CADWALLADER H. ATCHISON, Waldron; from Camp MacArthur, Lieuts. LEANDER J. EADS, Hamilton; ROBERT SHEETZ, Orrick; base hospital, Lieut. GEORGE F. ZACHRITZ, St. Louis. For duty, from Fort Riley, Lieut. JOHN A. KONZELMAN, St. Louis.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieut. ROY O. SAMPLE, Fredericktown.

*To Lonoke, Ark.,* Signal Corps Aviation School, for duty, from Camp Pike, Lieut. PAUL B. CLAYTON, Odessa.

*To Newport News, Va.,* for duty, from Walter Reed General Hospital, Capt. GUTHRIE E. SCRUTCHFIELD, Marshall.

*To New York City,* Cornell Medical College, for instruction, and on completion *to Hoboken, N. J.,* base hospital, from Camp Grant, Lieut. S. STOFER, Kansas City.

*To Philadelphia, Pa.,* University Hospital for instruction, and on completion *to Camp Meade,* Annapolis Junction, Md., base hospital, Capt. HARRY H. SMILEY, Boonville. On completion *to Camp Wadsworth,* Spartanburg, S. C., base hospital, from Fort Riley, Lieut. GEORGE L. RILEY, St. Louis.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Shelby,* Hattiesburg, Miss., base hospital, from Fort Riley, Lieut. LOGAN L. LATHAM, Latham.

*Honorably discharged* on account of physical disability existng prior to entrance into the service, Lieuts. WILLIAM B. McCLURE, Hale; CLAUDE J. ALLEN, Rich Hill.

*Resignation* of Capt. B. KURT STUMBERG, St. Charles, accepted.

## Montana

*To Army Medical School* for instruction, Lieut. LEE S. CASSELL, Sweet Grass.

*To Fort Riley,* base hospital, Capt. GEORGE H. PUTNEY, Great Falls. For instruction, Lieut. EDWARD F. DIXON, Bynum.

*To New York City,* Bellevue Hospital, for instruction and on completion *to Camp Lee,* Petersburg, Va., base hospital, from Fort Riley, Lieut. WILLOUGHBY G. DYE, Great Falls.

*To Philadelphia, Pa.,* University Hospital, for instruction and on completion *to Camp Wadsworth,* Spartanburg, S. C., base hospital, from Fort Riley, Lieut. THOMAS M. MORROW, Medicine Lake.

*To report* by wire to the Commanding General, Western Department, for assignment to duty, Capt. WILLIAM H. BUSKIRK, Miles City.

## Nebraska

*To Army Medical School* for instruction, Lieuts. GRIFFITH A. DE MAY, Indianola; ADIN H. WEBB, Lincoln; WILLIAM L. HOWELL, Ryannis; JOSEPH A. FURLONG, Springview.

*To Atlanta, Ga.,* for temporary duty, from Camp Jackson, Lieut. EDWARD H. McCLEAN, Omaha.

*To Camp Logan,* Houston, Texas, base hospital, from Camp Logan, Lieut. FRANCIS A. WELLS, Axtell; from Camp Shelby, Lieut. PAUL A. ROYAL, Lincoln.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to his proper station,* from Camp Grant, Capt. JOHN BUIS, Pender.

*To Fort Des Moines, Iowa,* for temporary duty, from Omaha, Major ARTHUR C. STOKES, Omaha.

*To Fort Riley* for duty, from Fort Riley, Capt. HOMER DAVIS, Genoa. Base hospital, Lieuts. ARTHUR J. OFFERMAN, Omaha; LOUIS J. STORKAN, Wilber.

*To Minncola,* Long Island, N. Y., Signal Corps Aviation School, for duty, from Omaha, Lieut. CLAUDE T. UREN, Omaha.

*To New York City,* Cornell Medical College for instruction, and on completion *to Hoboken, N. J.,* for temporary duty, Capt. EDWARD W. FOWE, Lincoln.

*To Rochester, Minn.,* for instruction, and on completion *to Camp Grant,* Rockford, Ill., base hospital, from Fort Riley, Lieut. ROBERT C. PERSON, Omaha.

## Nevada

*To Army Medical School* for instruction, Lieut. DAVID O. BEAL, Overton.

*To Western Department* for duty, Lieut. BRUCE H. BROWN, Midas.

## New Hampshire

*To Army Medical School* for instruction, Lieut. EUGENE J. THERRIEN, Derry.

*To Rockefeller Institute* for instruction, and on completion *to Camp Upton,* Long Island, N. Y., base hospital, Capt. HOMER B. SMITH, Lancaster.

## New Jersey

*To Army Medical School* for instruction, Lieuts. ROGER Y. FOX, Gloucester City; WALTER B. TYMESON, Orange; WILLIAM R. BITTLE, Pennington.

*To Camp Dix,* Wrightstown, N. J., base hospital, from Philadelphia, Capt. ANDREW F. McBRIDE, Lieut. THOMAS A. CLAY, Paterson.

*To Camp Meade,* Annapolis Junction, Md., *Camp Lee,* Petersburg, Va., *Camp Greene,* Charlotte, N. C., *Camp Jackson,* Columbia, S. C., base hospitals, and on completion *to his proper station,* from Camp Dix, Major JAMES S. GREEN, Elizabeth. *To Camp Meade,* base hospital, from Army Medical School, Lieut. ALFRED M. BIDWELL, Jersey City.

*To Fort Oglethorpe* for duty, from Fort Hamilton, Lieut. GRANT THORBURN, Newark. For instruction, Lieut. JOSEPH C. WINANS, Belleville.

*To Fort Warren, Mass.,* for duty, from Camp Devens, Lieut. SAMUEL N. FAIRCHILD, Pennsgrove.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieuts. HENRY P. WEBB, Elmer; NORMAN L. SHEEHE, Jersey City; JAMES M. TORRENCE, Jr., Phillipsburg.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Lee,* Petersburg, Va., base hospital, Capt. WILLIAM A. NORVAL, Paterson.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Zachary Taylor,* Louisville, Ky., base hospital, Lieut. EDWARD F. UZZLE, Atlantic City.

*To Richmond, Va.,* Aviation General Supply Depot, for duty, from Camp Lee, Lieut. FRANK L. FIELD, Far Hills.

*To Washington, D. C.,* Army Medical Museum, for duty, from Camp Dix, Lieut. JAMES F. WALLIS, Pleasantville.

*To Williamsbridge, N. Y.,* base hospital, and on completion *to Hoboken, N. J.,* base hospital, from Fort Oglethorpe, Lieut. KENNETH E. McCAMEY, Jersey City.

*Honorably discharged,* Lieut. LOUIS J. ZAUDERER, Hillside.

## New Mexico

*To Fort Riley* for instruction, Lieut. EUGENE W. FISKE, Santa Fe.

## New York

*To Army Medical School* for duty, from Army Medical School, Lieut. RAY S. NELSON, New York City. For instruction, Lieuts. THOMAS F. WELDON, BEVERLY E. WELLFORD, Brooklyn; PERCY H. AUSTIN, Castletown; RALPH J. LEVY, New York City; ARTHUR G. RODGERS, Jr., Poughkeepsie.

*To Boston, Mass.,* for duty, and on completion to his proper station, Capt. C. BURNS CRAIG, New York City.

*To Camp Beauregard,* Alexandria, La., base hospital, from Camp Dix, Major THOMAS W. HASTINGS, New York City.

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. MOSES M. FEINBERG, New York City.

*To Camp Dix,* Wrightstown, N. J., as division tuberculosis specialist from Camp Sherman, Major CONSTANTINE L. BJERRING, Brooklyn. Base hospital, and on completion *to his proper station,* from Camp Upton, Major DAVID BOVAIRD, New York City. Base hospital, from New York City, Lieuts. HUGO A. SIEBENSICHEN, HYMAN I. TEPERSON, New York City.

*To Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. DAVID R. MELEN, Rochester; from Fort Oglethorpe, Lieut. GARRETT N. BANKER, New York City.

*To Camp Grant,* Rockford, Ill., base hospital, from Fort Riley, Capt. WALTER P. BLISS, New York City.

*To Camp Hancock,* Augusta, Ga., for duty, from Fort Oglethorpe, Lieuts. WALTER G. H. POTT, CLARENCE E. TOSHBACH, New York City; GUY GRANGER, Sherman.

*To Camp Lee,* Petersburg, Va., *Camp Greene,* Charlotte, N. C., *Camp Wadsworth,* Spartanburg, S. C., base hospitals, and on completion to *his proper station,* from Camp Jackson, Major WILLIAM W. HERRICK, New York City.

*To Camp McClellan,* Anniston, Ala., for duty, from Camp McClellan, Capt. HAROLD D. BREWSTER, New York City.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from Army Medical School, Lieut. JOHN L. EVERLOF, New York City.

*To Camp Pike,* Little Rock, Ark., for duty, from Camp Pike, Lieut. JOHN MILLER, New York City; from Fort Oglethorpe, Lieut. EDWARD M. SMITH, New York City.

*To Camp Sevier,* Greenville, S. C., *Camp Wheeler,* Macon, Ga., *Camp Gordon,* Atlanta, Ga., base hospitals, and on completion *to his proper station,* from Camp Hancock, Major FREDERICK J. BARRETT, Buffalo. For temporary duty, and on completion *to his proper station,* from Camp Gordon, Capt. JOHN J. HUGHES, New York City.

*To Camp Taliaferro,* Fort Worth, Tex., for duty, from Camp MacArthur, Major ARTHUR G. COUMBE, Mineola.

*To Camp Upton,* Long Island, N. Y., for duty, from Camp Upton, Capt. DAVID W. OVERTON, New York City. Base hospital, from Philadelphia, Capt. GEORGE E. MAURER, New York City.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to Camp Sherman,* Chillicothe, Ohio, base hospital, from Chicago, Lieut. JAMES P. TRIMBLE, New York City.

*To Dansville, N. Y.,* for duty, from Camp Devens, Capt. EDWARD G. CLIFTON, New York City.

*To Fort Hamilton, N. Y.,* and on completion to Fort Hancock, N. J., for duty, from Camp Upton, Lieut. EDWIN F. SAMPSON, New York City.

*To Fort Leavenworth, Texas,* for duty, from Camp Beauregard, Capt. JOSEPH W. MOORE, Beacon.

*To Fort McPherson, Ga.,* for temporary duty, from Army Medical School, Lieut. EDMUND C. MOHR, New York City.

*To Fort Monroe, Va.,* for duty, from New York City, Lieuts. JOHN E. DUNNINGTON, DAVID D. STOWELL, New York City.

*To Fort Oglethorpe* for instruction, from Camp Sheridan, Capt. A. L. BENEDICT, Buffalo. For instruction Lieuts. DAVID M. GARDNER, Benson Mines; ISIDOR R. BLACK, SAMUEL LEWIS, FREDERICK WASHNITZER, NATHAN WEINBERG, Brooklyn; SAMUEL GRIONSTEIN, FREDERICK E. STROZZI, Buffalo; HAROLD C. HAVILAND, Hudson Falls; JOSEPH T. CABANISS, ABRAHAM KOGUT, CHARLES L. McEVEETY, SIMON MENCHER, GEORGE W. MITCHELL, AARON M. MORGENLANDER, MILTON SCHAIE, IRVING S. STARTZ, New York City; DAVID T. BREWSTER, Jr., Poughkeepsie; THOMAS J. GOUNDRY, ABRAHAM LEBENDIG, Rochester; FREDERICK E. McCARTY, Wellsville; from Fort Oglethorpe, Lieut. EDWARD N. PACKARD, Saranac Lake.

*To Fort Porter, N. Y.,* for temporary duty, Lieut. BARTON E. HAUENSTEIN, Buffalo.

*To Fort Riley,* base hospital, from Brooklyn, Major CHARLES D. NAPIER, Brooklyn, for duty, from Fort Riley, Capt. JAMES H. McCORT, Sag Harbor.

*To Fort Warren,* Mass., for duty, from Camp Devens, Lieuts. HERMAN JUDKOWITZ, New York; CLYDE D. OATMAN, Poolville.

*To Fort Worth, Texas,* Signal Corps Aviation School, for duty, from Boston, Capt. WILLIAM W. LAING, Brooklyn.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieuts. PAUL B. JENKINS, HERMAN LEVISON, VINCENT W. WEISS, New York City; GEORGE BIBBY, Pottersville.

*To Hoboken, N. J.,* for duty, from Camp Lee, Capt. MILLARD F. SHAFER, Cobles Kill; from Fort Oglethorpe, Capt. FREDERICK TERWILLIGER, Spencer; Lieuts. HERMAN GROSSMAN, Brooklyn; BENJAMIN NOCHILLA, JACOB URDANG, New York City.

*To Houston, Texas,* Ellington Field, Signal Corps Aviation Camp, for duty, from Camp Logan, Capt. GEORGE W. BEEBE, St. Johnsville.

*To Ithaca, N. Y.,* Cornell University, for duty, from Ithaca, Capt. SAMUEL A. MUNFORD, Ithaca.

*To Mineola,* Long Island, N. Y., for duty, Lieut. HENRY R. SKEEL, New York City.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieuts. DAVID MATUS, HYMAN DANISH, Brooklyn; EMILE F. NAEF, New York City.

*To New York City*, Bellevue Hospital, for instruction, and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, from Fort Oglethorpe Lieut. ADOLPH A. WEISS, New York City. On completion *to Williamsbridge, N. Y.,* for temporary duty, from Fort Oglethorpe, Lieut. WILLIAM B. RYAN, Jr., New York City.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Zachary Taylor,* Louisville, Ky., base hospital, from Fort Oglethorpe, Lieut. HAROLD A. TRAYNOR, Brooklyn.

*To Rochester, Minn.,* for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. CLAUDE MORE, New York City. On completion *to Camp Grant,* Rockford, Ill., base hospital, from Fort Oglethorpe, Lieut. DANIEL N. LYNCH, New York City; from Fort Riley, Lieut. DAVID M. NATANSON, New York City.

*To Rockefeller Institute* for duty, Lieut. HERBERT D. TAYLOR, New York City. For instruction, and on completion *to Annapolis Junction, Md.,* base hospital, from Army Medical School, Lieut. HAROLD J. McDONALD, Buffalo.

*To Washington, D. C.,* for duty, from Camp Meade, Lieut. WILLIAM G. PHILLIPS, Jr., Brooklyn.

*To Williamsbridge, N. Y.,* for duty, from Newport News, Major MENUS S. GREGORY, New York City. From Camp Dix, Capt. ARTHUR M. KANE, New York City.

*Honorably discharged,* Lieut. GEORGE D. VON DEYLEN, New York City. On account of physical disability existing prior to entrance into the service, Lieut. LOUIS B. COHEN, Brooklyn.

## North Carolina

*To Camp Devens,* Ayer, Mass., base hospital, from Fort Oglethorpe, Lieut. RALPH L. DANIELS, Goldsboro.

*To Camp Hancock,* Augusta, Ga., base hospital, from Philadelphia, Capt. JACOB H. SHUFORD, Hickory.

*To Camp Sevier,* Greenville, S. C., base hospital, from Philadelphia, Lieut. SAMUEL B. STURGIS, Lenoir; from Rockefeller Institute, Lieut. JAMES C. BRASWELL, Jr., Wilson.

*To Fort Oglethorpe* for instruction, from Fort Oglethorpe, Capt. THOMPSON FRAZER, Asheville. For instruction, Lieuts. JOHN G. RICH, Candler; JOE A. HARTSELL, Concord; STEPHEN J. HAWES, Dover; EVERETT A. LIVINGSTONE, Gibson; EVANDER

McN. McIVER, Jonesboro; CLARENCE L. WILSON, Lenoir; ERNEST L. ENGLISH, Rosman; JOHN F. NASH, CLAUDE T. POOLE, St. Paul; ERNEST L. DAMERSON, Star; JAMES E. A. SISKE, Troy; MURRAY P. WHICHARD, Tynor; LEMUEL E. GUION, Waxham; HENRY B. MAXWELL, Whiteville.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. LUCIUS V. DUNLAP, Albemarle.

*To Greensboro, N. C.,* for duty, and on completion *to Fort McPherson, Ga.,* for temporary duty, Major FREDERIC M. HANES, Winston-Salem.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieut. CHARLES H. LUPTON, New Bern.

*To Philadelphia, Pa.,* for instruction, and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, Lieut. JOSEPH C. VAUGHAN, Rich Square.

## North Dakota

*To Camp Grant,* Rockford, Ill., for duty, from Fort Riley, Lieut. WILLIAM F. MAERTZ, Lidgerwood.

*To Camp Taliaferro,* Fort Worth, Texas, for duty, from Fort Riley, Lieut. CECIL C. SMITH, Stanton.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to Camp Zachary Taylor,* Louisville, Ky., base hospital, from Fort Riley, Capt. JOHN E. COUNTRYMAN, Grafton.

*To Fort Riley* for instruction, Lieut. MARTIN D. WESTLEY, Cooperstown.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieuts. AXEL OFTEDAL, Kargo; THOMAS L. De PUY, Jamestown.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieut. OLIVER B. SIMON, Tioga.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Jackson,* Columbia, S. C., base hospital, from Fort Riley, Lieut. HUGO MELLA, Bismarck.

## Ohio

*To Army Medical School* for instruction, Lieuts. AUSTIN R. EDWARDS, Chatfield; BYRON H. MELIANS, Cincinnati; RAY H. MOUSER, Latty; WILLIAM F. GAINE, Willoughby.

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. IRVIN W. MAYBERRY, Scott Town.

*To Camp Hancock,* Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. JESSE GRIM, Akron.

*To Camp Meade,* Annapolis Junction, Md., for temporary duty, and on completion *to his proper station,* from Camp Custer, Major FRANK D. FERNEAU, Toledo.

*To Cincinnati, Ohio,* for duty, and on completion *to his proper station,* from Army Medical School, Major ROBERT D. MADDOX, Cincinnati.

*To Dallas, Texas,* for duty, from Fort Riley, Capt. LEROY FAST, Paulding; Lieut. J. CRAIG BOWMAN, Upper Sandusky.

*To Fort Oglethorpe* for instruction, Capts. WILLIAM B. RUBBELL, Elyria; JOHN M. FIRMIN, Findlay; CHARLES P. SELLERS, Zanesville. On completion of instruction at Evans Dental Institute, Philadelphia, Capt. SIDNEY B. FOSTER, Toledo. For instruction, Lieuts. RICHARD E. AMOS, Akron; CHARLES L. HARDING, Bellevue; HAROLD E. GIBSON, Blanchester; JOSIAH S. STEINER, Bluffton; JESSE E. THOMPSON, Bristelville; JAMES W. LONG, Bryan; CHARLES P. SULLIVAN, Burkettsville; JOSEPH L. TODD, Canton; JACOB B. FALK, RAYMOND E. GASTON, LEWIS W. HEIZER, NATHAN B. KELLER, EDWIN R. McGRATH, NEIL E. TAYLOR, Cincinnati; FERDINAND F. HAAS, CAMPBELL F. G. NORLIN, LEONARD R. RAVITZ, ARCHIBALD A. SOUTHWICK, PARKER F. SOUTHWICK, ROBERT L. THOMAS, Cleveland; JAY C. KEISER, JOSEPH A. TURNER, Columbus; NEVILLE H. McNERNEY, Corning; JAMES G. SMAILES, Coshocton; RALPH R. HARRIS, Crestline; ALFRED W. BALSLEY, Findlay; WILLIAM A. LIESER, Fort Recovery; WILLIAM R. DEEMER, Fremont; JOSEPH B. McHENRY, Hanoverton; ALBERT F. KUHL, Huron; OSCAR H. HENNINGER, Ironton; HAROLD C. MESSENGER, Xenia; RAYMOND C. SCHUETTE, Kenton; SAMUEL E. FINDLEY, Mansfield; ROSEWELL W. COMSTOCK, Maumee; CLIFFORD P. KROHN, Morrow; HARRY O. WHITAKER, New Burlington; JAMES W. REESE, New London; RUSSELL A. PEASE, North Ridgeville; OTTO J. OWENS, Ottawa; ORLYN WISEMAN, Pedro; GEORGE W. LEWIS, Pierpont; WILLIAM J. FRANCIS, Ralida; GLEN NISLEY, Selden; JAMES C. BERRY, Shadyside; SQUIRE S. BEVERLY, Toledo; JAMES W. SALISBURY, West Toledo; WALTER C. ROLLER, Willshire; FRANCIS E. REED, Wren.

*To Fort Riley,* base hospital, Lieut. CLOYD F. WHARTON, Akron. For duty, from Camp Doniphan, Lieut. JOHN C. GEORGE, Rockland.

*To Fort Worth, Texas,* for duty, from Camp Grant, Lieut. EDWIN G. SCHWARTZ, Cleveland.

*To Houston, Texas,* Signal Corps Aviation School, for duty, from Fort Riley, Lieut. FRANCIS T. GALLEN, Columbus.

*To New Orleans, La.,* for instruction, and on completion *to his proper station,* from Camp Beauregard, Lieut. ZALMAN O. SHERWOOD, Geneva.

*To Newport News,* Va., for duty, from Camp Sherman, Capt. CHARLES C. CROSBY, Ashtabula; from Fort Oglethorpe, Capt. THOMAS FOSTER, Wooster.

*To New York City* for instruction, and on completion to Camp Lee, Petersburg, Va., base hospital, Capt. NATHANIEL M. JONES, Cleveland.

*To Rochester, Minn.,* for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. BRYCE A. MILLER, Amherst.

*To Williamsbridge, N. Y.,* for duty, from Fort Oglethorpe, Lieut. JOHN H. NICHOLS, Columbus.

*Honorably discharged* on account of physical disability existing prior to entrance to service, Lieut. JUSTIN G. BALLOU, Graytown.

## Oklahoma

*To Army Medical School* for instruction, Lieuts. JOHN G. THOMAS, Alluwe, FINIS E. RUSHING, Coalgate; CHARLES E. THOMPSON, Enid; JARRETT J. BILLINGTON, Enterprise; EDMOND E. GALLAGHER, Lawton; CHARLES P. MURPHY, Red Rock; CHARLES C. ROSE, Stringtown.

*To Camp Grant,* Rockford, Ill., for duty, from Fort Riley, Lieut. CECIL B. SHROUT, Shawnee.

*To Camp Lee,* Petersburg, Va., for duty, from Fort Riley, Capt. WILLIAM E. HARRINGTON, Wakita.

*To Camp Meade,* Annapolis Junction, Md., for duty, from Fort Riley, Capt. GUY B. VANSANDT, Wewoka.

*To Fort Riley,* base hospital, Lieuts. WILLIAM E. SIMON, Alva; ELIZAH S. SULLIVAN, Oklahoma City. For instruction, Lieut. MARION McD. WEBSTER, Stratford; from Camp MacArthur, Lieut. WILLIAM A. L. COSSEY, Prague.

*To Laurel, Md.,* for duty from Fort Oglethorpe, Lieut. JAMES E. ADAMS, Chandler.

*To Philadelphia, Pa.,* University Hospital, for instruction, and on completion *to Camp Wadsworth,* Spartanburg, S. C., base hospital, from Fort Riley, Lieut. HUBERT W. CALLAHAN, Collinsville.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Sherman,* Chillicothe, Ohio, base hospital, from Fort Riley, Lieut. WALKER R. MARKS, Vinita.

*To Rockefeller Institute* for instruction, and on completion *to Camp MacArthur,* Waco, Texas, base hospital, from Philadelphia, Major ROBERT M. HOWARD, Oklahoma City.

*To Wilbur Wright Field,* Fairfield, Ohio, Signal Corps Aviation School, for duty, from Fairfield, Capt. ABRAHAM L. HAZIN, Newkirk.

## Oregon

*To Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. HUGH S. McKENZIE, Fossil.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to Camp Custer,* Battle Creek, Mich., base hospital, from Fort Riley, Lieut. GEORGE E. LOW, Coquille.

*To Fort Riley* base hospital, Lieut. JOHN B. DINSMORE, Orenco.

*To Rockefeller Institute* for instruction, and on completion *to Fort McHenry,* Baltimore, Md., for temporary duty, from Philadelphia, Capt. THOMAS M. JOYCE, Portland.

*To Western Department* for assignment to duty, Capt. THOMAS H. MILLER, Eugene; Lieut. HORACE L. ROSENBERG, Portland.

## Pennsylvania

*To Army Medical School* for instruction, Lieuts. GEORGE C. WEBSTER, Jr., Chester; ARCHIE N. McCONNELL, Falls Creek; LLOYD E. WURTSTER, Linden; DAVID J. HAWK, Tower City; ROBERT C. HUGHES, Tredyffrin.

*To Camp Beauregard,* Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. JACOB W. E. ELLENBERGER, Wilkinsburg.

*To Camp Dodge,* Des Moines, Iowa, base hospital, from Philadelphia, Major ELIJAH H. SITER, Philadelphia, as tuberculosis specialist; from Fort Oglethorpe, Lieut. WILLIAM W. WOODS, Mont Alto.

*To Camp Gordon,* Atlanta, Ga., as tuberculosis specialist, from Camp Gordon, Lieut. AUGUSTUS N. EGGERS, Pittsburgh.

*To Camp Hancock,* Augusta, Ga., for duty, from Fort Oglethorpe, Lieuts. JOHN M. STEWART, Marion Center; CHARLES O. W. BARTINE, Philadelphia.

*To Camp Jackson,* Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. THOMAS M. STAHLMAN, Pittsburgh.

*To Camp John Wise,* San Antonio, Texas, for duty, from Camp Wheeler, Lieut. JAMES B. CARROLL, Dunbar; from Camp Zachary Taylor, Lieut. CLARENCE H. KETTERER, Butler.

*To Camp MacArthur,* Waco, Texas; *Camp Travis,* Fort Sam Houston, Texas; *Camp Logan,* Houston, Texas; *Camp Beauregard,* Alexandria, La., base hospitals, and on completion *to his proper station,* from Camp Bowie, Major JOHN S. RODMAN, Philadelphia. *To Camp MacArthur,* for duty, from Camp Taliaferro, Major WALTER S. CORNELL, Philadelphia.

*To Camp McClellan,* Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. GEORGE A. BROWN, Philadelphia.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from Camp Meade, Lieut. JOHN G. KNAUER, Reading.

*To Camp Sevier,* Greenville, S. C., base hospital, from Fort Oglethorpe, Major WILLIAM C. LeCOMPTE, Bristol.

*To Camp Sheridan,* Montgomery, Ala., base hospital, Lieut. ROBERT T. HOOD, Pittsburgh.

*To Camp Wheeler,* Macon, Ga., base hospital, from Camp Wheeler, Lieut. WALTER M. BERTOLET, Reading.

*To Chicago, Ill.,* Presbyterian Hospital, for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, from Fort Oglethorpe, Lieut. JOHN P. DUGGAN, Pittsburgh.

*To Fort McHenry, Md.,* for instruction, and on completion *to his proper station,* from Aberdeen, Capt. JAMES L. JUNK, Connellsville.

*To Fort Oglethorpe* for instruction, Capts. EDWARD L. DAVIS, Berwick; EVAN O'N. KANE, Kane; ROY E. SLEPPY, Library; Lieuts. ALBERT F. DUNSBORO, Barnesboro; HARVEY W. WOODS, Blain; ARNE W. CLOUSE, Geneva; PIUS A. NOLL, Glen Rock; HENRY N. SCHOLL, Kulpsville; JAMES L. HEARD, North East; SIMSON D. BASHORE, Palmyra; JOHN PURDY, JOSEPH H. SCHOENFELD, LOUIS SEGAL, MORRIS SEGAL, JAMES F. TOMPKINS, GEORGE B. WALP, JOSEPH A. WARK, Philadelphia; JOSEPH S. BAIRD, Pittsburgh; WILLIAM J. McGRANON, Port Allegany; GEORGE W. GETZE, Tarentum; BOYD E. WILKINSON, Trenton; CHARLES D. BIERER, Uniontown; XAVIER K. COLLMANN, Wilkes-Barre; BART. J. SMITH, Windber; GEORGE H. B. TERRY, Wyalusing. On completion of instruction at Evans Dental Institute, Philadelphia, Lieut. FRANCIS S. CHAMBERS, Easton. For instruction and on completion *to Cape May, N. J.,* for temporary duty, from Philadelphia, Lieuts. JOHN H. ARNETT, JOHN ALEXANDER, Philadelphia; FRANK R. BAILEY, Pittsburgh.

*To Fort Riley* for duty, from Fort Riley, Lieut. CHARLES S. ABBOTT, Philadelphia.

*To Fort Sam Houston, Texas,* base hospital, from Camp Stanley, Capt. CARSON COOVER, Harrisburg.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. MELVILLE M. PALMER, Homer City.

*To Hoboken, N. J.,* for duty, from Army Medical School, Lieut. FRANKLIN C. BRUSH, Philadelphia; from Camp Jackson, Lieut. WILLIAM D. GATES, Indiana; from Fort Oglethorpe, Lieut. HUBERT J. GOODRICH, McKees Rock.

*To Ithaca, N. Y.,* Cornell University, for duty, from Ithaca, Lieut. EDWARD R. SIBLEY, Elkins Park.

*To Mineola,* Long Island, N. Y., Signal Corps Aviation School, for duty, from Philadelphia, Capt. JOHN P. GALLAGHER, Philadelphia; from San Antonio, Capt. ROBERT J. HUNTER, Philadelphia.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieuts. DANIEL BOHN, Altoona; CHARLES B. YOSE, Bloomsburg; HARRY W. LYONS, Fairview; SAMUEL ITSCOITZ, McKeesport; SAMUEL CHARTOCK, Philadelphia; CHARLES E. NICHOLSON, Pittston.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Williamsbridge, N. Y.,* for temporary duty, Capt. ANDREW GODFREY, Ambler. On completion *to Camp Meade,* Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Lieut.

JOHN J. NEAL, Philadelphia. On completion *to Camp Upton,* Long Island, N. Y., base hospital, from Fort Oglethorpe, Lieuts. ALBERT J. STORM, Philadelphia, WILLIAM W. WOODWARD, West Chester. *Neurological Institute,* for duty, from Camp Lee, Lieut. NATHANIEL W. WINKELMAN, Budgeville.

*To Philadelphia, Pa.,* for duty, and on completion *to his proper station,* from Camp Lee, Capt. STEPHEN W. TUNNELL, Philadelphia. For instruction and on completion *to Fort Oglethorpe,* for temporary duty, from Camp Meade, Lieut. ROBERT McR. BIDDLE, Ashland.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Sevier,* Greenville, S. C., base hospital, from Fort Riley, Lieut. JAMES H. EVANS, Pittsburgh.

*To Rochester, Minn.,* for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, from Fort Oglethorpe, Lieut. JAMES W. BODLEY, Philadelphia. On completion *to Camp Grant,* Rockford, Ill., base hospital, Lieut. THOMAS SCHUBB, Pittsburgh.

*To West Point, Miss.,* for duty, from Dallas, Lieut. RAY N. LEWIS, Apollo.

*To Williamsbridge, N. Y.,* for duty, Lieut. HENRY WILDERMAN, Philadelphia; from Rockefeller Institute, Lieut. ALLEN W. SIVYER, Philadelphia.

*To the inactive list,* from Army Medical School, Lieut. HAROLD F. LANSHE, Allentown.

## Porto Rico

*To Camp Las Casas,* San Juan, Porto Rico, for duty, from San Juan, Capt. LUIS G. DEQUEVEDO, Cagnas.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. MANUEL D. GARCIA, Barceloneta.

## Rhode Island

*To Camp McClellan,* Anniston, Ala., base hosptial, Capt. WILLIAM H. DYER, Providence.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Lieut. WILLIAM W. CUMMINGS, Providence.

*To Fort Oglethorpe* for instruction, Lieuts. JOSEPH L. BELLIOTTI, ALFRED A. CALDARONE, TANCREDI C. GRANATA, Providence.

## South Carolina

*To Army Medical School* for instruction, Lieuts. ROBERT V. ACKERMAN, Ridgeville; ROY DeW. SUMNER, Rock Hill.

*To Fort Oglethorpe* for instruction, Major CLARENDON W. BARRON, Columbia; Lieuts. CHARLES E. LYDAY, Albermarle; CONNOR J. MILLER, Cottageville; JAMES C. PEPPER, Easley; WILLIAM C. WILLIAMS, Jr., Hones Path; ALLSTON E. WILLCOX, Rosmith.

*To Philadelphia, Pa.,* University Hospital, for instruction, and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. HILLAND S. THOMAS, Chester.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Grant,* Rockford, Ill., base hospital, from Fort Oglethorpe, Lieut. CHARLES P. BENSON, Travellers Rest.

*To Williamsbridge, N. Y.,* for duty, from Fort Oglethorpe, Lieut. LADSON D. BOONE, Rowesville.

## South Dakota

*To Fort Riley* for duty, from Fort Riley, Lieut. ROBERT J. QUINN, Burke.

*To Rochester, Minn.,* for instruction, and on completion *to Camp Grant,* Rockford, Ill., base hospital, from Camp Cody, Major JAMES A. MATTISON, Hot Springs. On completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. ROBERT A. CRAWFORD, Chamberlain.

*To Rockefeller Institute* for instruction, and on completion *to Williamsbridge, N. Y.,* for temporary duty, from Fort Riley, Lieut. JOHN C. ROGERS, White Lake.

## Tennessee

*To Army Medical School* for instruction, Lieuts. WALTER J. JOHNSON, Frankewing; SHIELDS ABERNATHY, Memphis; ARA D. SHARP, Murfreesboro.

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. LEOPOLD SHUMACKER, Chattanooga.

*To Camp Hancock,* Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. EMMETT E. BYRD, Jonesboro.

*To Camp Meade,* Annapolis Junction, Md., base hospital, from Camp Lee, Lieut. MARCUS C. SPINGARN, Memphis.

*To Fort Bliss, Texas,* base hospital, from Camp Dix, Lieut. THOMAS C. CHAPMAN, Brownsville.

*To Fort Oglethorpe* for instruction, Capt. MARVIN A. BLANTON, Union City; Lieuts. LOUIS A. EDMUNDSON, Bethel; HENRY G. EDMONDSON, Braxton; ELI. M. DELAY. Chattanooga; ALFRED L. GRIFFITH, Elora; WILLIAM W. WINTERS, Greenbrier; FRED AL NEERGAARD, Harriman; BARNIE L. McDONALD, Idol; JAMES P. CARTER, SAMUEL L. EDWARDS, CHESTER T. WATERS, Memphis; GEORGE W. HOLCOMB, Nashville; JOHN E. HAMPTON, Newport; HARRY M. WESTOVER, Pinson; CLYDE RUSSELL, Speedwell; EARL B. CARR, Tasewell; KUEBEL A. BRYANT, Trenton; HAROLD A. FLETCHER, South Chattanooga.

*To Fort Riley* for instruction, Lieut. VIRGIL E. MASSEY, Knoxville.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieut. GREEN W. McCONATHY, Eads.

*To Fort Screven,* Ga., for temporary duty, from Fort McPherson, Lieut. CHARLES D. BLASSINGAME, Memphis.

*To Mineola,* Long Island, N. Y., for duty, from Memphis, Capt. LOUIS LEVY, Memphis.

*To New Orleans, La.,* for instruction and on completion *to Camp Beauregard,* Alexandria, La., base hospital, Lieut. WILLIAM A. HOWARD, Cookeville.

*To Newport News, Va.,* for duty, Lieut. EMMETT R. HALL, Memphis; from Fort Oglethorpe, Lieuts. HOWARD A. IJAMS, Knoxville; JAMES E. CARSON, Maryville; JAMES D. LESTER, Nashville.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Upton,* Long Island, N. Y., base hospital, Capt. CHARLES L. GOODRICH, Fayetteville. On completion *to Camp Dix,* Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. BENJAMIN D. WRIGHT, Memphis.

*To Pittsburgh, Pa.,* for instruction, and on completion *to Camp Sherman,* Chillicothe, Ohio, from Fort Oglethorpe, Capt. WILLIAM F. CLARY, Memphis.

*Resignation* of Capt. JOSIAH B. HIBBITTS, Union City, accepted.

## Texas

*To Army Medical School* for instruction, Lieuts. ROY L. VINEYARD, Amarillo; THOMAS W. GLASS, Austin; FRANK P. MILLER, Bells; ROY C. GILES, Belton; WILLIAM C. FISHER, Jr., Galveston; KARL A. ANDERSON, Hillsboro; THOMAS L. GOODNIGHT, Holland; JOHN B. BALDWIN, Marshall; WILLIAM W. DAVIS, Memphis; JAMES A. BLEDSOE, Port Arthur.

*To Camp Bowie,* Fort Worth, Texas, for duty, from Camp Bowie, Lieut. CALVIN W. DAVIS, Long View.

*To Camp Cody,* Deming, N. M., for temporary duty, and on completion *to his proper station,* from Fort Sam Houston, Lieut. RICHARD C. CURTIS, Temple.

*To Camp Joseph E. Johnston,* Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. JAMES S. MARSHALL, Blossom.

*To Camp Logan,* Houston, Texas, for duty, from Camp Logan, Lieut. PIERRE F. HIGGINS, Fort Worth; from Fort Riley, Lieut. JOSEPH E. McDOWELL, Shamrock.

*To Camp Travis,* Fort Sam Houston, Texas, as tuberculosis specialist, from Kelly Field, Capt. CHARLES McC. HENDRICKS, El Paso.

*To Camp Upton,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. THOMAS C. LIDDELL, El Paso.

*To Fort Bayard, N. M.,* for duty, Lieut. ROYAL S. LOVING, Dallas.

*To Fort McPherson, Ga.,* for duty, from Fort Sam Houston, Lieut. DIMETRUS J. LOUIS, El Paso.

*To Fort Oglethorpe* for instruction, Capt. JOSEPH H. SHELTON, Kingsville; Lieuts. HERSHALL LAFORGE, Kinsbury; EDMUND D. NEER, Sherman.

*To Fort Riley* for instruction, from Camp MacArthur, Lieut. ROBERT M. PRATHER, Busville.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieut. GEORGE W. HOWARD, Dallas.

*To Garden City,* Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. ISAAC D. JACKSON, San Antonio.

*To New Orleans, La.,* Charity Hospital, for instruction and on completion *to Camp Beauregard,* Alexandria, La., Lieut. COLEMAN J. CARTER, Oakwood. On completion *to Camp MacArthur,* Waco, Texas, base hospital, from Fort Riley, Lieut. MOULDON SMITH, Roby.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieuts. JESSE P. LOCKHART, Eden; JOSHUA P. WOOD, Roane.

*To New York City,* Bellevue Hospital, for instruction and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. HOWARD D. MITCHELL, Fort Worth. On completion *to Camp Meade,* Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Lieut. WREN E. SMITH, Dallas. On completion *to Camp Wadsworth,* Spartanburg, S. C., base hospital, from Fort Riley, Lieuts. WALTER L. JACKSON, Dallas; ERNEST H. HAMILTON, Kilgore.

*To Rochester, Minn.,* for instruction and on completion *to Camp Grant,* Rockford, Ill., base hospital, from Fort Riley, Major CHARLES M. AVES, Houston.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM N. SCHULTZ, Georgetown.

## Utah

*To Camp Devens,* Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. GEORGE E. McBRIDE, Magna.

*To Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. WILLIAM R. BROWN, Ogden.

*To Mineola,* Long Island, N. Y., for duty, from Utah, Lieut. ROBERT R. HAMPTON, Salt Lake City.

## Vermont

*To Army Medical School* for instruction, Lieut. LUTHER J. CALAHAN, Manchester Centre.

*To Camp Hancock,* Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. FRANK H. EVERETT, Castleton.

*To Fort Oglethorpe* for instruction, Capt. NATHAN R. CALDWELL, Graton; Lieuts. JAMES L. LOVEJOY, Manchester Depot; WILLIAM A. FLOOD, North Bennington; ROWLEY S. FLAGG, North Troy; BERN D. COLBY, Sudbury; JOHN N. CAISSE, Swanton; SHERMAN A. COOTEY, Wallingford.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Upton,* Long Island, N. Y., base hospital, from Fort Oglethorpe, Lieut. GEORGE C. RUBLEE, Hardwick.

## Virginia

*To Army Medical School* for instruction, Lieut. MERWIN B. MOORE, Raven.

*To Camp Lee,* Petersburg, Va., base hospital, from Fort Monroe, Major WILLIAM L. PEPLE, Richmond.

*To Fort Monroe, Va.,* Aviation Section Signal Corps, from Richmond, Capt. WILLIAM W. GILL, Richmond.

*To Fort Oglethorpe* for instruction, Lieuts. WILLIAMSON C. WELBURN, Ballston; CHARLES B. FUGATE, Clinchport; ALFRED B. GREINER, Rural Retreat.

*To Fort Ontario, N. Y.,* for temporary duty, Capt. GEORGE M. MAXWELL, Roanoke.

*To Laurel, Md.,* for duty, from Fort Oglethorpe, Lieut. WHITFIELD P. DAVIS, Galax.

*To Newport News, Va.,* for duty, from Fort Oglethorpe, Lieuts. EARLY B. DOVELL, Hillsboro; CHARLES E. DYER, Pulaski.

*To New York City,* Bellevue Hospital, for instruction, and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, from Fort Oglethorpe, Capt. EDWARD H. MILLER, Jr., Danville. On completion *to Camp Meade,* Annapolis Junction, Md., base hospital, from Fort Oglethorpe, Lieut. STEPHEN R. DONOHOE, Jr., Norfolk.

*To Rockefeller Institute* for instruction and on completion *to Fort McPherson, Ga.,* for temporary duty, Capt. RICHARD P. BELL, Staunton. For instruction in laboratory work and on completion *to Army Medical School,* for duty, Lieut. ALBERT P. TRAYNAM, Richmond.

## Washington

*To Camp Travis,* Fort Sam Houston, Texas, for duty, from Camp Travis, Capt. EDWARD A. RICH, Tacoma.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieut. JO B. BLAIR, Vancouver.

*To New York City,* Cornell Medical Hospital, for instruction, from Fort Riley, Lieut. HAROLD B. THOMPSON, Seattle.

*To Philadelphia, Pa.,* for instruction, and on completion *to Fort Riley* for temporary duty, from Camp Meade, Capt. JAMES G. MATTHEWS, Spokane.

*To Western Department* for duty, Lieuts. RAY SCHUTT, Bremerton; HARRY W. SHRYOCK, Sumas; WILLIAM W. WICK, Summer.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Lieut. CHARLES F. ENGELS, Seattle.

### West Virginia

*To Belleville, Ill.,* Signal Corps Aviation School, for duty, from Fort Oglethorpe, Lieut. WILLIAM P. SAMMONS, Cameron.

*To Camp Hancock,* Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. MARK E. CALDWELL, Clendenin.

*To Fort Oglethorpe* for instruction, Capt. PATRICK L. GORDON, Charleston; Lieuts. FINLY K. VASS, Cassaway; HENRY G. BIELER, Charleston; RUFUS M. MUSICK, Gilbert; CHARLES P. S. FORD, EDWARD G. McCLEES, Hansford; WILLIAM C. MAYS, Sharon.

*To New Orleans, La.,* for instruction and on completion *to Camp Shelby,* Hattiesburg, Miss., base hospital, from Jackson Barracks, Lieut. LATIMER P. JONES, Pennsboro.

### Wisconsin

*To Americus, Ga.,* for duty, from Fort Oglethorpe, Lieut. JOSEPH J. FRANCE, Milwaukee.

*To Camp Bowie,* Fort Worth, Texas, for duty, from Camp Bowie, Lieut. HENRY A. HALSEY, Hiles.

*To Camp Cody,* Deming, N. M.; *Camp Doniphan,* Fort Sill, Okla.; *Camp Bowie,* Fort Worth, Texas; *Camp Travis,* Fort Sam Houston, Texas, base hospitals, and on completion *to his proper station,* from Camp Kearny, Major JOHN R. McDILL, Milwaukee.

*To Camp Dodge,* Des Moines, Iowa, base hospital, Lieut. PERCY R. PIERSON, Readstown.

*To Camp Talioferro,* Fort Worth, Texas, for duty, from Fort Riley, Lieut. JAMES R. HARVEY, Footville.

*To Dallas, Texas,* for duty, from Fort Riley, Capt. CLIFFORD W. ANDREWS, Waupaca.

*To Fort Oglethorpe* for instruction, Capts. WILLIAM HECKER, Beloit; BENJAMIN F. HOYT, South Kaukaua; from Pittsburgh, Capt. GENTZ PERRY, Amery.

*To Fort Riley* for duty, from Fort Riley, Lieut. EDWIN H. FEDEMAN, Montello. For instruction, Lieut. FREDERICK J. KORTHALS, Milwaukee.

*To Fort Sam Houston, Texas,* for duty, from Fort Riley, Lieut. WILLIAM F. WEINGART, Milwaukee.

*To Houston, Texas,* Signal Corps Aviation School, for duty from Fort Riley, Capt. PATRICK R. MINAHAN, Fond du Lac; Lieut. WILLIAM E. BUCKLEY, Hartford.

*To Rochester, Minn.,* Mayo Clinic, for instruction, and on completion *to Camp Custer,* Battle Creek, Mich., base hospital, from Camp Grant, Capt. GEORGE SENN, Green Bay.

*Honorably discharged* on account of physical disability existing prior to entrance into the service, Capt. HARRY A. JEFFERSON, Clintonville.

### Wyoming

*To Fort Riley* for duty, from Fort Riley, Lieut. LUTHER E. MITCHELL, Kaycee.

*To Western Department* for duty, Lieut. NEIL C. GEIS, Casper.

## *Medical News*

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Smallpox.**—During February and March, smallpox appeared in a number of cities and counties in the state. At Birmingham there were 100 cases early in February, the disease continuing to a greater or less extent throughout the month. The disease was reported from many communities throughout the country, and many cases occurred at Goodwater and other parts of Coosa County. At present it is abating, on account of the order from the health department requiring every one to be vaccinated as an emergency measure.

**New Officers.**—The Coosa County Medical Association, in session at Rockford, elected the following officers: Dr. Julius Jones, Rockford, president, and Dr. Cecil K. Maxwell, Kellyton, member of the registration board.

**Full-Time Health Officers.**—At Florence, Lauderdale County, $7,500 has been appropriated for the maintenance of a full-time health officer, a public health nurse and other necessary employees. This makes nine Alabama counties which have complete health departments.

### ARKANSAS

**State News.**—More than 600 cases of smallpox were reported to the state board of health during February.——Action was taken at Fort Smith, March 7, toward the extension of the membership of the Union Hospital Association to make eligible all workers in Arkansas, Oklahoma and Texas. At the convention held at Fort Smith, a campaign was started to enlist 25,000 members in the association.——Rules were issued by the state board of health, March 6, with reference to the control and treatment of persons with venereal disease throughout the state.——March 10, the Arkansas Public Health Association began a campaign against tuberculosis at Marianna where the first field nurse of the association started a tuberculosis survey. The state board of health, the state department of education, the University Extension organization, and the Federation of Women's Clubs are assisting.——Dr. A. B. Brokaw of the International Health Board began a survey of health conditions in the southern district of Woodruff County, March 11.

### CALIFORNIA

**Personal.**—Dr. L. Etta Farmer, Folsom, has gone to France to do general relief work among the refugees.——Dr. Robert A. Peers, Colfax, has been assigned to the Red Cross tuberculosis service in France.

**License Revoked.**—At Los Angeles, February 21, the licenses of the following physicians were revoked for various reasons: Drs. Thomas F. Glass, Moses Jacobson, William S. Carr, San Francisco, and George B. Wilson, San Bernardino. The last named physician was placed on probation for one year, as the result of his connection with the case of James H. N. Wilson, known as "Weeping Eye Wilson," who was convicted in the federal courts of attempting to defraud insurance companies by false claims of injury.

**Miscellaneous.**—At Los Angeles, March 7, an ordinance was passed providing that all food exposed for sale must be protected by glass. The ordinance will become effective in thirty days.——A medical school for the extensive training of medical officers for the United States Army was established in San Francisco, March 15. The school is directed by the associated faculties of the medical departments of the University of California and Stanford University. Classes of from ten to fifteen Army medical officers will be detailed to the school.

### COLORADO

**Personal.**—Dr. Ralph S. Chamberlain has been named as county physician to succeed Dr. George P. Lingenfelter, who has resigned on account of his service in the United States recruiting office at Denver.——Dr. Harry S. Finney, Denver, has resigned as a member of the city health department.

**Social Diseases.**—Dr. Samuel J. Crumbine, Topeka, secretary of the Kansas State Board of Health was in Denver, March 2, as a representative of the National Council of Defense, to assist the state board of health and the Colorado Council of Defense in organizing a campaign against social diseases. Dr. Crumbine held a conference with Governor Gunter and the secretary of the state council of defense and other physicians and members. Dr. Crumbine is organizer of this work for the states of Colorado, Nebraska, Kansas, Texas, Oklahoma and New Mexico. The plans of organization have the following ends in view: a statute compelling the report of all social diseases, the creation of diagnostic laboratories, the establishment of free clinics under certain regulations, and the isolation and treatment of all women suffering from infections.

### CONNECTICUT

**Personal.**—Dr. Seldon B. Overlock, Putnam, has been appointed a member of the state medical examining board. Dr. Frederick E. Wilcox, Willimantic, on the homeopathic board, and Dr. Leroy A. Smith, Higganum, on the eclectic board.——The Connecticut license of Dr. William L. Owen was revoked.——Dr. Arthur H. Baldwin, Norwalk, was seriously injured in an automobile accident, while making a hurried call.

### DELAWARE

**Officers Elected.**—At Wilmington, the New Castle County Medical Society elected the following officers: Dr. John Ball, Elsmere, president; Dr. Harold L. Springer, Wilmington, vice president; Dr. Taleasiu H. Davies, Farmhurst, secretary-treasurer, and Drs. Harold L. Springer, Samuel C. Rumford and William H. Kraemer, all of Wilmington, members of the board of censors.

**Personal.**—Dr. Henry I. Stubbs, Wilmington, who had a serious operation performed on him at the Delaware Hospital, is convalescent.——Dr. William S. Hitch, Laurel, is critically ill with paralysis.——Dr. Vincent M. Myers, Wilmington, has resigned as secretary of the board of health to accept a position with a life insurance company in New York. The position left vacant by Dr. Myers has been filled by the appointment of Ex-Mayor Price, a civilian.——Dr. Allen A. Perkins, Hockessin, was reelected as city physician.

## FLORIDA

**Convalescent Hospital.**—The government will establish a large convalescent hospital at Lake City, using the buildings of the Columbia College.

**Free Distribution of Biologic Preparations.**—The Florida State Board of Health has announced the inauguration of free distribution of antitoxin and vaccines. These products will be distributed from about twenty-five of the larger cities and towns of the state. Heretofore, it has been the plan for physicians to purchase such drugs for indigent persons and have them charged to the state. The products to be distributed are diphtheria, tetanus antitoxin, antimeningococcus serum and the pasteur treatment for rabies.

## GEORGIA

**Personal.**—Dr. Charles D. Cleghorn has been elected superintendent of the Macon Hospital, to succeed Dr. O. E. Nichols, who will be attached to a Red Cross unit in France. Dr. Cleghorn is a roentgen-ray specialist who retired from practice several years ago.——Dr. T. F. Sellers has been appointed bacteriologist for the Georgia State Board of Health.

**Neglect of the Ellis Law.**—Answers to a questionnaire sent out by Dr. T. F. Abercrombie, secretary of the state board of health, disclose the fact that only eight counties have fully put into effect the Ellis health law which requires each county to establish health boards composed of three members, the county superintendent of schools, the director of the board of roads and revenues and one physician to be selected by the county grand jury. Boards have been organized in sixty-six counties, although grand juries in only eighteen have provided an active county health officer in the person of a physician. The chief neglect of the boards has been in the reporting of contagious and infectious diseases.

**State News.**—A new brick addition to the state sanatorium at Milledgeville was begun in February. This will accommodate 500 negro patients. Appropriation for the work was made by the legislature at its last session. On completion the building will have cost $89,250. The crowded conditions in the colored quarters made the new addition necessary.——Dr. Thomas F. Abercrombie, secretary of the state board of health, has asked for two medical inspectors for special work in meningitis and smallpox throughout the state.——An Atlanta firm has been awarded a contract by the War Industries Board to erect a tuberculosis hospital at Asheville, N. C., at a cost of $1,750,000——Proprietary or patent medicines are to receive attention from the state board of health who will ask the legislature for restrictive legislation. The state board of health is conducting a campaign for the establishment of county health departments in counties where no such organizations exist. This is to be done under the Ellis law, which provides that such action may be taken on the recommendation of two successive grand juries. In counties where departments have been created, boards are urging health surveys in conjunction with the Rockefeller Foundation, one half of the expense of which is paid by the counties. Surveys are now being made in Troup and Tift counties. In view of the Ellis law regarding communicable disease, the state secretary has sent out thousands of cards to all county health boards on which reports of such diseases are to be made. The following is the complete list of diseases declared to be communicable and required to be reported to the state board of health: actinomycosis, acute infectious conjunctivitis, anchylostomiasis (hookworm), anthrax, cerebrospinal meningitis, chickenpox, cholera, dengue, diphtheria, dysentery (amebic), dysentery (bacillary), favus, German measles, glanders, gonorrhea, leprosy, malaria, measles, mumps, paratyphoid fever, plague, pneumonia (acute lobar), poliomyelitis, rabies, Rocky Mountain spotted or tick fever, scarlet fever, septic sore throat, smallpox, syphilis, tetanus, trachoma, trichinosis, tuberculosis (pulmonary), tuberculosis (other than pulmonary), typhoid fever, typhus fever, whooping cough, yellow fever.

## IDAHO

**Personal.**—Dr. Roscoe N. Jackson, Sandpoint, has been appointed head of the state insane asylum at Blackfoot to succeed Dr. Walter F. Pike, resigned.——Dr. Leonard E. Hanson, Wallace, was operated on at St. Luke's Hospital, Spokane, for appendicitis.——Dr. D'Orr Poynter, Blackfoot, has been named as superintendent of the state sanitarium for feebleminded at Nampa.

**State News.**—In the lumber camps of the panhandle district of the state, smallpox and whooping cough have recently been prevalent.——At the camps of the Rose Lake Lumber Company the crews have been isolated on account of smallpox, which is said to be mild.——In carrying out the plans of the Surgeon-General of the Army, a campaign against venereal disease has been launched throughout the state.

## ILLINOIS

**General.**—A special car costing $16,000 with stretcher capacity for six patients and seating room for thirty-two persons, has been provided and will be operated between the various psychopathic institutions of the state in transferring inmates.——For the use of the centennial records and exhibit soon to be held, Dr. Clifford E. Smith, president of the DeKalb County Medical Society, has asked for photographs of officers' homes, instruments, advertisements, prescriptions, etc., of pioneer physicians, and especially for copies of the medical journal published by Dr. Dunlap at DeKalb. Many interesting relics have already been collected.——Dr. Taylor, state supervisor of military zones, after a tour of inspection at Scott Field and other camps, has reported that East St. Louis must be cleaned up to make conditions safe for the camp at Belleville.——March 15, it was reported that there were twenty-eight cases of scarlet fever at Belleville and in the surrounding township.——The secretary of the state board of health, on account of the appearance of sporadic cases of infantile paralysis has sent out a general warning in regard to the disease.——The Peoria County Tuberculosis Sanatorium has been closed on account of the prevalence of insanitary conditions. A consultation was held between local officials and the director of the state department of health, March 13, regarding the sanatorium.——After an investigation of the epidemic of intestinal trouble at Peoria in which 3,000 persons were afflicted, the state analyst, who examined the water, said that it had been badly contaminated and might have been the cause of the trouble. The water at present, while not pure, is in much better condition.

### Chicago

**Society Meeting.**—At the meeting of the Robert Koch Society for the Study of Tuberculosis at the City Club in Chicago, March 28, Dr. Everett Morris, Oak Forest, gave the results of induced pneumothorax in 202 cases of tuberculosis, and Dr. Burton H. Rogers read a paper with lantern demonstration of the subject of "The Barnyard as a Disseminator of Tuberculosis."

**Personal.**—Dr. Frederick A. Besley, major and director of Base Hospital No. 12 in France, has recently been detached from that unit and is now consulting surgeon in the field.——Mr. Edward R. Pritchard, for twenty years secretary in the city health department, was presented with two liberty bonds and tendered a banquet by physicians of the department and others, March 15, in recognition of his faithful service.

**Miscellaneous News Items.**—April 14 to 21 will be clean-up week in Chicago, and the plan is to make it a dustless operation.——The death rate in the city for the week ending March 9, according to the figures of the health department, was 14.8 per thousand of population. For the same period of 1917 it was 18.1.——Major Patrick J. H. Farrell, survey officer and pathologist of the base hospital at Camp Travis, Texas, is now convalescing from pneumonia contracted in camp.——The sending of three typhoid patients from Whiting and Indiana Harbor, Ind., to Chicago led the health commissioner to protest to the Indiana authorities.

## MARYLAND

**Bureau of Child Hygiene.**—The establishment of a bureau of child hygiene as a part of the Baltimore City Health Department, to prevent a high death rate among infants, is under construction. It has been recommended by Health Commissioner Blake, as a result of studies made by Dr. William T. Howard, Jr., assistant commissioner of health. The details are yet to be worked out.

**More Patients at General Hospital No. 2.**—An additional number of 101 patients arrived the latter part of the week at the United States Army General Hospital No. 2, Fort McHenry, from the U. S. Army General Hospital No. 1, Ellis Island, N. Y. A large number of the soldiers are from France. Twenty-five patients were transferred from the hospital at Fort McHenry to the Army hospital at New Haven, Conn.

**Personal.**—Dr. Kate B. B. Karpels, of the emergency dispensary of the Army Medical Department, has been given the relative rank of first lieutenant in the Army. Dr. Karpels is the first woman to receive such a rank.——Dr. William Rush Dunton, Jr., Townson, gave a talk on "War Work" at a meeting of the Children of the American Revolution in Baltimore, March 23.

## NEW YORK

**Third Course in Contagious Diseases.**—The third course given this year in clinical and bedside instruction in contagious disease for registered physicians will begin at the Willard Parker Hospital, April 2. There are no fees, but those taking the course are expected to attend regularly.

**Public Nurses for Rural Districts.**—A bill has been introduced into the legislature to provide public nurses for rural districts. The measure authorizes one graduate nurse for every 15,000 population in each county, exclusive of the inhabitants of cities. The salaries of the nurses are to be $1,200 and the board of supervisors are required to supply the funds.

**Protests Against Interference with Physical Training Law.**—The American Physical Education Association, with headquarters in Springfield, Mass., has sent resolutions adopted by the association to Governor Whitman of New York earnestly requesting him to protect the health and physical education of the children of New York by keeping intact the present laws, which have been attacked in the legislature, or by promoting measures to make the laws more effective. The copy of the resolutions sent to the governor is signed by Dr. William Burdic, president; Dr. Dudley A. Sargent, Cambridge, vice president, and Edward H. Arnold, William A. Stecher and Randall D. Warden, members of the executive committee.

**Classroom Ventilation and Respiratory Diseases.**—In order to obtain more concrete evidence of the value of fresh air and to test the findings of the New York State Commission on Ventilation that some years ago made an investigation as to the comparative value of various systems of ventilation, the Bureau of Child Hygiene, in 1916, began an inquiry into the possible relationships between the prevalence of respiratory diseases among schoolchildren and classroom ventilation. The study was made in cooperation with the New York State Commission on Ventilation, which had full control of the selection of classrooms with reference to the type of ventilation to be included. This investigation was carried on among 5,533 pupils of seventy-six classrooms in twelve schools operated under three different types of ventilation. The investigation was conducted during a five-month period in the late fall, winter and early spring, and leads to the following conclusions: In the closed-window, mechanically ventilated type of classroom kept at a temperature of about 68 degrees F., the rate of absences from respiratory diseases was 32 per cent. higher than in the open-window, naturally ventilated type of classroom kept at the same temperature (about 68 F.) and about 40 per cent. higher than in the open-window, naturally ventilated type of classroom kept at a temperature of about 50 degrees. The relative humidity of classrooms, whether ventilated by natural or mechanical means, was not a causative factor in the occurrence of respiratory illness among schoolchildren.

### New York City

**Burke Foundation for Government.**—Arrangements have about been completed whereby the convalescent home of the Burke Foundation will pass under the control of the government for the period of the war. The home which has accommodations for several hundred patients will be used as a convalescent home for soldiers.

**Gifts and Bequests.**—

To Jewish Charities, $1,000,000; Mount Sinai Hospital, New York, $37,500; the Montefiore Home, $37,000; the Hebrew Benevolent and Orphan Asylum, $27,000; Home for Aged and Infirm Hebrews, $17,000; Beth Israel Hospital, $12,500; German Hospital, $5,000; Hebrew Infant Asylum, $5,000; National Jewish Hospital at Denver, $3,500; the Hospital for Deformities and Joint Diseases, Skin and Cancer Hospital, Tuberculosis Preventorium for Children, the New York Eye and Ear Infirmary, each $2,500, by the will of Ludwig Dreyfus, some of these bequests to be paid immediately and others on the death of his wife.

**Grip Epidemic.**—New York is said to be suffering from a severe epidemic of the grip; but as this is not a reportable disease there are no figures by which the extent of the epidemic can be gaged. The health department has issued a set of precautions with a warning that grip is the most easily transmitted of all the highly contagious respiratory diseases. The figures of the health department indicate that pneumonia shows no signs of abating. During the week ending March 16, there were 426 cases as against 247 for the corresponding week of 1917. Sing Sing Prison reports that there are thirty patients suffering from grip in the prison hospital, and about seventy in the dormitory and cell block.

## OHIO

**Postgraduate Course.**—The Cleveland Academy of Medicine announces to its members who have paid their dues for 1918 a free postgraduate clinical and didactic course in pediatrics, surgical diagnosis, casualty surgery, physical diagnosis, genito-urinary diseases, syphilis, gynecology and gross pathology.

## PENNSYLVANIA

**State to Care for Wounded.**—March 21, Governor Brumbaugh appointed a committee to form plans for the physical restoration, education and employment of convalescent and disabled soldiers. The committee will cooperate with the Surgeon-General's Office in Washington, D. C., and various schools in the state will provide quarters and training. More than 30,000 industrial establishments have offered to care for disabled soldiers, 1,829 alone being open to men who have lost their power of speech through shell shock.

**State News.**—A service flag containing thirty-two stars will be dedicated at the April meeting of the Fayette County Medical Society.——Drs. G. Franklin Bell, Williamsport, Edward Lyon and John A. Campbell were appointed a special committee by the Lycoming County Medical Society to make a report on the features of the Pennsylvania workmen's compensation law, in which the physicians are interested.——The only man among the 400 employees of the Middletown car shops who evaded vaccination during a recent epidemic came down with smallpox. Four cases of smallpox occurred among the colored population of Harrisburg leading to the vaccination of 500 persons, March 11.——At a meeting at Bloomsburg, March 14, the Montour and Columbia county medical societies agreed to meet together hereafter.

**Personal.**—Dr. Samuel McC. Hamill, Philadelphia, has been named chairman of the newly formed child welfare committee of the Council of National Defense and will lead a campaign to save at least 100,000 babies. Through the women's committee, known as the state council section of the Council of National Defense, the subdivisions of the problem of child welfare, such as infant mortality and the development and care of children of preschool age, have been taken up and the importance of cooperation with state, municipal and county health departments has been urged. Physicians and nurses trained in child welfare and public health work, as well as volunteer workers, will be supplied by the committee to counties of the state.——Dr. Isaac Shirk Simons, Elizabethtown, Lancaster County, was shot and severely injured while attending a patient, March 9.——Dr. Maria White, India, having relatives in New Castle, has been at Camp Lee, Va., studying parasitic diseases, at the instance of the authorities.——Dr. Theodore C. Harter, Bloomsburg, will be a candidate for state senator.——Dr. Benjamin F. Royer, Harrisburg, acting commissioner of health, will deliver the memorial address on the late commissioner, Dr. Samuel G. Dixon, at the Academy of Natural Sciences, Philadelphia, April 9.——Dr. Albert M. Sittler was elected president and Dr. Harvey Balliet, health officer of the Bowmanstown Board of Health.——Dr. Simon S. Koser and his wife, Dr. Cynthia E. Williams-Koser, Williamsport, have leased their private hospital to the managers of the Williamsport Private Hospital, recently burned, and will travel for two years in California and Alaska.——Dr. Albert F. Bronson, Girardville, will be a candidate for the legislature.——Dr. J. Spencer Callen, Shenandoah, will be a candidate for the legislature.——Dr. Mary B. Newell has been appointed resident physician at the tuberculosis hospital, Pittsburgh. She was formerly in hospital service in Chicago.

### Philadelphia

**War on the Mosquito.**—Plans to eliminate the mosquito from southwest Philadelphia as health precaution for the thousands of workers at the Hog Island shipyard and other industrial plants were formulated in the office of Dr. Wilmer Krusen, director of public health and charities, March 20. The work will be performed jointly by the city and the state, with the assistance of the industrial establishments themselves. Last year the work was confined to the lowlands between Broad Street and the Delaware River. The department of public works has a fund of $10,000 for the work.

**The Alumni Society Elects Officers.**—At the annual meeting of the Philadelphia Alumni Society, medical department, University of Pennsylvania, held February 16, the following officers were elected: president, Dr. S. Lewis Ziegler; honorary president, Provost Dr. Edgar Fahs Smith; first vice president, Dr. Henry J. Off; second vice president, Dr. John J. Kobrecht; third vice president, Dr. William S. Wray; corresponding secretary, Dr. Stephen E. Tracy; recording secretary, Dr. W. Oakley Hermance; treasurer, Dr. Herbert B. Carpenter; executive committee, Drs. B. Franklin Stahl, Harvey E. Schock, Paul J. Sartain and McCluney Radcliffe, and Clarence P. Franklin.

## SOUTH CAROLINA

**Board of Health Appointments.**—At Charleston, Dr. J. Merceir Green has been reappointed health officer, and Dr. Charles P. Aimar and Dr. Henry W. J. de Saussure were reappointed members of the board of health.

**General.**—At Florence, action has been taken to open a tuberculosis clinic for whites and negroes, and to employ a visiting nurse. After attending a conference of health officers at Atlanta where health conditions in the cantonment zones was discussed. Dr. H. C. Cody, Spartanburg, reported improvement in conditions throughout the territory, and said the problem for Spartanburg was to eliminate mosquitoes and malaria, and the fly and typhoid fever. He urged better collection of garbage for the city.——The last session of the state legislature appropriated $5,000 for fighting tuberculosis among cattle and cholera among hogs. Three veterinarians will be employed and an active campaign begun.——Dr. Luther A. Riser, executive secretary of the South Carolina Antituberculosis Association reports that $10,000 was realized from the sale of Red Cross seals.

## TENNESSEE

**State Medical Association Meeting.**—The eighty-fifth annual session of the Tennessee State Medical Association will be held at Memphis, April 9, 10 and 11. The association is among the oldest state associations in the United States. Jan. 1, 1918, it had 1,600 members, out of a total of 2,741 physicians in the counties represented in the association, while there were 287 physicians in counties not represented.

**General News.**—Five cases of smallpox developed among the nurses at the Ellinger Hospital at Chattanooga in the latter part of February and the hospital was quarantined by Dr. Carlisle P. Knight, United States Public Health officer, who was in charge in this zone. All persons exposed were vaccinated.——Work on the new Memphis and Shelby County Tuberculosis Hospital at Memphis was held up early in March on account of matters of procedure. The rules for the conduct of the hospital have now been adopted. Dr. John M. Maury, Memphis, has been named on the board of trustees.——The examination of 3,300 men on construction work at the Bend, near Nashville, showed little disease or disability. All unprotected men were vaccinated.——At Knoxville, an ordinance has been proposed requiring the examination for contagious or infectious disease four times a year of all restaurant, hotel and boarding house employees——Dr. Carlisle P. Knight of the United States Public Health Service will visit health officers in all parts of the state in the interest of the campaign against venereal diseases.

## TEXAS

**Personal.**—Dr. Robert J. Gauldin, Dallas, has resigned as vice chairman of the state board of health.——Dr. Royal S. Loving, secretary of the Dallas County Medical Society has resigned to enter the military service; Dr. William W. Fowler was elected to fill out the unexpired term.——Dr. Charles F. Card, Justin, has been made first assistant health officer at Dallas in charge of the work of visiting physicians and quarantine officers, and Dr. Vernando P. Armstrong, Dallas, has been appointed second assistant in charge of the emergency hospital, the city ambulance and the visiting nurses.

**Miscellaneous.**—The division of sanitation of the health department at Dallas has completed the spring survey of streams and other breeding places of mosquitoes and adopted measures for their elimination. Dr. Alva W. Carnes, Hutchins, health officer, deplored the difficulty of getting sufficient help at the emergency hospital. The food and sanitation divisions have been commended for the satisfactory condition of health matters in their jurisdiction. During February there were seventy-six cases of smallpox and 425 cases of measles. An amendment to the food ordinance has been proposed governing outside displays of food.——Representative Carlock has introduced a bill into the legislature advocated by the Texas Social Hygiene Association making venereal diseases reportable under the file number of the physician.——At Fort Worth a clinic is to be established for the treatment of venereal diseases which will be in charge of a specialist of the United States Public Health Service. Two probation officers, a social worker and nurses to be furnished by the Red Cross complete the personnel.——At Dallas a free tuberculosis clinic will be established. Dr. Raleigh W. Baird has been chosen chairman of the clinic committee.——At a special meeting of the Bexar County Medical Society at San Antonio, March 12, the program consisted of a symposium on pneumonia. Papers were read by Dr. Rufus J. Cole and Capt. Alphonse R. Dochez, M. R. C., of the Rockefeller Institute, New York, and Dr. William G. MacCallum, professor of pathology, Johns Hopkins Hospital, Baltimore.——For the purpose of improving sanitary conditions in the smelter district at El Paso, on the solicitation of Dr. Will Rogers, county health officer, the county commissioners appointed a special board of health for the district, on which they named Dr. Will Rogers, Dr. Louis G. Witherspoon and Mr. Will Hord.

## UTAH

**Personal.**—Dr. William R. Brown has been appointed city physician of Ogden.—Dr. LeRoy C. Potter, assistant physician at the state mental hospital, Provo, has resigned and will resume general practice.——Dr. Herbert C. Deane has resigned as registrar of vital statistics at Bingham.——Dr. P. S. Hagefan has been appointed health officer at Bingham to fill the vacancy caused by the removal of Dr. Herbert C. Deane to Idaho.——Dr. E. M. Conroy has been made chairman of the Weber County Council of Defense at Ogden.

**Miscellaneous.**—It is announced that a free dispensary for the treatment of the social diseases will be opened at Salt Lake City in connection with the emergency hospital.——The state health commissioner, Dr. T. B. Beatty, assisted by two federal government representatives, will begin a vigorous campaign for a better reporting of births, which is desirable for war reasons. It is hoped to place the state within the registration area.——At Logan efforts are being made to establish better reporting and more effective quarantine of infectious diseases. The chairman of the local board of health has called on citizens and physicians for better cooperation. An ordinance on the subject has been prepared.

## VIRGINIA

**Reorganizing the City Health Department.**—Under the new plan of organization of the health department provided for under the ordinance of February 20, at Norfolk, the health department will consist of three members, with a health director, who need not be a member of the community or the state. Dr. George M. Converse, of the United States Public Health Service, has been appointed director. The plan creates a new health district, which is under the joint control of the city, the United States Public Health Service and the American Red Cross, and comprises territory in which are located a number of the Army cantonments, hospitals and camps.

**Personal.**—Dr. William S. Keister, Richmond, has gone to San Antonio, Texas, where he will be in charge as one of the health officers of the war camps located near the city. He has been connected with the Virginia state health service. His father, Dr. B. C. Keister, has discontinued his sanatorium and will convert the building into apartments.—The salary of the state health commissioner, Dr. Ennion C. Williams, Richmond, has been increased by the state legislature from $3,500 to $5,000.——Dr. R. L. McMurran, Portsmouth, has been appointed by the governor quarantine medical inspector for the division of Elizabeth City for the term of two years.——Dr. James R. Speight has been appointed assistant to Dr. Powhatan S. Schenck, health commissioner of Norfolk, to fill the position made vacant by the resignation of Dr. Claiborne Willcox, New Rochelle.——Dr. Philip W. Boyd, Winchester, has been appointed member of the state board of health.——Dr. James W. Reed, Ocean View, was elected health officer of Norfolk County.

## WASHINGTON

**Miscellaneous.**—Dr. John B. Anderson, city health officer of Spokane, has been required by the state board of health to quarantine all patients with social diseases, beginning April 1, and physicians will be required to report all such cases.

The patients will be isolated in the Rivercrest Contagious Hospital.——At the meeting of the Pierce County Medical Society at Tacoma, March 10, the Commercial Club presented the society with a service flag bearing thirty-two stars representing the number of members who have joined the colors.

**Personal.**—Dr. Robert J. Skaife, Colfax, has been appointed county health officer to succeed Dr. Frank A. Bryant, who has gone into the Army medical service.——Dr. Hilbrand J. Hards has resigned as city health officer at Tacoma.——Dr. J. Glen Harbison has been made chairman of the committee on health and sanitation of the Spokane Chamber of Commerce, to succeed Dr. Nathan M. Baker. Other physicians on the committee recently appointed are Drs. Frank Holmes, C. O. Linder, Alexander R. Lundgren, Spokane, Sutherland J. Wolff and Edison Worthington.

### WEST VIRGINIA

**Personal.**—Dr. Grover C. Robinson, Charleston, has been appointed superintendent of the state hospital at Spencer in the place of Dr. Charles A. Barlow, resigned.——Dr. William T. Morris, Wheeling, has been appointed deputy inspector of the Scottish Rite in West Virginia.——Dr. Ralph W. E. Cole, formerly of Akron, Ohio, has been appointed state epidemiologist, to fill the vacancy caused by the resignation of Dr. Harold B. Wood.——Dr. Edward H. Thompson, Bluefield, has been made a member of the state health council to succeed Dr. Luther H. Clark, Kyle, resigned.——Dr. Harold B. Wood, Wheeling, has been appointed epidemiologist in the New York State Department of Health.

### WISCONSIN

**Personal.**—Dr. Francis R. Salisbury of Sparta is suffering from a nervous breakdown, following severe infection of a wound.——Dr. John F. Brown, Sparta, superintendent of the state school, has been appointed acting mayor since the death of Dr. Fred P. Stiles.

**Miscellaneous.**—Twenty-seven cases of infantile paralysis have occurred in Milwaukee since January 1. There have been three deaths.——Three cases of scarlet fever in St. Elizabeth's Hospital at Appleton caused the exclusion of all visitors and the postponement of surgical operations not of an emergency nature.——The new county sanatorium for tuberculosis at Pewaukee Lake in Waukesha County has been completed at a cost of $32,000.——At Beloit, March 14, the office of Dr. Malcolm P. Andrews was robbed of cocain, cash and surgical instruments, it is believed, by drug users.——About 150 pounds of digitalis, raised last year in the drug gardens of the University of Wisconsin at Madison, will be placed at the disposal of the medical service of the Army.

### CANADA

**Personal.**—Lieut.-Col. D. King Smith has returned to Toronto from Halifax and is now commanding officer of the North Toronto Military Hospital.——Capt. James Douglas Shields, Mount Albert, Ont., has returned to Canada from overseas and has been appointed assistant medical adviser on the pension board at Ottawa.——Major L. Bruce Robertson, C. A. M. C., who has been overseas since the beginning of the war, has been recalled by the University of Toronto. Major Robertson was attached to No. 2 Canadian Casualty Clearing Station.

**Hospital News.**—According to the tenth annual report of the Harbor View Hospital at Sydney Mines, N. S., 501 patients were treated in 1917, with twenty-three deaths. The financial report showed a credit balance of $5,013.48.——The late James I. Carter, Sarnia, Ont., left the Hospital for Sick Children, Toronto, $30,000.——In 1917, the Western Hospital, Montreal, admitted 1,388 patients. The cost of maintenance per day was $3.01. It was the hardest financial year the hospital has had, as the deficit stood at $40,324.79.——The Protestant Hospital for the Insane at Verdun is reported overcrowded, having 771 patients. It has been extremely difficult to find nurses. The financial year closed with a deficit of $38,471.——Jeffrey Hale's Hospital, Quebec City, added during the past year the James Douglas Tuberculosis wards for advanced cases. Thirty beds in the institution are now devoted to military purposes. During 1917, 901 patients received treatment.——The Laval Hospital, which is being built in Quebec City for the treatment of cases of tuberculosis, will be opened about May 1. It will be used as a clinic for teaching purposes in connection with Laval University. Accommodation will be provided for 135 patients and treatment will be given free of charge. The government of Quebec contributed $25,000 for the erection of the institution, and the city of Quebec a like amount, the remainder being provided by private contribution.——The board of control of Winnipeg has granted $58,600 to cover the deficits in the last year's annual statement of the King George and King Edward Hospitals of that city.——Dr. Maurice McD. Seymour, commissioner of public health, Saskatchewan, opened a new hospital at Eston, Sask., in January.——During the past year, hospitals have been established at Lloydminister, Edam, Eston, and Shaunavon, Sask., and the necessary by-laws have been passed for similar institutions at Davidson, Rosetown, Kerrobert and Lampman. Estevan, Outlook and Lanigan defeated similar by-laws.——A military sanatorium is planned at Kananaskis, near Banff, Alta. It is to cost $400,000, one half to be paid by the Dominion government, and the remainder by the province of Alberta. It will accommodate 300 patients, and when no longer required for military purposes, will become the property of Alberta for the treatment of civilian patients.

### GENERAL

**Next Examination of National Board.**—The National Board of Medical Examiners will hold its next examination at Fort Oglethorpe, Ga., beginning April 8. A little later another examination will be held at Fort Riley, Kan.

**Tuberculosis.**—According to the estimate of the National Association for the Study and Prevention of Tuberculosis, within the next two years 50,000 more beds will be needed in the United States to care for the indicated increase in tuberculosis on account of war conditions. There are said to be 43,000 beds available at present. The estimate is based on evidence of the incidence of the disease as disclosed by the selective draft. It was formerly estimated that for every death from tuberculosis there were five cases, but it is now believed the true number of cases is two or three times as great. Instead of about 1,000,000 active cases in the country there are probably between 2,000,000 and 3,000,000. The military examinations show that an average of about 2 per cent. of young men of draft age are tuberculous, and this average is confirmed by the experiment at Framingham, Mass.

### FOREIGN

**Malta Fever.**—It was announced from Paris, February 26, that Prof. M. A. Vincent of the Academy of Medicine had developed a vaccine against malta fever.

**American Child Welfare Congress.**—The Second American Child Welfare Congress, which was to have been held at Montevideo in March, has been postponed to December, 1918. Prof. L. Morquio of Montevideo is chief of the executive board.

**Pneumonic Plague.**—It was reported, February 24, that pneumonic plague had broken out in Shansi Province, China, that the epidemic had assumed serious proportions and that all northern China was threatened. Five years ago, 30,000 or 40,000 deaths occurred from this disease, which was combated and studied by an international committee of experts.

**The Interallies Surgical Association.**—Our Danish and Netherlands exchanges comment with disapproval on the change of the International Surgical Association to be an Interallies Association. Pinkhof in the Netherlands weekly remarks that it reminds him of Heine's poem in which he related that in a fever he dreamed that he was pounding his enemy with mighty blows but that the pain of the blows was felt by the pounder, not the poundee.

**Relief Units for Palestine.**—February 28, it was announced that four medical units for civilian relief work in Palestine following the wake of the British army would be organized at the request of the British government. The funds were to come from the American, Armenian and Syrian relief fund and be administered by the American Red Cross. The American Jewish Relief Committee has appropriated $100,000 for a medical unit for Palestine, and Mrs. Peter J. Schweitzer of Brooklyn has given $25,000 for the treatment of trachoma in that region.

**Italian Medical Students in the Army Sent Back to Study.**—The *Riforma Medica* states that a recent decree has been issued which orders all mobilized and nonmobilized medical students inscribed in the "third and fourth *corso di medicina*" to return to their respective universities and continue their studies, the courses having been especially speeded up for the purpose. The number of students affected by the decree is 2,300, and they are to be housed in special quarters arranged by the *Comando Supremo.* Special liberty and special conditions are to be given them so they can make the most of the opportunities for study thus provided.

## CORRECTION

**"Iodids in Roentgenography."**—In the article by D. F. Cameron on "Iodids in Roentgenography," which appeared in The Journal, March 16, page 754, an error occurred in the following sentence: "It is worthy of note that the opacity of the silver iodid preparations that have been commonly used is probably due to the iodid rather than to the silver content." The latter part of the sentence should read: ". . . is probably due more to the iodid than to the silver content."

## PARIS LETTER

Paris, Feb. 21, 1918.

### War Wounds of the Kidney

At a recent meeting of the Société de chirurgie de Paris, Dr. Chevassu, professor agrégé à la Faculté de médecine de Paris and chirurgien des hôpitaux, reported 56 cases of unquestionable wounds of the kidney, of which 46 were recent and 10 old wounds. The wounds of the kidney were accompanied by wounds of the liver in 11 cases; of the lung in 9; of the stomach in 2; of the colon in 3; of the small intestine in 3, and of the spinal cord or the lumbar plexus in 3 cases. A number of cases were accompanied by diverse wounds of the skull or of the extremities. In 21 cases the kidney alone seemed to have been injured.

Leaving out of consideration the possible gravity of associated wounds of other viscera, wounds of the kidney are serious for two reasons: hemorrhage or infection. The gravity from hemorrhage is not very considerable. Among the 46 recent cases, Chevassu saw only 6 cases of severe or grave hemorrhage (3 internal, 2 hematuria); 5 of these terminated fatally; the sixth was nephrectomized and a cure resulted. Among the other cases the hematuria was inconsequential, lasting only a few days or sometimes only one day, or even only for the first micturition, and not being alarming in degree. In 5 cases seen by Chevassu a perirenal hematoma was produced, manifesting itself as a lumbar or lumbar-iliac tumor which was easily detected. In two cases he found it advisable to operate because of high fever; one of these patients died; the other was cured. The other 3 patients were treated expectantly, and all recovered. In the remaining 35 cases there were no special symptoms of renal origin, other than the hematuria, some retraction of the body wall on the affected side, and frequently, at first, phenomena of shock, common in so many cases of abdominal wounds.

#### PLAN OF TREATMENT

In these 35 cases, in which the symptoms did not demand *a priori* medical treatment directed toward the kidney specially, the following course was pursued: primary operation, 11 cases; secondary operation, 2 cases; not operated on, 22 cases. The primary operations comprised 1 nephrectomy (1 death); 7 lumbar drainages (1 death); 3 interventions on other organs than the kidney (colon, 2 cases, 1 death; peritoneum, 1 case, 1 death). The two secondary operations were directed to the associated as well as the kidney lesions: purulent pleurisy, 1 case (1 death), incision of an intraperitoneal abscess (1 case with cure). There remain 22 cases in which neither abdominal, lumbar nor thoracic operation was done although several of the men were operated on for wounds of the brain or of the extremities. Of these 22 cases which were treated expectantly (absolute rest, proper diet and hexamethylenamin), 3 terminated fatally and 19 were evacuated. Of 28 cases in which pieces of projectile were embedded, 10 terminated fatally, 36 per cent. mortality, and 18 seton cases had 4 deaths, 22 per cent. mortality. The greater mortality among the projectile cases is due to the persistence of the hematuria or secondary hemorrhage and infection.

#### HEMORRHAGE AND INFECTION

The immediate treatment of wounds of the kidney demands that cognizance be taken of two serious conditions—hemorrhage and infection. The first is relatively slight, at least among the conditions habitually observed in an automobile ambulance. The severe internal hemorrhages, which sometimes accompany wounds of the kidney, seem to be associated with the other bleeding wounds at least as often as if not oftener than with the injury of the kidney itself. In either case, operation to secure hemostasis is indicated. In the case of the kidney, this nearly always means a nephrectomy, because in these cases there is always need for haste; but a kidney should never be removed without knowing something about its fellow. Hematuria, alone, is not an indication for operation, unless it is menacing because of its persistence and abundance. As for the operations other than nephrectomy, suture of the lacerated kidney is a very difficult procedure; tamponage, for an organ as movable as the kidney, does not appear ever to have arrested a hemorrhage which would not have been arrested spontaneously; but one can conceive that in some cases, fortunately, the lesion is limited and a partial nephrectomy may be indicated.

Apart from the operative indication of hemorrhage, is it advisable to intervene systematically in all cases of kidney wounds for the purpose of insuring disinfection? Chevassu does not believe that this course is indicated in the seton wounds. Experience has shown that most of the abdominal and thoracic seton wounds heal spontaneously. In cases in which the projectile is still in the tissues, should one apply systematically to wounds of the kidney the usual formula: excision of the projectile track, and removal of the missile? Chevassu does not believe in this now, for many reasons: (1) because it has been shown that many of these foreign bodies lodged in the kidney region are tolerated well, especially when they are small; (2) because in many of these cases there is danger of inflicting much damage during the removal of the foreign body; (3) because the treatment of the renal wound, if it is infected, seems to be hazardous, unless a partial nephrectomy is done, and that often leads to a total nephrectomy. Only the large shell fragments, which can be removed without too much damage, may be regarded as an indication for immediate operation. As for the others, it is better not to operate at once; if they give rise to symptoms, a secondary operation can be done.

#### OLD WOUNDS OF KIDNEY

So far as old wounds of the kidney are concerned, Chevassu has seen only 10 cases in the hospital service of the interior. Of these 10 cases (all of from five to eighteen months' standing) none had been subjected to an immediate operation; 3 had been operated secondarily: removal of a shell fragment from the kidney on the eighteenth day; opening of a perinephritic abscess on the fifteenth day; removal of a lumbar projectile *à froid.* One of these cases presented a urinary fistula which disappeared spontaneously in about two months. Of these 10 patients, 1 sought medical attention because of pyuria, 1 for nephritis, 2 for pain; the other 6 had been sent by the Commissions de réforme for study of their renal function, although they did not present any appreciable symptoms. Two of these patients still carried a shell fragment in the perirenal zone; 7 had normal micturition and voided a clear urine; 2 voided a muddy urine; one of these urines did not contain any pathologic product. A comparative study made of both kidneys of 7 patients by means of ureteral catheterization showed a marked inferiority of the wounded kidney in 2, including 1 with the healed fistula; in 3, both kidneys were approximately equal, including a man who had had an intrarenal shell fragment removed on the eighth day; in 2, paradoxical as it may seem, there was a slight increase in the secretion on the wounded side. On the whole, therefore, a considerable number of these old kidney wound cases do not present any appreciable stigmata, determinable by exploratory procedures of precision. Hence, these experiences justify surgeons at the front in being as conservative as possible in cases of wounds of the kidney.

### Treatment of Intra-Ocular Foreign Bodies

At a recent session of the Académie de médecine, Dr. de Lapersonne, professor of clinical ophthalmology on the Faculté de médecine de Paris, presented a very important paper discussing the indications for treatment of intra-ocular foreign bodies incident to war wounds. His conclusions are as follows: 1. Among the war wounds, the small intra-ocular shell fragments present grave dangers, and often entail blindness in one or even both eyes. 2. In spite of the difficulties that have hitherto stood in the way of the adoption of measures for the protection of the eyes against shell fragments, it is important to insist on the use of visors, goggles or masks. 3. Foreign bodies should be extracted at once. It is indispensable that autonomous ophthalmologic services should be installed in the hospital centers, one or two for each army, and that the rapid transfer of the wounded to these services be assured. They should be independent of the surgical automobiles and should have a special radiologic installation, with electromagnets and a complete supply of instruments. 4. Radioscopy being known to be insufficient for the diagnosis of the presence of these small foreign bodies, it is necessary that the radiologic installation permits exact locating by making a number of negatives if necessary.

### Sale of Condensed Milk

The council of public hygiene and of health of the department of the Seine has adopted the following resolutions with regard to the sale of condensed milk: 1. Condensed milk, either sweetened or unsweetened, should contain all the natural ingredients of milk in their normal proportions. 2. Condensed skimmed milk, sweetened or unsweetened, whose food value and marketable value is inferior to those of condensed whole milk, must carry on the label, in plain letters, the word "Skimmed" or the words "Do not give to infants or to the sick." 3. Condensed milk cannot be made from partially skimmed milk. 4. The box should be stamped with the date (month and year) of filling or packing. 5. It should also be stamped to show the quantity of milk (per volume) of normal composition that can be "reconstructed" from the contents of the box. If sweetening is required, the label should show the amount of sugar (saccharose) which the milk should contain when "reconstructed." 6. The label should further state that it is essential to boil the "reconstructed" milk, especially if it is intended for infants. 7. The addition of saccharin to condensed milk should be interdicted. 8. The foregoing rules and regulations also apply to dried or evaporated milk.

## LONDON LETTER

London, March 5, 1918.

### Another Hospital Ship Sunk by the Germans

The hospital ship *Glenart Castle,* with about 200 persons on board including the medical staff and nurses, was torpedoed at 4 a. m., February 26, in the Bristol Channel, and sank in seven minutes; 153, including all the female nurses (who numbered eight) are missing, and it is feared drowned. Immediately after the explosion the lights went out and the wireless system was rendered ineffective. The ship went down stern first, which made the launching of boats extremely difficult even if there had been sufficient time. Fortunately there were no patients on board. The captain stood on the bridge to the last, and was heard to tell the quartermaster to get away to the boats. He apparently went down with the vessel. Seven out of the nine boats were successfully launched, but some of them were not fully occupied. This brings the number of British hospital ships sunk within the past twelve months up to seven. All were torpedoed without warning during the night.

### Retirement of Sir Alfred Keogh

Sir Alfred Keogh has retired from the position of Director-General of Medical Services and resumed work as rector of the Imperial College of Science and Technology. He has been one of the few unalloyed successes of the war. The results achieved by the Army Medical Service are largely due to his prevision. They can be estimated by comparison with the much smaller South African War, in which the whole British force rarely exceeded 200,000, and there were 57.000 cases of typhoid fever. On this basis we should have expected half a million in the present war, but there have been little more than 3,000. In South Africa 721 officers and 7,091 men were killed or died of wounds, a total of 7,812; and 339 officers and 12,911 men, a total of 13,250, died of disease. In a recent fortnight, the published lists of casualties in all theaters of the present campaign show 646 officers and 7,453 men killed or died of wounds, a total of 8,099. In the same period, eight officers and 303 men "died," that is, of disease, a total of 311. The number of reported killed and wounded in this fortnight exceeded that of the whole of the South African campaign, while the number who died of disease did not reach one fortieth of the number who succumbed from this cause. In other figures, while in the South African War of every hundred deaths sixty-three were due to disease, in the present campaign the loss from this cause in one typical fortnight is less than four in every hundred deaths. The health of the troops at home is better than that of the civil population; that of those in France, better than the average health of the army in peace time. Elsewhere, even where there is a special risk of disease, health statistics give no cause for undue anxiety.

On the occasion of his reelection as president of the Association Technical Institutions Sir Alfred Keogh said: "The proudest thing I feel in connection with this campaign is that science has been vindicated in its relation to administration. If we have accomplished anything it has been that we have succeeded in preventing those diseases which in all previous campaigns have wiped out armies, literally, and that has been due to the fact that for some years past we have been engaged in teaching the army what is the relation of science to military work."

On the occasion of his retirement, Sir Alfred Keogh was entertained at dinner and presented by consulting physicians and surgeons with a gold cup. In proposing his health, Sir Berkeley Moynihan said that Sir Alfred had established at home, in France, in Greece, Palestine, Egypt, Mesopotamia, in many outposts of the empire, 2,500 hospitals, which were at least the rivals of the very best civil hospitals that were to be found in this country before the war. Our armies in the field had been sheltered from the ravages of disease with unexampled security. There had been fewer cases of typhoid fever than there were deaths from typhoid fever in South Africa, though our army was now ten times as large as it was then, and though the conditions in respect to climate and environment were much worse. Sir Alfred Keogh was the parent of constructive sanitary reform in the British Army. In Egypt, bilharziosis, which had existed from the time of the Pharaohs, and claimed one third of the male population of the country as its victims, had been studied by a commission sent out by Sir Alfred Keogh, and as a result it might be predicted that the disease was in process of rapid extinction. Most valuable scientific work had been done in malaria, dysentery, trench fever, cerebrospinal meningitis, tetanus, and a large number of medical and surgical conditions.

### The Treatment of Malaria

The large number of cases of malaria in soldiers returned from overseas and concentrated in special hospitals in England has led the War Office to institute a scheme of comparison of the results obtained by different methods of treatment. They have been summarized by Sir Ronald Ross, the adviser of the War Office in these matters, in a paper read at the Society of Tropical Medicine. The treatments adopted are classified into (*a*) "antirelapse quinin prophylaxis," designed for preventing relapses as much as possible without attempting absolute and immediate cure; (*b*) "short sterilizing," which attempts absolute cure with treatments ordinarily continued only for a few days; (*c*) "long sterilizing," aiming at producing absolute cure by longer courses than in short sterilizing, and (*d*) mixed treatments, and treatments with drugs other than quinin. The criterion of success is the disappearance of relapses during the observation periods practicable. In nearly all the cases the malaria (mostly benign tertian) was already of considerable duration. The treatment comprised different preparations of quinin, administered by mouth and by subcutaneous, intramuscular and intravenous injections in different doses and for different periods. The result from all the quinin treatments taken together is represented by 27 per cent. of ascertained relapsing cases in a total of about 2,500 patients. A control was afforded by 192 men, who were watched without any quinin treatment at all. Of these, eighty-nine relapsed within twenty-seven days, and seventy-six were presently judged not to be sufficiently well to allow of quinin treatment being withheld any longer, so that 86 per cent. of the untreated patients remained ill, and 46.5 per cent. actually suffered from relapses during the period. The conclusion is that short, intensive treatment by large doses of quinin (for example, up to 180 grains of quinin sulphate or hydrochlorid in three days) with rest, stimulants, and good after-treatment is well borne and effects a substantial proportion of cures. The same can be said for doses in Class C, which in some instances totaled over 1,000 grains in four weeks, large intramuscular doses being given during the first days of that period. But, however, the doses were given in Classes B and C, the liability to relapse in patients receiving the treatment was not any less than in cases treated much less heroically under the method of Class A, by giving comparatively small doses amounting to about 60 grains a week. Doses of this order gave the best results both in respect of the prevention of relapses and as regards the well-being of the patient. This dosage can be distributed in various ways without producing any marked difference. The amount should not, however, be less than a daily dose of about 10 grains, as this showed a marked superiority over smaller quantities. No conspicuous advantage was found in any one of the three methods of administration of quinin, intramuscular, intravenous or oral. Chemical examinations point to a tendency for the excretion of quinin, in whatever doses given, to reach a concentration of from 7 to 11 grains per quart of urine, and show that the drug is not eliminated more rapidly when given by the mouth than when given by other channels.

## THE CHICAGO SESSION

### List of Chicago Hotels Recommended by the Local Committee on Arrangements

The local Committee on Arrangements, on recommendation of its subcommittee on hotels, urges that those who plan to attend the Chicago session, June 10 to 14, should make their selection and write directly to the hotel, stating the accommodations desired and indicating the rate they are prepared to pay. The management of the hotel should be advised of the day on which guests expect to arrive in Chicago, and the length of time they plan to remain. If, in any instance, a satisfactory arrangement with some one of the hotels is not made, write to the chairman, subcommittee on hotels, Dr. C. J. Whalen, 25 East Washington Street, Chicago.

The accompanying table lists a number of Chicago hotels indicating the accommodations which are offered and naming the rates per day. All rates are for accommodation on the European plan except when, as indicated, the American plan is offered.

TABLE OF DAILY RATES AND ACCOMMODATIONS OFFERED BY CHICAGO HOTELS

| Hotels, Number of Rooms and Street Addresses | Rooms Without Bath | | Rooms With Bath | | Parlor, Bedroom and Bath or Connecting Rooms for One or More Persons* |
|---|---|---|---|---|---|
| | For One Person | For Two Persons | For One Person | For Two Persons | |
| Auditorium—500—Michigan Blvd. and Congress. Headquarters of the Sections on Surgery, General and Abdominal; on Pharmacology and Therapeutics; on Pathology and Physiology; on Preventive Medicine and Public Health; on Genito-Urinary Diseases; and on Gastro-Enterology and Proctology. | 1.50 to 2.50 | 2.50 to 4.00 | 2.50 to 4.00 | 4.00 to 6.00 | ..... ..... |
| Blackstone—700—Michigan Blvd. and Seventh. Headquarters of the Sections on Nervous and Mental Diseases and on Dermatology. | 3.00 ..... | ..... ..... | 3.50 to 7.00 | 5.00 to 10.00 | ..... ..... |
| Congress and Annex—1,500—Mich. Blvd. and Cong. Headquarters Sections on Obstetrics, Gynecology and Abdominal Surgery; Diseases of Children; Stomatology; Orthopedic Surgery. | 2.00 to 3.00 | 3.00 to 5.00 | 3.00 to 6.00 | 5.00 to 7.00 | 6.00 to $50.00 |
| La Salle—1,800—Madison and La Salle. Headquarters of the Sections on Ophthalmology, and on Laryngology, Otology and Rhinology. | 2.00 to 3.00 | 3.00 to 4.00 | 3.00 to 5.00 | 5.00 to 8.00 | 4.00 to 12.00 |
| Morrison—1,000—Clark and Madison. Headquarters Section on Practice of Medicine. | ..... ..... | ..... ..... | 2.00 up | ..... ..... | ..... ..... |
| Sherman—1,500—Clark and Randolph. General headquarters housing the Registration Bureau; Information Bureau; Branch Post Office; Scientific Exhibit, and Commercial Exhibit. | ..... ..... | ..... ..... | 2.00 to 5.00 | 3.50 to 7.00 | 5.00 to 15.00 |
| Alexandria—300—Rush and Ohio Sts. | $ 1.00 to $ 1.25 | $ 1.50 ..... | $ 1.50 to $ 2.00 | $ 2.00 to $ 2.50 | ..... ..... |
| Astor—125—176 N. Clark | 1.00 ..... | 2.00 ..... | 1.50 ..... | 3.00 to 3.50 | ..... ..... |
| Atlantic—750—Clark, near Jackson Blvd | 1.50 to 2.00 | 2.00 to 3.00 | 2.00 to 3.00 | 3.00 to 5.00 | ..... ..... |
| Bismarck—300—171 W. Randolph | 1.00 ..... | 2.00 ..... | 1.50 ..... | 3.00 to 3.50 | ..... ..... |
| Board of Trade—250—321 S. La Salle | 1.50 up | ..... ..... | ..... ..... | ..... ..... | ..... ..... |
| Bradley—300—Rush and Grand Ave | 1.00 ..... | 1.50 ..... | 1.00 to 1.50 | 2.00 ..... | ..... ..... |
| Brevoort—500—120 W. Madison | 1.50 ..... | 3.00 to 3.50 | 2.50 to 3.00 | 4.00 up | ..... ..... |
| Briggs—300—Randolph St. and Fifth Ave | 1.00 to 1.50 | ..... ..... | 1.50 to 2.50 | ..... ..... | ..... ..... |
| Chicago Beach—500—Hyde Park Blvd. and 51st St. | | | | | |
| European | 1.50 up | 2.50 up | 2.50 up | 4.00 up | ..... ..... |
| American | 3.50 up | 6.00 up | 4.50 up | 7.50 up | ..... ..... |
| Clarendon Beach—200—Wilson Ave., at the Lake | ..... ..... | ..... ..... | 1.50 up | ..... ..... | $ 4.00 up |
| Darlington—125—4700 North Racine Ave | 1.00 ..... | 1.50 ..... | 1.50 ..... | ..... 2.00 | ..... ..... |
| DeJonghe—100—12 E. Monroe | ..... ..... | ..... ..... | 2.00 up | 3.00 up | ..... ..... |
| Del Pradô—400—Midway Blvd. and Jackson Park | ..... ..... | ..... ..... | 2.50 to 4.00 | ..... ..... | ..... ..... |
| Drexel Arms—250—Drexel and Oakwood Blvds | 1.00 to 1.25 | 1.25 to 1.50 | 1.50 to 2.00 | 1.75 to 3.00 | ..... ..... |
| Edgewater Beach—600—5300 Block, Sheridan Rd | ..... ..... | ..... ..... | 2.00 up | 3.00 up | 4.00 up |
| Elms—150—Fifty-Third and Cornell Ave., American Plan | 3.00 to 3.50 | ..... ..... | 3.00 to 4.00 | ..... ..... | ..... ..... |
| Fort Dearborn—1,000—Lasalle and VanBuren Sts. | 1.50 ..... | 2.50 ..... | 2.00 ..... | 3.00 to 4.00 | ..... ..... |
| Gladstone—500—Sixty-Second and Kenwood Ave. | ..... ..... | ..... ..... | 1.00 to 1.50 | 2.00 to 3.00 | 3.00 to 5.00 |
| Grand Pacific—400—Jackson Blvd, and Clark | 1.50 to 2.00 | ..... ..... | 2.00 up | 3.00 up | ..... ..... |
| Grant—250—Dearborn and Madison | 1.00 up | 2.00 up | 1.50 up | 3.00 up | ..... ..... |
| Grasmere—150—4621 Sheridan Road | ..... ..... | ..... ..... | 1.50 ..... | 2.50 ..... | 4.00 ..... |
| Great Northern—550—Jackson, Quincy, Dearborn | 1.50 to 2.00 | 3.00 ..... | 2.50 to 5.00 | 4.00 to 6.00 | ..... ..... |
| Hayes—300—Sixty-Fourth and University Ave. (American Plan) | 2.00 ..... | ..... ..... | ..... ..... | ..... ..... | ..... ..... |
| Hyde Park—400—Hyde Park Blvd. and Lake Ave. (American Plan) | 3.00 ..... | 5.00 ..... | 3.50 to 5.00 | 6.00 to 8.00 | ..... ..... |
| Jackson Park Tavern—100—Sixty-Seventh and Cornell | ..... ..... | ..... ..... | 1.50 ..... | 2.00 ..... | ..... ..... |
| Lakota—350—Michigan Blvd. at Thirtieth | 1.00 ..... | ..... ..... | 2.00 ..... | ..... ..... | ..... ..... |
| Lexington—500—Mich. Blvd. and Twenty-Second | 1.50 up | 2.00 up | 2.00 up | 3.00 up | ..... ..... |
| Luzerne—100—Clark and Center | 1.00 up | ..... ..... | 1.50 up | ..... ..... | ..... ..... |
| Majestic—300—Quincy, bet. State and Dearborn | 1.00 to 2.00 | 2.00 to 3.00 | 1.50 to 3.50 | 3.00 to 5.00 | ..... ..... |
| Metropole—300—Michigan Ave. and Twenty-Third | 1.50 ..... | 2.50 ..... | 2.00 up | 3.00 up | ..... ..... |
| Moraine—250—Highland Park, Ill. 30 minutes from Chicago | 1.50 up | ..... ..... | 2.00 up | 3.00 to 5.00 | ..... ..... |
| New Gault—200—Madison and Market | 1.00 to 1.50 | 2.00 to 2.50 | 1.50 to 2.00 | 3.00 to 3.50 | ..... ..... |
| New Southern—350—Mich. Blvd. and Thirteenth | 1.00 to 1.50 | 2.00 ..... | 1.50 to 3.00 | 3.00 to 5.00 | ..... ..... |
| Palmer House—1,000—State and Monroe | 1.50 to 2.00 | 2.00 to 3.00 | 2.50 to 5.00 | 3.00 to 5.00 | ..... ..... |
| Parkway—250—Lincoln Park West and Garfield Ave. | ..... ..... | ..... ..... | 2.50 to 3.50 | 3.50 to 5.00 | 6.00 to 8.00 |
| Planters—350—Clark and Madison | 1.50 up | ..... ..... | ..... ..... | ..... ..... | ..... ..... |
| Plaza—600—N. Clark and North Ave | ..... ..... | ..... ..... | 1.50 to 3.00 | 2.00 to 3.50 | 3.00 to 6.00 |
| Plymouth—250—4700 Broadway, cor Leland | 1.00 ..... | 1.50 ..... | 1.50 to 3.00 | ..... ..... | ..... ..... |
| Saratoga—700—23 to 29 S. Dearborn | 1.00 ..... | 2.00 ..... | 1.50 ..... | 3.00 ..... | ..... ..... |
| Stock Yard Inn—450—W. Forty-Second and S. Halsted Sts. | 1.00 up | 2.00 up | 1.50 up | 2.50 up | ..... ..... |
| Strand—300—Sixty-Third and Cottage Grove | 1.00 up | ..... ..... | 1.50 up | ..... ..... | ..... ..... |
| Stratford—500—Jackson and Michigan Blvd | 1.50 ..... | ..... ..... | 2.00 up | 6.00 up | ..... ..... |
| Union—70—66-72 W. Randolph | 1.00 to 1.50 | 2.00 to 2.50 | 1.50 to 2.50 | 3.00 to 3.50 | ..... ..... |
| Victoria—500—Clark and Van Buren | 1.00 to 2.00 | ..... ..... | ..... ..... | ..... ..... | ..... ..... |
| Virginia—450—Rush and Ohio | 1.50 to 2.00 | 2.00 to 3.00 | 2.00 to 2.50 | 3.00 to 4.00 | 3.00 to 10.00 |
| Warner—350—Thirty-Third and Cottage Grove | ..... ..... | 1.50 ..... | 1.50 up | 2.00 up | ..... ..... |
| Washington—200—Washington St. between LaSalle and Fifth Avenue | 1.50 ..... | 3.00 ..... | 1.50 to 2.00 | 3.00 up | ..... ..... |
| Windemere—300—Fifty-Sixth and Cornell Ave. (American Plan) | 3.00 ..... | 5.00 ..... | 4.00 up | 6.00 up | ..... ..... |
| Windsor-Clifton—350—Wabash Ave. and Monroe | 1.00 up | 1.50 up | 2.00 up | 3.00 up | ..... ..... |
| Wychmere—200—Indiana Ave. and E. Eighteenth | .75 up | 1.25 up | 1.00 up | 1.50 up | ..... ..... |

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* For definite information concerning accommodations offered and rates, write to the hotels.

## Deaths

**Jose Lewis Hirsh, M.D.,** Baltimore; University of Maryland, School of Medicine, Baltimore, 1895; aged 45; a Fellow of the American Medical Association; professor of clinical pediatrics, pathology and bacteriology in the University of Maryland; visiting pathologist to the University Hospital, and consulting pathologist to the Hospital for Women of Baltimore, Md.; died suddenly, March 17, from heart disease.

**George Amos White, M.D.,** Sacramento, Calif.; Long Island College Hospital, Brooklyn, 1869; Jefferson Medical College, Philadelphia, 1870; aged 69; a Fellow of the American Medical Association; a member of the Pacific Association of Railway Surgeons, and division surgeon of the Southern Pacific Railway Company; founder of the White Hospital, Sacramento; died at that institution, March 3.

**Lieut. William Thomas Gleason, M.D., M. R. C., U. S. Army,** Ely, Nev.; Rush Medical College, Chicago, 1902; aged 38, formerly a Fellow of the American Medical Association; a member of the Nevada State Medical Association; died on the platform of the Denver and Rio Grande Station, Salt Lake City, while on a furlough to visit his wife and child, March 7, from heart disease.

**John Patrick Grimes, M.D.,** Menard, Ill.; University of Illinois, College of Medicine, 1899; aged 42; a member of the Illinois State Medical Society; for several years a member of the staff of St. Joseph's Hospital; physician and surgeon to the Southern Illinois Penitentiary, Menard; died at St. Andrew's Hospital, Murphysboro, Ill., March 14, from cerebral meningitis.

**Albert Mehrer Moore, M.D.,** Philadelphia; Medico-Chirurgical College of Philadelphia, 1905; aged 41; a Fellow of the American Medical Association; a member of the John Heissler Anatomical and Surgical Society; assistant demonstrator of anatomy in the Medico-Chirurgical College Hospital; died at his home, March 6, from cerebrospinal meningitis.

**John Calvin Schofield, M.D.,** Baltimore; Baltimore University, School of Medicine, 1891; aged 53; formerly professor of nervous diseases and diseases of the throat and chest, and assistant professor of pathology in the University of Maryland; for many years local surgeon of the Baltimore and Ohio Railroad; died at his home, March 7.

Died in the Service
at camp dix
Lieut. Harold Franklin Mickley, M.D.,
M. R. C., U. S. Army, 1890-1918

**Lieut. Harold Franklin Mickley, M.D., M. R. C., U. S. Army,** Seneca Falls, N. Y.; New York Homeopathic Medical College, New York City, 1912; aged 27; a Fellow of the American Medical Association; a member of the staff of the base hospital at Camp Dix, Wrightstown, N. J.; died at the base hospital, March 16, from lobar pneumonia.

**George Halley, M.D.,** Kansas City, Mo.; Victoria University, Medical Department, Coburg, Ont., 1869; aged 78; one of the organizers of the Kansas City Medical College, and until 1892 was professor of principles and practice of surgery; retiring to take a similar position with the University Medical College; died at his home, March 11.

**Albert Jeffrey Cox, M.D.,** Superior, Wis.; Rush Medical College, Chicago, 1886; aged 56; a Fellow of the American Medical Association; formerly a member of the Minnesota State Medical Association; surgeon for the Chicago and Northwestern Railroad; formerly a practitioner of southern Minnesota; died at his home, March 13.

**Samuel C. Stewart, M.D.,** Clearfield, Pa.; Jefferson Medical College, Philadelphia, 1881; aged 61; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; formerly chief of the staff of the Clearfield Hospital; died at his home, March 11, from cerebral hemorrhage.

**Olof Sohlberg, M.D.,** St. Paul; Minneapolis Hospital Medical College, Minneapolis, 1884; aged 58; a Fellow of the American Medical Association; for many years a member of the board of directors and visiting staff of the Bethesda Hospital, St. Paul; died on a train en route to St. Paul, March 6, from cerebral hemorrhage.

**J. Marshall Elder, M.D.,** Franklin, Ill.; Physio-Medical College of Indiana, Indianapolis, 1896; aged 46; a Fellow of the American Medical Association; a member of the American Association of Physio-Medical Physicians and Surgeons; died at the Passavant Hospital, Jacksonville, Ill., March 1, following an operation.

**Henry Rohlfing, M.D.,** St. Louis, Mo.; Missouri Medical College, St. Louis, 1883; aged 56; formerly a Fellow of the American Medical Association; a member of the Missouri State Medical Association; formerly professor of bacteriology at the University of Missouri; died at his home, February 19, from nephritis.

**William Jabez Nickerson, M.D.,** New Bedford, Mass.; Bowdoin Medical School, Portland, Me., 1871; aged 73; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; a veteran of the Civil War; died at his home, March 6, from cerebral hemorrhage.

**John Walter Costolo, M.D.,** Sidney, Ohio; Medical College of Ohio, Cincinnati, 1883; aged 65; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; formerly superintendent of the District Tuberculosis Hospital at Lima; died at his home, March 7.

**James P. Hanner, M.D.,** Franklin, Tenn.; University of Pennsylvania, School of Medicine, Philadelphia, 1857; aged 82; formerly a Fellow of the American Medical Association; captain and surgeon of the Confederate Army from 1861 to 1865; died at his home, March 6, from pneumonia.

**John Franklin Southmayd, M.D.,** Brooklyn; Columbia University College of Physicians and Surgeons, New York City, 1892; aged 49; formerly a member of the Medical Society of the State of New York; chief surgeon to the Brooklyn Union Gas Company; died at his home, March 12.

**John Wesley Duncan, M.D.,** Atlanta, Ga.; Atlanta (Ga.) Medical College, 1868; aged 75; formerly a Fellow of the American Medical Association; a member of the Medical Association of Georgia; one of the oldest practitioners of Atlanta; died at his home, March 11.

**Susan Maria Smith McKinney Steward, M.D.,** Wilberforce, Ohio; New York Medical College and Hospital for Women, Homeopathic, New York City, 1870; aged 72; a colored practitioner; resident physician of the Wilberforce University; died at her home, March 7.

**Frank Roop Smith, M.D.,** Wilmington, Del.; University of Pennsylvania, School of Medicine, 1893; aged 62; also as analytical chemist of the College of Pharmacy of Philadelphia; died suddenly at his office while attending a patient, March 6, from heart disease.

**Lieut. Claude A. Harmon, M.D., M. R. C., U. S. Army,** Upton, Wyo.; Starling Medical College, Columbus, 1904; aged 38; for many years mayor of Upton; died at the State Hospital, Sheridan, Wyo., March 11, from injuries received in a railway accident.

**Charles Augustus O'Dea, M.D.,** Erie, Pa.; Niagara University Medical Department, Buffalo, 1895; aged 43; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; died at his home, March 9.

**Ransford De Los Canedy, M.D.,** North Adams, Mass.; Columbia University, College of Physicians and Surgeons, New York City, 1896; aged 45; for many years a member of the city board of health; died at his home, March 11, from pneumonia.

**Horatio Franklin Copeland, M.D.,** Whitman, Mass.; Harvard University Medical School, 1865; aged 75; a Fellow of the American Medical Association; a veteran of the Civil War; died at his home, January 8, from cerebral hemorrhage.

**Charles Masters Cain, M.D.,** Indianapolis, Ind.; Indiana University School of Medicine, Indianapolis, 1909; aged 34; a member of the Indiana State Medical Association; died at the Methodist Hospital, March 8, from acute enteritis.

**Lydia A. Bickford, M.D.,** New York City; New York Medical College and Hospital for Women, Homeopathic, 1894; aged 69; one of the oldest medical practitioners of the city; died at the New York Hospital for Women, March 9.

**Elmo W. Hopson, M.D.,** Lockesburg, Ark.; Hospital College of Medicine, Medical Department, Louisville, 1906; aged 42; formerly a member of the Arkansas Medical Society; died at Horatio, Ark., January 13, from tuberculosis.

**Marion Howard Cazier, M.D.,** Detroit; Rush Medical College, Chicago, 1880; aged 67; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home, about March 4.

**Elton J. Palmer, M.D.,** Philmont, N. Y.; Jefferson Medical College, Philadelphia, 1878; aged 68; formerly a member of the Medical Society of the State of New York; died at his home, March 9, from cerebral hemorrhage.

**John Robinson Gildersleeve, M.D.,** Richmond, Va.; Medical College of Virginia, Richmond, 1864; aged 75; a Fellow of the American Medical Association; a veteran of the Civil War; died, March 5, from heart disease.

**John S. Tryon, M.D.,** Rehrersburg, Pa.; University of Pennsylvania, School of Medicine, Philadelphia, 1857; aged 84; for many years a practitioner of Berks County; died at his home, March 6, from senile debility.

**Edward Stanislaus Dougherty, M.D.,** Ashley, Pa.; Jefferson Medical College, Philadelphia, 1900; aged 42; a Fellow of the American Medical Association; died at his home, March 6, from cerebral hemorrhage.

**William Lee Howard, M.D.,** Westboro, Mass.; University of Vermont, College of Medicine, Burlington, 1890; aged 57; formerly of Baltimore; and author of many books on sex hygiene; died in Boston, March 11.

**Brig.-Gen. Charles Tripler Alexander, U. S. Army,** retired, Washington, D. C., aged 84; a veteran of the Civil War; formerly in charge of the Medical Supply Depot, New York City; died at his home, March 1.

**Ralph E. Moeser, M.D.,** Montrose, Ill.; Hahnemann Medical College, Kansas City Mo., 1910; aged 33; a member of the Illinois State Medical Society; died from injuries in an automobile accident, March 8.

**Charles Seymour Bradley, M.D.,** Boston; New York University, New York City, 1873; a member of the Medical Society of the State of New York; died at his home, January 10, from heart disease.

**Ellen M. Osburn,** St. Louis, Mo. (license, Missouri, 1894); aged 50; founder and former head of the Ellen Osburn Hospital, St. Louis; died at the Mayfield Memorial Hospital, March 8, from cancer.

**John H. Burrow, M.D.,** Milan, Tenn.; University of Nashville, Tenn., 1862; aged 84; for more than fifty years a practitioner of Gibson County; died at the home of his daughter in Milan, March 1.

**Elijah Tracy Bishop, M.D.,** Smithsburg, Md.; University of Maryland, 1855; aged 85; a member of the Medical and Chirurgical Faculty of Maryland; died at his home, March 11, from paralysis.

**Allen B. Becker, M.D.,** Springwater, N. Y.; Baltimore University School of Medicine, 1890; aged 58; health officer of Livingston County, N. Y.; died at his home, January 14, from pneumonia.

**Linn L. Kennedy, M.D.,** Washington, D. C.; Louisville (Ky.) Medical College, 1887; aged 46; for several years a practitioner of Louisville and Tuscaloosa, Ala.; died at his home, March 5.

**John W. Smith, M.D.,** Vevay, Ind.; Chicago Homeopathic Medical College, 1885; aged 61; a member of the Indiana State Medical Association; died at his home, March 2, from arteriosclerosis.

**Thomas D. Johnson, M.D.,** Clarksville, Tenn.; Washington University School of Medicine, Baltimore, 1869; aged 76; a veteran of the Civil War; died at his home, March 6, from senile debility.

**Walter Barrows Hayward, M.D.,** Taunton, Mass.; Boston University School of Medicine, Homeopathic, 1897; aged 45; died at the Massachusetts Homeopathic Hospital, Boston, March 10.

**George Ivan Pohek, M.D.,** Pittsburg, Kan.; University of Munich, Germany, 1882; aged 63; formerly a Fellow of the American Medical Association; died at his home, March 11.

**Silas Stevenson, M.D.,** Ellwood City, Pa.; Western Reserve University, School of Medicine, 1868; aged 73; a veteran of the Civil War; died at his home, March 8, from senile debility.

**Dudley Thomas Boyd, M.D.,** Ector, Texas; Vanderbilt University, Nashville, Tenn., 1892; aged 47; a Fellow of the American Medical Association; died at his home, February 9.

**John W. Roberts, M.D.,** Irving, Texas; Fort Worth University Medical Department, 1910; aged 33; a Fellow of the American Medical Association; died at his home, March 9.

**John A. Hagar, M.D.,** Gloversville, N. Y.; Albany (N. Y.) Medical College, 1890; aged 53; health officer of Fulton County, N. Y.; died at his home, March 6, from paralysis.

**Elmer A. Doty, M.D.,** Oxford, Iowa; State University of Iowa, Iowa City, 1885; aged 67; a Fellow of the American Medical Association; died suddenly at his farm, March 7.

**Alexander C. Fraser, M.D.,** Pasadena, Calif.; McGill University, Montreal, 1877; aged 60; for many years a practitioner of Manitowoc, Wis.; died at his home, March 7.

**Arthur Rubel Keith, M.D.,** Rockford, Ill.; University of Pennsylvania, Philadelphia, 1907; aged 35; died at Utica, N. Y., February 21, from pulmonary tuberculosis.

**Carl Flucks,** St. Wendells, Ind. (license, Indiana, 1898); aged 70; a member of the Indiana State Medical Association; died at Perry, Ark., February 5, from pneumonia.

**Redington Stanhope, M.D.,** Lincoln, Neb.; Western Reserve University, School of Medicine, Cleveland, 1880; aged 81; died at his home, January 19, from pneumonia.

**James W. Speer, M.D.,** Alton, Ky.; Miami Medical College, Cincinnati, 1867; aged 81; a veteran of the Civil War; died at a hospital in Frankfort, Ky., March 5.

**Frederick Roesch, M.D.,** Chicago; University of Heidelberg, Germany, 1852; aged 88; died at the home of his daughter, March 21, from senile debility.

**Harry D. Riordan, M.D.,** Kansas City, Mo.; Kansas Medical College, Topeka, 1908; aged 41; died in the Lafayette Hotel, Kansas City, about March 2.

**James Randolph Humes, M.D.,** Hollidaysburg, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1874; aged 70; died at his home, March 9.

**Marshall Robin Morden, M.D.,** Adrian, Mich.; University of Michigan, Ann Arbor, 1871; aged 73; died at his home, March 13, from senile debility.

**Emory Valentine Buck, M.D.,** New York City; New York University Medical College, New York City, 1872; aged 75; died at his home, March 16.

**John T. Moore,** Mooresville, N. C. (license, North Carolina, 1898); died near Mooresville, March 12, from injuries received in an automobile accident.

**Clarence Linden Howes, M.D.,** Hanover, Mass; Long Island College Hospital, Brooklyn, 1878; aged 69; died at his home, March 7, from pneumonia.

**Benjamin P. Wilson, M.D.,** Lake Butler, Fla.; Charity Hospital Medical College, New Orleans, 1876; aged 66; died in Sneads, Fla., March 10.

## Marriages

Lieut. Carroll Seman Thomson, M. R. C., U. S. Army, Clinton, Mich., to Miss Ruth Ardele Hovarter of Chicago, March 21.

Lieut. Carl Herman Bartling, M. R. C., U. S. Army, Chicago, to Miss Katherine Stewart of York, N. Y., March 23.

Alfred Pfitsch, M.D., Baltimore, to Miss Eva Margaret Williams of Federalsburg, Md., March 6.

# The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## NOSTRUMS IN RETROSPECT

### A Review of Worthless or Unscientific Proprietary Mixtures Previously Criticized

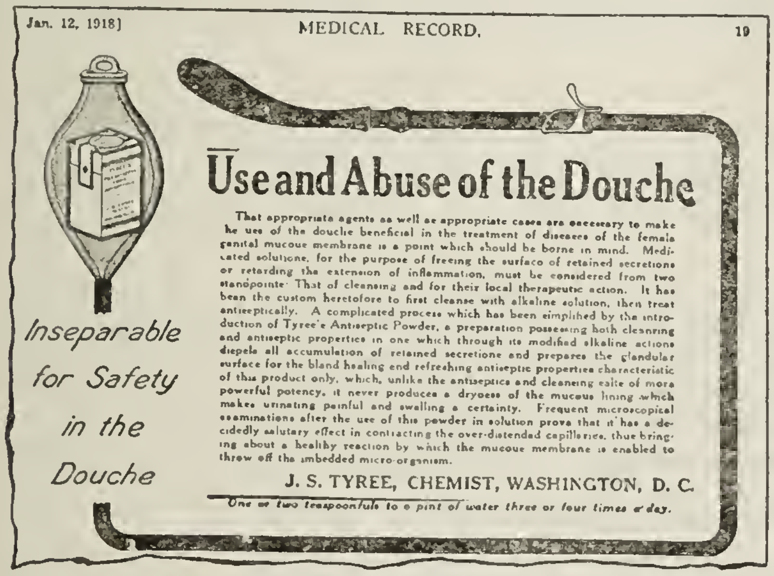
[Foreword.—The article that follows is the eighth[1] of a series written for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures advertised to physicians. Although the preparations taken up in this series have been dealt with in previous reports, the fact that they are still widely advertised and prescribed indicates the need of further publicity. The writer of the series is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[Article VIII.]

## TYREE'S ANTISEPTIC AND ASEPTINOL

By S. Q. Lapius, M.D.

It may seem paradoxical to say that recent progress in the medical sciences has made therapeutic chaos possible, but it is true nevertheless. Revolutions are sometimes slow and orderly, sometimes sudden and attended with confusion. The revolutionary changes in the medical sciences have been so numerous and so rapid that the general practitioner has been unable to keep pace with them, and in the resulting confusion the nostrum maker has seen his opportunity for exploiting his useless, dangerous or unscientific preparations. The greater the confusion the greater his opportunity, and it is no exaggeration to say that he has been the most potent factor in maintaining the chaos of therapeutics.


Jan. 12, 1918] MEDICAL RECORD. 19

Use and Abuse of the Douche

That appropriate agents as well as appropriate cases are necessary to make he use of the douche beneficial in the treatment of diseases of the female genital mucous membrane is a point which should be borne in mind. Medicated solutions, for the purpose of freeing the surface of retained secretions or retarding the extension of inflammation, must be considered from two standpoints: That of cleansing and for their local therapeutic action. It has been the custom heretofore to first cleanse with alkaline solution, then treat antiseptically. A complicated process which has been simplified by the introduction of Tyree's Antiseptic Powder, a preparation possessing both cleansing and antiseptic properties in one which through its modified alkaline actions dispels all accumulation of retained secretions and prepares the glandular surface for the bland healing and refreshing antiseptic properties characteristic of this product only, which, unlike the antiseptics and cleansing salts of more powerful potency, it never produces a dryness of the mucous lining which makes urinating painful and swelling a certainty. Frequent microscopical examinations after the use of this powder in solution prove that it has a decidedly salutary effect in contracting the over-distended capillaries, thus bringing about a healthy reaction by which the mucous membrane is enabled to throw off the imbedded micro-organism.

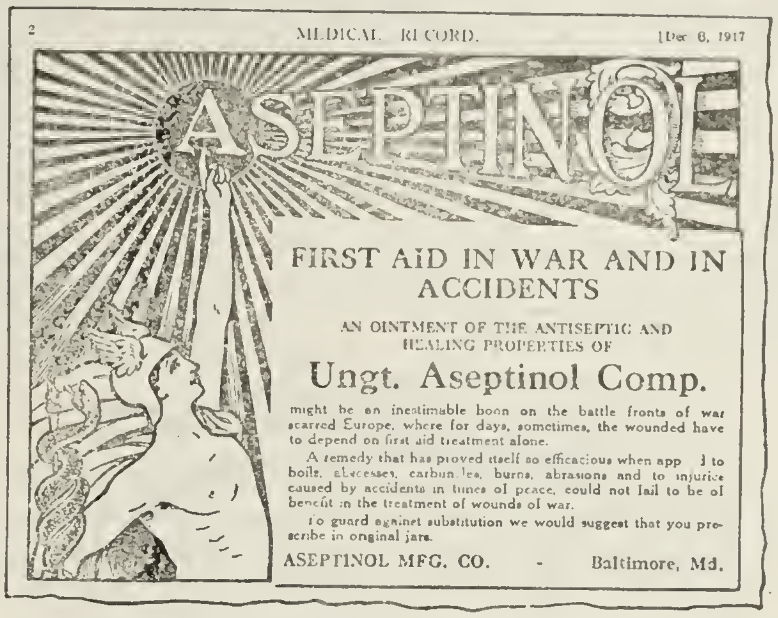
J. S. TYREE, CHEMIST, WASHINGTON, D. C.

One or two teaspoonfuls to a pint of water three or four times a day.

Typical half-page Tyree advertisement appearing in medical journals.

The majority of our readers would probably say that the existing scientific medical literature insures the permanence of established beliefs, but every one who has delved into the literature has found instances of truths that had been established and forgotten—buried under the ever-increasing avalanche of contributions to that literature.

Rapid advances are still being made in the medical sciences and unless constant vigilance is exercised therapeutics will return to the chaotic condition from which it has so recently emerged. It was in recognition of these facts—the danger of this return to chaos, and the difficulty, in fact impossibility, of any individual keeping pace with all of the medical sciences—that the American Medical Association secured the cooperation of men in various branches of medicine in the Council on Pharmacy and Chemistry, in order that it may place the results of therapeutic progress before readers of The Journal in an impartial manner.


2 MEDICAL RECORD. [Dec 6, 1917

FIRST AID IN WAR AND IN ACCIDENTS

AN OINTMENT OF THE ANTISEPTIC AND HEALING PROPERTIES OF

Ungt. Aseptinol Comp.

might be an inestimable boon on the battle fronts of war scarred Europe, where for days, sometimes, the wounded have to depend on first aid treatment alone.

A remedy that has proved itself so efficacious when app d to boils, abscesses, carbun les, burns, abrasions and to injuries caused by accidents in times of peace, could not fail to be of benefit in the treatment of wounds of war.

To guard against substitution we would suggest that you prescribe in original jars.

ASEPTINOL MFG. CO. - Baltimore, Md.

Typical Aseptinol advertisement.

Are you profiting by this work, or are you still depending on your unaided efforts to distinguish the false teachings of the nostrum venders from that of scientific medicine? Are you prescribing "Antikamnia" and "Ammonol" or a simple member of the group such as acetanilid or phenacetin? Are you depending on "Tyree's Antiseptic," so called, or are you using an antiseptic about which there is no mystery, for which no false claims are made, and one which is really effective? In short, are you using drugs of unquestioned value, such as are described in "Useful Drugs" or are you taking your therapeutic instructions from nostrum makers' circulars?

Perhaps you have been led to believe that the Council on Pharmacy and Chemistry is composed of "theorists" and that the nostrums represent the work of "practical men." Every one should strive to be practical, of course, and it is worth while to inquire whether scientific experimenters, who so largely mold medical literature, should be termed theorists, or practical men. A practical man practices that which is useful in the treatment of the sick, and he must determine who is capable of furnishing him with a better materia medica. A perusal of medical literature will convince any unbiased mind that medical science progresses only by means of experiment, hence experimenters must be considered the really practical men while those who cling to outworn theories are really the "theorists."

When Lister introduced antiseptic methods into surgery he inaugurated a veritable revolution, which afforded the nostrum makers opportunities for reaping rich harvests through the exploitation—under extraordinary claims—of cheap mixtures of little, or no, value. There is no lack of antiseptics of extraordinary activity in the test tube that are practically harmless to man, and it would seem natural to suppose that such antiseptics could be used to control the development of bacteria in such diseases as typhoid fever, but, unfortunately, such hopes have not been fulfilled. Ehrlich experimented with many phenol derivatives that showed decided antiseptic activity in the test tube, in the hope that he might find some that could be used to combat such common diseases as diphtheria and typhoid fever, but while many of these are of low toxicity for man, he was unable to find even one that could be used effectively in the treatment of any of these diseases. His discovery of arsphenamin

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[1] The previous articles of the series are "Bell-ans," The Journal, Nov. 24, 1917; "Anasarcin and Anedemin," Dec. 8, 1917; "Pepto-Mangan," Dec. 29, 1917; "Cactina Pillets," Jan. 19, 1918; "Ammonol and Phenalgin," Feb. 2, 1918; "Fellows' Syrup and Other Preparations of the Hypophosphites," Feb. 16, 1918; "Shotgun Nostrums," March 2, 1918.

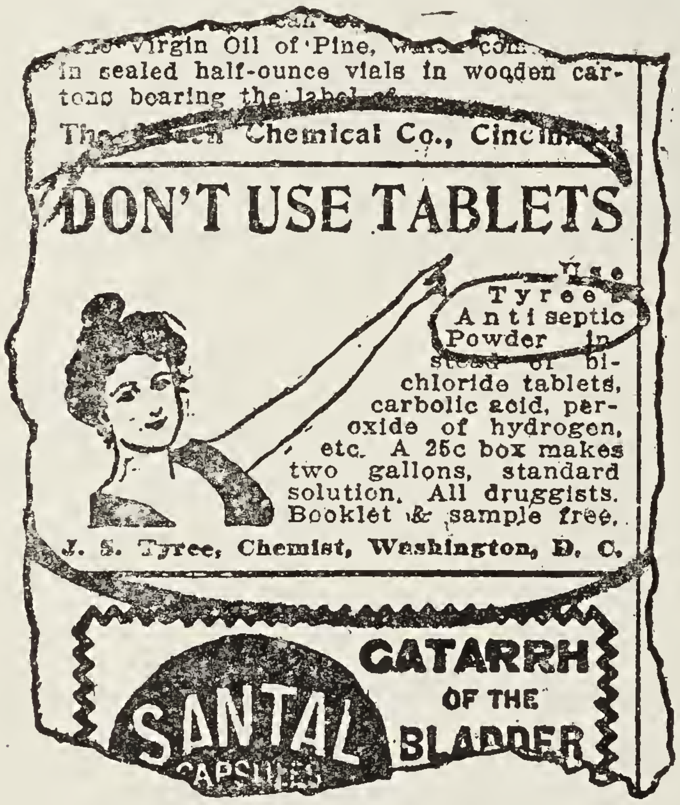
("salvarsan") resulted from quite another type of investigation.

Many practitioners lose sight of the essential difference between antiseptics and disinfectants and employ antiseptics in cases where only a disinfectant action would be of value. An antiseptic does not destroy bacteria, it merely inhibits their growth, and when it is diluted too much it loses its effects and the bacteria may begin to multiply as though no antiseptic had been used. This is especially true after the use of weak antiseptics in the mouth. These are soon diluted or removed by the saliva, and the bacteria continue to multiply with only a momentary interruption at best, hence to advise the use of an oral antiseptic as an effective means of treating diphtheria is little short of criminal.

"Tyree's Antiseptic Powder" was submitted to the Council nearly twelve years ago. The label on the package stated:

> "This preparation is a scientific combination of borate of sodium, alumen, carbolic acid, glycerin and the crystallized principles of thyme, eucalyptus, gaultheria and mentha in the form of a powder."

A leaflet issued several years ago by the Aseptinol Manufacturing Company states that "Pulv. Aseptinol Comp." combines in an elegant form boric acid, the salts of aluminum, crystallized phenol, and the active crystalline principles of thymus, mentha and gaultheria.



Virgin Oil of Pine,
in sealed half-ounce vials in wooden cartons bearing the label of
The Chemical Co., Cinci

DON'T USE TABLETS

Use Tyree's Antiseptic Powder instead of bichloride tablets, carbolic acid, peroxide of hydrogen, etc. A 25c box makes two gallons, standard solution. All druggists. Booklet & sample free.

J. S. Tyree, Chemist, Washington, D. C.

SANTAL
CAPSULES
CATARRH
OF THE
BLADDER

One of the older newspaper advertisements of Tyree Antiseptic Powder.

A comparison of these formulas would justify the designation of the two preparations as twins, but even a twin can have a wart where the other lacks it. The formula of Pulv. Aseptinol Comp. given in the leaflet also includes hydrastis canadensis, but we believe that a wart would be quite as much of an addition to the anatomy of man as the hydrastis is to this already preposterous formula. Similar as the formulas of these two nostrums were said to be, the general methods of exploiting them were even more similar. A partial list of the diseases for which each has been recommended by its exploiters shows the similarity of methods pursued:

| Tyree's was Said to be Useful in the Treatment of: | Pulv. Aseptinol Comp. was Said to be Useful in the Treatment of: |
|---|---|
| Leucorrhea | Leucorrhea |
| Gonorrhea | Gonorrhea |
| Vaginitis | Vaginal inflammation |
| Pruritus | Pruritus |
| Ulcerated conditions of the mucous membrane | Ulceration of vagina or cervix |
| Scrofulous ulcers | Chronic ulcers |
| Syphilitic ulcers | Prophylactic against specific disease |
| Disinfecting offensive cavities | Cleansing pus cavities |
| Deodorant | Deodorant |
| Profuse and offensive perspiration | Checks abnormal secretion |

We stated that the formula furnished by Tyree was that given above, but the Council was never able to learn when Tyree actually employed the formula except for advertising purposes, and analysis of the powder showed that Tyree's Antiseptic Powder was essentially a mixture of boric acid and sulphate of zinc, with insignificant amounts of odorous principles.

A remarkable fact brought out in the course of the consideration of the preparation by the Council was that Tyree admitted that he had changed the formula without having published the new one. The Council then showed that a specimen of the "antiseptic" that had been kept in a retail drug store for several years was essentially similar to that sold at the later date. Thus it would seem that Mr. Tyree had been making his powder by one formula and publishing an entirely different one for years before the Council published the facts in the case.

If Tyree found it necessary to change the formula of his powder—if indeed, he ever used the published formula—why did the Aseptinol Manufacturing Company adopt it, or one so closely resembling it?

It is obvious that both of these twin nostrums are utterly unfit for treating the various conditions for which they are or have been recommended, and in view of the misrepresentation in one case, it is difficult to understand why it should be taken as the model for the other. Do physicians believe that a simple mixture of boric acid and zinc sulphate, or a mixture such as that given in the formula of "Aseptinol" powder, is in any way superior to a prescription such as any physician could write?

There is a far more important question to consider than the relative merits of such nostrums and a prescription of the physician's own devising, and that is whether the medical profession is going to help to perpetuate the chaotic conditions that the use of such nostrums foster or to assist in therapeutic progress by maintaining its independence of such false teachers, and seeking to aid in the establishment of a rational use of drugs and remedial measures.

## *Queries and Minor Notes*

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### RESISTANCE OF THE ORGANISMS OF GONORRHEA AND SYPHILIS OUTSIDE THE BODY

*To the Editor:*—Please publish the opinion of authorities on the life of gonorrheal and syphilitic organisms outside the human body.

H. T. M.

Answer.—The gonococcus is sensitive to drying, and in ordinary conditions can survive exposure to the air for only a short time, although in dried pus it may live as long as six or seven weeks. Linen soiled with discharges may transmit the disease after a fairly considerable time; but if the linen is placed in boiling water, the organism is killed very rapidly. Zinsser and Hopkins have shown that when kept moist, the *Spirochaeta pallida* can live in a diffuse light and at room temperature under conditions of mixed culture, such as would occur in ordinary contamination of materials from the condition, as long as eleven and one-half hours. Drying kills the organisms rapidly, but during the drying period they may survive as long as one hour.

### COMPATIBILITY OF PHENOLPHTHALEIN

*To the Editor:*—Are calomel and phenolphthalein compatible in the same powder or capsule?

George D. Carnes, M.D., South Haven, Mich.

Answer.—A reply to this query was published in The Journal, Feb. 8, 1913, p. 466. In brief, it is better not to combine several laxatives, but for those who believe in doing this it is easy to combine with phenolphthalein most drugs that can properly be prescribed in powders or pills. There appears to be no reason why calomel should not be combined with this drug so far as chemical compatibility is concerned; and since both are tasteless, they may be prescribed together either in the form of powder or enclosed dry in capsule, cachet or wafer. However, the discriminating physician will estimate the amount of each ingredient according to the susceptibility of the patient, and if phenolphthalein is depended on as the active laxative, the mixture should be made for only a few doses in order that the amount of phenolphthalein may be changed without unduly large doses of the other ingredients being given.

### ACTIVITY AFTER INJURY TO HEART

*To the Editor:*—Please give your opinion in the next issue of The Journal as to whether a man, 31 years of age and in previous good health, who had received the injury described below, could walk or run a distance of approximately 254 feet after the infliction of the injury described? A bullet entered the body 2 inches above and 1 inch to the right of the right nipple, thence passed through the right lung, the heart and left lung, and passed out of the chest and lodged under the skin in the left axilla. Blood was found in both chest cavities, and the pericardium contained loose blood. H. W. B.

Answer.—It is impossible to answer definitely this particular hypothetic question. There are, however, authentic reports of cases in which persons have been able to walk or run considerable distances after heart injuries. Paré records the case of a soldier who received a blow from a halberd which punctured the left ventricle and who walked to the surgeon's tent to have his wound dressed, and then to his own tent 250 yards away. Roberts (*Richmond and Louisville Medical Journal,* 1871, **12,** 2607) describes a man who ran 60 yards and lived one hour after being shot through both lungs and the right auricle.

### HEAT CRAMP

*To the Editor:*—In one of the 1908 issues of The Journal, Dr. D. S. Edsall had an article dealing with heat stroke and heat cramps. Can you give me any information pertaining either to his works or to other works along this line, either in pamphlet or in book form? I am especially interested in the question of heat cramp in industrial workers.

A. P. Hancuff, M.D., Youngstown, Ohio.

Answer.—The article by Edsall appeared in The Journal, Dec. 5, 1908, p. 1969. Queries and Minor Notes on this subject appeared in The Journal, June 1, 1912, p. 1706; Nov. 9, 1912, p. 1734, and July 8, 1916, p. 143. Following is a list of references:

Oliver, Thomas: Dangerous Trades, New York, E. P. Dutton & Co., 1902, p. 184.
Welsh, H. M.: Muscular Spasm Due to Muscular Exertion in a Heated Atmosphere, The Journal, April 10, 1909, p. 1179.
Cameron, W. H.: A Disorder Due to Exposure to Intense Heat, The Journal, May 8, 1909, p. 1483.
Gatewood, J. D.: Naval Hygiene, Philadelphia, P. Blakiston's Son & Co., 1909, $6.
Anders, J. M.: Practice of Medicine, p. 1290.
Clendening, Logan: Muscular Spasms Due to Heat Occurring in Cooks, Especially on Pullman Diners, The Journal, May 7, 1910, p. 1517.
Rennie, W. H.: *South. Med. Jour.*, February, 1911.
Fiske, C. N.: Effect of Exposure to Intense Heat in Working Organism, *Am. Jour. Med. Sc.*, April, 1913.
Watkins, J. A.: Heat Hazards in Industries, *Pub. Health Rep.*, Dec. 14, 1917.

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**Diathermy in Treatment of Gonorrhea.**—According to an abstract in the *Correspondenz-Blatt,* Müller has recently reported excellent results from application of diathermy in treatment of gonorrhea in the male in 175 cases. He ascribes the benefit more to the hyperemia and the loosening up of the tissues than to the direct destruction of the gonococci by the heat. Hence he follows the diathermy with injection of warm disinfectants, as the mucosa is practically sensitized by the preceding diathermy. He found that this combination was effectual even in old chronic cases and with inflammatory processes in the prostate, seminal vesicles and epididymis; the urine cleared up and the tendency to sexual neurasthenia subsided. In his communication in the *Dermatologische Wochenschrift,* he insisted that no injurious by-effects of any kind were observed.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

Arizona: Phoenix, April 2. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

Arkansas: Little Rock, May 14. Sec., Dr. T. J. Stout, Brinkley.

Arkansas (E): Little Rock, May 14. Sec., Dr. C. E. Laws, Ft. Smith.

Colorado: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, May 6. Sec., Dr. G. A. Batten, Box 375, Honolulu.

Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigby.

Minnesota: Minneapolis, April 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

Nevada: Carson City, May 6. Sec., Dr. S. L. Lee, Carson City.

New Mexico: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

Oklahoma: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

### Arkansas Eclectic November Examination

Dr. C. E. Laws, secretary of the Arkansas Eclectic Medical Board, reports the written examination held at Little Rock, Nov. 13-14, 1917. The examination covered twelve subjects and included 120 questions. An average of 75 per cent. was required to pass. Seven candidates were examined, all of whom passed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Georgia Coll. of Eclectic Med. and Surg. | | (1915)* 84.4; (1916) | 84.7 |
| Kansas City College of Med. and Surg. | | (1917) 77.1, 78, 80.4, 81.1, | 86.3 |

*Graduation not verified.

### Kentucky December Examination

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 4-6, 1917. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 12 candidates examined, 9 passed and 3 failed. The following colleges were represented:

| College | | Year Grad. | Per Cent. |
|---|---|---|---|
| | PASSED | | |
| University of Louisville | | (1916) 78, 78; (1917) | 79, 85, * |
| Lincoln Memorial University | | (1917) | 80 |
| Meharry Medical College | | (1916) 73; (1917) | 71, 72 |
| | FAILED | | |
| University of Louisville | | (1912) | 66 |
| Lincoln Memorial University | | (1911) 63; (1917) | 62 |

* No grade given.

### Lousiana December Examination

Dr. E. W. Mahler, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, Dec. 6-8, 1917. The examination covered 11 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 18 candidates examined, 9 passed and 9 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

| College | | Year Grad. | Per Cent. |
|---|---|---|---|
| | PASSED | | |
| Chicago College of Medicine and Surgery | | (1916) | 79.9 |
| Tulane University of Louisiana | | (1917) 76.2, 76.6, 76.7, 77, 87.1, | 88.7 |
| University of Pennsylvania | | (1903) | 87.6 |
| Baylor University | | (1916) | 80.3 |
| | FAILED | | |
| Tulane University of Louisiana | | (1917) | 70.1 |
| Meharry Medical College | | (1916) 69.5; (1917) | 40.9 |
| Memphis Hospital Medical College | | (1908) 62.3; (1911) | 60.1 |
| University of Memphis | | (1911) | 58 |
| University of Tennessee | | (1913) | 51.5 |
| Fort Worth School of Medicine | | (1917) | 71.7 |
| University of Nicaragua | | (1909) | 69.5 |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Detroit College of Medicine and Surgery | | (1917) | Michigan |
| John A. Creighton Medical College | | (1910) | Nebraska |
| University of Tennessee | | (1916) (1917) | Arkansas |

## Book Notices

The Principles and Practice of Dermatology. Designed for Students and Practitioners. By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois, Emeritus. Third Edition. Cloth. Price, $7, Pp. 1243, with 466 illustrations. New York: D. Appleton & Co., 1917.

The author has completely revised this book, and has elaborated on many subjects, particularly pellagra and syphilis. One of the best sections of the work is the preliminary chapter on the anatomy of the skin, illustrated by twenty-nine excellent pictures, and presenting material which should be known to every physician who attempts to treat disorders of the skin. The section on treatment is probably more conservative and rational than that appearing in any other textbook on diseases of the skin. The prescriptions given are simple, and few contain the numerous ingredients that so frequently mark dermatologic prescriptions.

Particularly interesting is the view that the author holds of vaccine therapy:

> The method of treatment by the use of vaccines has so appealed to the medical imagination, and the use of stock vaccines has been made so easy by the manufacturers of bacteriologic products, that vaccine therapy has had an enormous vogue. . . . As dermatologists have had experience with the method in the last five years it has lost ground in their confidence, and this failure to hold its place as an efficient remedy among dermatologists is perhaps the best evidence of the inefficiency of the method. In so far as the use of vaccines has tended to encourage the indifference to other details of treatment, and a slipshot and indiscriminate therapy, they have been actually harmful.

The discussions on the use of the roentgen ray, radium and light therapy are equally conservative, the advantages and disadvantages being pointed out in definite, positive statements. In his discussion of the etiology of pellagra, the author does not seem to accept wholly either the deficiency, the maize or the parasitic theory, although he states that the theory that pellagra is caused by a parasite and transferred by some biting insect has much to commend it. This was probably written some time ago, as the more recent work of the United States Public Health Service indicates that the deficiency theory should receive more prominence. The section on syphilis has been greatly extended and covers 156 pages. It includes an article on the Wassermann reaction by Dr. A. W. Stillians, and is a veritable treatise on this most important condition.

There are 466 halftone illustrations in the book, but none in colors, which detracts somewhat from the value of the book for those not especially familiar with the appearance of dermatologic lesions.

A Treatise on Regional Surgery. By Various Authors. Edited by John Fairbairn Binnie, A.M., C.M., F.A.C.S. Three Volumes. Cloth. Price, $7 each. Philadelphia: P. Blakiston's Son & Co., 1917.

This is a three volume work on regional and special surgery. That part of general surgery which relates to the principles of pathology and therapy has been omitted. The aim of the work is to present short treatises on the injuries and diseases of the different regions of the body. It is a work of many authors, each dealing with a different subject or subjects. The editor admits that there is overlapping and repetition, but says that "when it occurs it is interesting and instructive to note the differences in the views expressed by the different authors." The editor thinks this is an advantage; we would regard it as a disadvantage. In a review of a work covering so many subjects and by so many authors it is impossible to take up in detail the various opinions expressed. One general feature that is quite noticeable and commendable is that the authors enter at once on the subject in hand, without wasting time and space with the usual commonplace introductory remarks. What the authors have to say they say in a few words and stop. Sometimes they quit before the subject is really covered. As is usual in composite works, some articles stand out prominently by reason of their excellence, while others, by comparison, are mediocre. The editor might have used his privilege occasionally and substituted proper pharmacopeial for proprietary or trade names. The volumes are of convenient size, about 600 pages each, and are well illustrated.

## Social Medicine, Medical Economics and Miscellany

### Anthrax

The augmented importation of skins and hides from foreign countries as the result of the leather shortage due to the war has caused, as one of its by-effects, an increase in anthrax among those handling hides, skins and their accompanying products, hair and wool. So serious has been the increased incidence of this disease that state and local health authorities and the national government through the Department of Agriculture and the Public Health Service are giving it increased attention. The Department of Agriculture has increased the stringency of its regulations regarding the importation of hides which may be the source of infection, so that the tanners have been compelled to consider the subject especially as it affects their industry.

*The Journal of the American Leather Chemists' Association* for August, 1917, publishes a symposium read at the annual meeting of the association this year. After giving a description of the disease, its lesions and symptomatology, Dr. A. S. Ross of Camden, N. J., says that for two years he has been practicing, as a prophylactic, the cauterization with phenol (carbolic acid) of all wounds found on employees and then applying alcohol dressings. All employees handling raw hides, on pain of immediate discharge, are compelled to have all wounds, no matter how trivial, treated without delay by this method, and in Camden, where from 7 to 9 million skins are handled in the raw state each year, this method has proved effective in preventing trouble. Ross believes that if he can treat a patient within twelve hours from the first appearance of the lesion, he can save the patient. Of the three surgical methods of treating the local lesion—excision, a crucial incision and cauterization with phenol, and the injection of pure phenol around and into the pustule—Ross says that the first method is the best. On account of the extreme rapidity of the development of the constitutional infection and symptoms of the greatest gravity, the serum treatment must be employed vigorously. He uses Sclavo's serum, made from ass' blood, and Mulford's horse serum. The serum treatment employed early has reduced the mortality to 6 per cent. Ross says that in Camden he has never seen a case develop from contact with another patient, even though quarantine measures are not enforced and close contact with the patient by other members of the family is not prohibited. H. J. Frisbie, another tannery physician, endorses the excision of the pustule, cutting deep and wide, swabbing out the wound with tincture of iodin, packing with the same drug, and later applying a 1:2,000 mercuric chlorid dressing, together with sufficient doses of anthrax serum and quinin. He has had no deaths among his patients, and many of them are out in four or five days. A. Parker Hitchens describes the method of production of the serum and the manner in which it acts to immunize or cure the patient.

It has been found that the effluent from tanneries has been the means of infecting stock on streams below the plants, and on account of strict state and other regulations the tanneries have been compelled to devise means of treating or disposing of the effluent to avoid the possibility of such infection. Mr. Buswell describes the results of experiments conducted in a large tannery in the treatment of the waste by means of a screen to take out the hair and other solid matter, and the application of liquid chlorin, 50 parts per million of the screened effluent. By this means, although not all of the resistant anthrax spores were killed, they were sufficiently attenuated so that they did not kill guinea-pigs. Practically this treatment resulted in freedom from anthrax as far as infection from this tannery is concerned. C. Lee Peck describes the method employed for treating the sludge and effluent in a tannery with which he is connected. This tannery has experimented with a small unit treating 50,000 gallons of waste a day by means of sedimentation tanks, from which the sludge is skimmed and burned before bacterial action has destroyed it, the clarified effluent being spread and absorbed by the earth, no part of it going directly into any stream.

### Effect of Freezing on Typhoid and Diphtheria Organisms

To determine the length of time typhoid and diphtheria organisms would live in ice cream that had been frozen solid, Bolten of the Public Health Service made some experiments which are described in *Public Health Reports*, Feb. 8, 1918. Pasteurized ice cream was placed in sterilized metal containers, inoculated with twenty-four-hour broth cultures of *B. typhosus*, and frozen in brine. After twenty-four hours the ice cream was partially melted, Endo plates inoculated and incubated for twenty-four hours. This was kept up daily thereafter for a number of days. After twenty-four hours, cultures of typhoid were fished from the plates and placed in nutrient broth and Russell slant tubes. In twenty-four hours with these cultures agglutination tests were made, with accompanying controls. One drop of a higher titer antityphoid serum was placed in the test tube and the tube incubated for half an hour at 37 C. At the end of the period all of the tubes to which the serum had been added showed a heavy flocculent precipitate. The number of colonies per plate at first was large; after ten days or two weeks there were half the number, and at the end of a month the colonies were few.

Eight specimens of diphtheria bacteria from clinical cases of diphtheria were isolated in pure cultures by plating on agar and fishing for Loeffler slants. Cultures of these were made for twenty-four hours at 37 C., washed off with 10 c.c. of 0.85 per cent. salt solution and the suspension placed in sterilized metal containers and frozen in brine. After twenty-four hours they were melted and the material inoculated in a Loeffler blood serum slant, incubated at 37 C. and again frozen. The process was repeated the following day and the cultures of the inoculated tubes of the preceding day examined. In all cases diphtheria bacilli were obtained. The freezing was continued for six days and diphtheria organisms recovered each day. Other tests failed to show any difference in toxin production between frozen and unfrozen cultures.

### Veronal Classed as a Poison by England

Dec. 5, 1917, the Pharmaceutical Society of Great Britain recommended to the Lords of the Privy Council that veronal and its closely related derivatives be classed in Part I of the schedule to the Poisons and Pharmacy Act, 1908. The recommendation was prompted by the cumulative evidences, as revealed through coroners' inquests, press reports, etc., of "a steady increase in the number of fatal poisonings from veronal. . . . In addition, a growing body of testimony showed that hypnotics of this class were being widely taken in excess by the laity, without medical knowledge or supervision, with the most disastrous consequences to health and morals" (editorial, the *Pharmaceutical Journal and Pharmacist*, Dec. 22, 1917, p. 293). The Privy Council, six days later, signified its approval of the recommendation, thereby legally classifying as poisons "diethyl-barbituric acid, and other alkyl, aryl, or metallic derivatives of barbituric acid, whether described as veronal, proponal, medinal, or by any other trade name, mark or designation; and all poisonous urethanes and ureides." An immediate result will be that veronal will seldom be dispensed except on a physician's order, and that a record of such sales will be kept in the pharmacist's poison book. (The official name for diethylbarbituric acid of the British Pharmacopeia is barbitone; in the United States the designation for this product, under which it may be manufactured under license of the Federal Trade Commission, is barbital.)

## Medicolegal

### Sufficient Provision and Notice as to Medical Attendance

*(In re Davidson (Mass), 117 N. E. R. 310)*

The Supreme Judicial Court of Massachusetts, in this proceeding against a manufacturing company and an employers' liability insurance company, affirms a decree denying a physician's claim under the workmen's compensation act for services rendered by the physician in treating an employee of the manufacturing company for injuries received by the employee arising out of and in the course of his employment. The court says that the facts disclosed by the record were that arrangements had been made with a hospital to furnish to employees of the manufacturing company, injured in the course of their work, necessary medical and surgical treatment, and that notices to that effect were posted conspicuously in different places in the manufactory of the insured employer. The employee immediately on being injured was urged to go to the designated hospital. He replied that he "did not want to bother," but finally consulted a physician of his own selection not connected with the hospital. The physician contended that the notices posted were insufficient in not stating that the injured employee "must" go to the hospital. That contention was not sound. A notice of that tenor would not be true. The statute imposes an obligation on the insurer to furnish reasonable medical attendance. It does not make it imperative on the employee to accept such attendance. He is at liberty under the act, if he prefers to do so, to secure at his own expense medical attendance of his own selection. The notices posted in the manufactory of the employer were amply sufficient. They gave the name and location of the hospital where both "medical and hospital attendance" were furnished for injured employees. The decision of the industrial accident board to the effect that the insurer was not liable to the physician selected by the employee was plainly right. The insurer had done all that the act required of it in providing reasonable medical attendance.

### Liability for Negligence of Intern or Other Physician Given Charge of Case

*(Norton vs. Hefner et ux. (Ark.), 198 S. W. R. 97)*

The Supreme Court of Arkansas, on this appeal of defendant Norton, a physician and surgeon, reverses a judgment that was obtained against him by the plaintiffs, husband and wife, and remands the case for a new trial, because of an instruction that was given the jury with regard to the defendant's liability for the negligence of an intern. The court says that the action was to recover damages for injuries resulting from alleged improper treatment following a surgical operation performed by the defendant on Mrs. Hefner, who was afflicted in a way that required a surgical operation involving an incision and entrance into the abdominal cavity. After the operation had been completed the defendant, who had come from another place to perform it, announced that he could not remain any longer, but would have to return to his home, and the question arose between the parties as to who should look after the patient and dress the wound. There was testimony adduced by the plaintiffs which tended to show that the defendant arranged with a young physician, who was acting as an intern in the hospital, to look after the patient until she recovered, and the judgment in this case was based entirely on the theory that the intern was guilty of negligence in failing to remove the gauze at the proper time, and that the defendant was liable in damages because of the alleged negligence of the intern. The trial court, over the objection of the defendant, instructed the jury, in substance, that if the defendant employed the intern to take charge of the patient for the purpose of dressing the wound and removing the gauze at the proper time, and that the intern was guilty of negligence in failing to remove the gauze properly, the defendant would be liable, and that it was wholly immaterial whether the defendant paid or agreed to pay the intern for his services. There was no testimony in the case that the defendant employed the intern, in the sense that he was to pay him anything for his services; but the evidence merely tended to show that the intern, at the request of the defendant, agreed to take care of the patient. According to the undisputed evidence, the defendant left the city shortly after the operation was completed, and did not see the patient any more; nor was there any testimony tending to show that the defendant was guilty of any negligence in the selection of the intern as a proper person to look after the patient and remove the gauze. The intern was a physician who had been selected by the hospital management to attend patients in the hospital, and there was nothing to indicate that he was lacking in qualification for the position. The evidence adduced and the instructions of the trial court presented squarely the question of whether or not a physician is liable in damages on account of negligence of another physician who takes charge of a patient at his request. That question seems to have been settled against the right to recover damages under those circumstances by a decision of this court in *Keller* vs. *Lewis*, 65 Ark. 578, 47 S. W. 755. It was clear that the instructions of the trial court as to liability on the part of the defendant were erroneous. The defendant was not guilty of negligence in the performance of the operation, or in the selection of a physician to continue the treatment after he left the city. Not being negligent in those respects, he could not be held responsible for the negligence of the other physician, who was left in charge, merely because the other physician took charge on his suggestion and arrangement. There was testimony adduced tending to establish an express agreement on the defendant's part to look after the treatment in connection with the other physician who was left in charge of the patient, and to make himself responsible for the latter's conduct and treatment of the patient; but the instructions given by the trial court did not make the plaintiffs' right of recovery depend on the existence of such contract.

### Waiving of Privilege

(*Jacobs vs. City of Cedar Rapids* (*Ia.*), *164 N. W. R. 891*)

The Supreme Court of Iowa, in affirming a judgment for damages in favor of the plaintiff for personal injuries alleged to have been caused by a fall on a sidewalk, says that the sole point urged for reversal was sustaining an objection to the testimony of a physician on the ground that it was incompetent for being a breach of privilege. The argument was, in effect, that the necessary relation did not exist, or, if it did, that testimony given by the objecting party and her witnesses waived the privilege. The plaintiff testified that before her injury she was in good health and able to do and doing all kinds of work. A medical witness for her said that after the injury he found an infection which must have existed before the injury; that it might not have ultimately required operation on her if she had not suffered the injury complained of, but that such injury aggravated the infection and precipitated the operation. Thereupon a physician witness for the defendant testified that he had in the past attended the plaintiff as her physician on several occasions and on each had given her medical treatment. It was contended that, as against the objection that same was privileged, he should have been allowed to say for what he gave her such treatment. A distinctive point in this case was that the plaintiff testified, "I did not consult any doctors in regard to my health before my accident." Had this been said in her examination in chief, the court would be constrained to hold that the relation which created the privilege did not exist, and this though the physician testified it did exist. Moreover, the court is of the opinion that when the plaintiff testified, though on cross-examination, that no relation existed on which the claim of privilege could rest, she settled, at least for that trial, that her objection to the medical witness for the defendant being allowed to testify was not well taken, though so far as testimony on cross-examination reveals the state of a plaintiff's health, its giving does not waive privilege. However, the exclusion of the physician's testimony did not constitute reversible error, as there was no statement of what it was believed or expected would be said if the witness were permitted to answer.

Concerning waiving of privilege, the court says that the keeping in mind of the policy and object of the statute, and that it should be liberally construed to effectuate and attain these, have developed what will *not* waive the privilege. It was the legislative intent that the patient might confide freely, and was not to be deterred therefrom by fear that this confidence would create opposing testimony. There is no punishment provided for the physician who reveals what has been confided in him. About all, then, that the statute could have aimed to do was to prevent revealing on the witness stand. It must have been understood by the legislature that those who made confidential revelations to physicians might enter into, and produce testimony in, litigation, wherein it would be very material, either as impeachment or otherwise, to have the physician disclose what he had been told, and it must have been intended, therefore, that the occurrence of these conditions should not operate to waive the privilege. It has therefore been held that such testimony is not made admissible because it will impeach, or because it will operate to defeat falsehood. And that the naked fact that the plaintiff makes a witness of one of her physicians does not give consent that the defendant may make one of any or all other of the plaintiff's physicians, and have them testify on the same general subject to which the witness of the plaintiff spoke. These cases are not inconsistent with those in which waiver arises from the nature of the lifting of the veil, and not from what sort of witness the plaintiff lifts it with. On this some narrow exceptions have been grafted, as where a physician is sued for malpractice, and the plaintiff gives her version of the treatment received; or where exclusion would operate as a shield to crime. A waiver of privilege as to one transaction will not operate to waive it as to other and independent transactions.

### Basis on Which Opinion May Be Expressed as to Sanity

(*Hahn vs. Hammerstein et al.* (*Mo.*), *198 S. W. R. 833*)

The Supreme Court of Missouri, in reversing a judgment obtained by the plaintiff in this action to contest a will, makes a point of the fact that a physician who had attended the testator in the few instances of his illness, and to whom a hypothetic question was put, was not asked his judgment or opinion of the sanity of the testator based on the facts observed by him during social acquaintance; for the court says that he, equally with any lay witness, might express an opinion on that subject on a statement of facts showing the basis of such opinion.

## Society Proceedings

### COMING MEETINGS

American Medical Association, Chicago, June 10-14.
Alabama State Medical Association, Birmingham, April 16.
Am. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
American Gastro-Enterological Association, Atlantic City, May 6-7.
American Gynecological Society, Philadelphia, May 16-18.
American Orthopedic Association, Washington, D. C., April 22-23.
Arizona Medical Association, Phoenix, April 25-26.
Arkansas Medical Society, Jonesboro, May 7-9.
Association of American Physicians, Atlantic City, May 7-8.
California State Medical Society, Del Monte, April 16-18.
Connecticut State Medical Society, Hartford, May 15-16.
Georgia State Medical Association, Savannah, April 17-19.
Iowa State Medical Society, Fort Dodge, May 8-10.
Kansas Medical Society, Kansas City, May 1-3.
Louisiana State Medical Society, New Orleans, April, 16-18.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25.
Michigan State Medical Society, Battle Creek, May 7-9.
Mississippi State Medical Association, Jackson, May 14-15.
Missouri State Medical Association, Jefferson City, May 6-8.
Nebraska State Medical Association, Omaha, May 7-9.
New Hampshire Medical Society, Concord, May 15-16.
North Carolina State Medical Society, Pinehurst, April 16-18.
Oklahoma State Medical Association, Tulsa, May 14-16.
South Carolina Medical Association, Aiken, April 16-18.
Tennessee State Medical Association, Memphis, April 9-11.

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Medical Sciences, Philadelphia

February, 1918, **155**, No. 2

1 *Sociologic and Medical Study of Four Hundred Cigar Workers in Philadelphia. T. G. Miller, Philadelphia.—p. 157.
2 *Electrocardiographic Observations in Toxic Goiter. E. B. Krumbhaar, Philadelphia.—p. 175.
3 Roentgenologic Studies in Healing of Gastric and Duodenal Ulcers. W. W. Hamburger, Chicago.—p. 204.
4 *Chemical Analyses of Stomach Contents from One Hundred Pellagrins. M. H. Givens, New Haven, Conn.—p. 221.
5 *Incidence of Chronic Focal Infection in Chronic Diseases. L. Langstroth, San Francisco.—p. 232.
6 *Electrocardiographic Study of Two Cases of Nodal Rhythm Exhibiting R-P Intervals. J. D. Heard, Pittsburgh and A. E. Strauss, St. Louis.—p. 238.
7 *Pathogenesis of Infantile Scurvy; Hypothesis. H. J. Gerstenberger, Cleveland.—p. 253.

1. **Sociologic and Medical Study of Cigar Workers.**—The literature on the effects of working in tobacco favors the view that it predisposes the worker to pulmonary tuberculosis, gastro-intestinal disturbances, anemia, genital abnormalities, and nervous conditions. In a study of the social and medical conditions of 400 cigar workers in Philadelphia, Miller did not find support for any of these contentions. They did find, however, some wearing of the teeth and some pharyngeal and conjunctival congestion, findings which they believe to be dependent on faulty personal and factory hygiene.

2. **Electrocardiographic Observations in Toxic Goiter.**—Electrocardiographic studies have been made by Krumbhaar of 51 cases of goiter, mostly of the toxic type, in as many cases as possible both before and after surgical operation. In the series of 47 patients that submitted to surgical operation (ligation, partial excision, and enucleation of adenomas) 3 deaths occurred; 2 of these offered no premonitory signs in either clinical or electrocardiographic examination; in the third case the development of negative T waves might have served as an adequate warning. Electrocardiograms, essentially normal as to form and rhythm, were found in 22 cases (43 per cent.). Preponderating hypertrophy of the right ventricle (or a tendency thereto) was found in 11 cases, and of the left ventricle (or a tendency thereto) also in 11 cases. After operation, however, one half of the right ventricular cases showed a diminished degree of preponderance, whereas all but one of the left ventricular cases showed either no change or an increased amount of preponderance. Cardiac arrhythmia was found as follows: sinus arrhythmia, 4 cases; ventricular extrasystoles, 3 cases; auricular fibrillation, 3 cases; auricular flutter, 1 case; delayed conductively, 2 cases.

4. **Stomach Contents of Pellagrins.**—A careful review of the 100 cases examined by Givens covering over 300 analyses for acidity and pepsin, permits of the following summary: No definite relation can be found between the absence of pepsin and free hydrochloric acid, and sex, age, duration of pellagra and clinical symptoms. The gastric secretion of children is disturbed along the same general line as that of adults. Free hydrochloric acid and pepsin do not seem to be absent as often in children as in adults. Although the tendency is for acid and pepsin to disappear hand in hand, such is not always the case. It is believed that pepsin and free acid are present more often than has been expected.

5. **Focal Infection in Chronic Diseases.**—Reviewing his cases Langstroth finds that 84 per cent. of ulcer patients, 66 per cent. of acute or subacute cases of arthritis, 73 per cent. of the chonic cases of arthritis, and 100 per cent. of the gallbladder cases have been associated with chronic focal infections. The acute and subacute cases have responded well after removal of the foci, even to the point of absolute cure. The chronic cases, when they should be followed have in many cases had less pain and no further progression of the disease.

6. **Rhythm Exhibiting R-P Intervals.**—Two cases are presented by Heard and Strauss in which electrocardiographic study showed the development of transient nodal rhythm. The first case exhibited junctional premature contractions and typical attacks of paroxysmal tachycardia such as had extended over a period of twenty years; the second presented marked sino-auricular block, and under ether anesthesia there developed a paroxysm of auriculoventricular rhythm. During the paroxysms of abnormal rhythm there was present in both cases an R-P interval indicating an origin of impulses low in the conduction tissues. The comparatively rapid rates during the paroxysms of auriculoventricular rhythm suggest an abnormal stimulation of the junctional tissues.

7. **Pathogenesis of Infantile Scurvy.**—A report is made by Gerstenberger of a case of infantile scurvy which showed a marked reduction in the water output of the body through the kidneys without the presence of the usual and known causes for water loss via other channels, and which further showed a marked change toward a return to normal conditions by the administration of orange juice, indicating a protective salt retention of hindered salt excretion as the cause of the transfer of a good portion of the water excretion from the kidneys to the lungs. The same condition seemingly was present in four additional cases of infantile scurvy as well as in scorbutic guinea-pigs on an oat-and-water diet. It is suggested that the phenomenon observed is a part of the regular picture of infantile scurvy and represents an addition to the clinical symptomatology of scurvy. A case of infantile scurvy is reported as being counterpart to Braddon and Cooper's polyneuritic pigeons by having developed its symptoms on a diet of raw milk, modified, however, by dilution with water to one half and by the addition of enormous amounts of carbohydrates in the form of Mellin's food. The experience of other authors regarding the inefficiency of cod liver therapy and calcium therapy in scurvy is corroborated by absolutely negative therapeutic results having been obtained in a case of infantile scurvy on the administration of tricalcium phosphate and cod liver oil, indicating that a deficiency of calcium in the diet or in the body plays no primary rôle in the development of scurvy. A report is made of a distinct but temporary improvement in the clinical picture of two cases of infantile scurvy on the administration of large doses of sodium citrate. This observation suggests the possibility of the existence in the development of the clinical picture of infantile scurvy of a modus operandi similar to such as has been shown to exist in cell permeability and irritability by the researches of Jacques Loeb.

### American Journal of Roentgenology, New York

February, 1918, **5**, No. 2

8 Localization of Foreign Bodies. D. R. Bowen, Philadelphia.—p. 59.
9 War Roentgenologist in Home Territory. C. B. Hollings, Fort Leavenworth, Kan.—p. 75.
10 Roentgen Diagnosis of Bone Lesions. H. M. Stewart, Johnstown, Pa.—p. 77.
11 Roentgen Pleuritis. L. Bryan, San Francisco.—p. 87.
12 Roentgen Diagnosis of Traumatic Lesions of Lower Back. E. L. Davis, Springfield, Mass.—p. 89.
13 Some Roentgenologic Observations on Diagnosis of Tumors of Jaw. J. W. Pierson, Baltimore.—p. 91.
14 Case of Myxoma of Femur. A. Cotton and S. McCleary, Baltimore.—p. 95.

### Annals of Surgery, Philadelphia

February, 1918, **67**, No. 2

15 *Study of Anteoperative and Postoperative Blood Counts in Noninfective Surgical Conditions. F. L. Meleney, New York.—p. 129.
16 *Electric Burn Causing Necrosis of Skull. D. Lewis, Chicago.—p. 149.
17 Deep Palmar Hand Infections. H. L. Beye, Iowa City, Iowa.—p. 152.
18 *Bone Transplantation in Surgical Treatment of Paralytic Feet. J. E. Fuld, New York.—p. 163.
19 Tuberculosis of Spine; Report of Case. J. A. Honeij, New Haven, Conn.—p. 165.
20 General Principles of Treatment of Wounds of Knee Joint from Projectiles in Warfare. C. G. Cumston, Geneva, Switzerland.—p. 170.
21 Apparatus for Treatment of Compound Fractures of Forearm. H. T. Buckner, Seattle.—p. 179.

22 *New Incision for Exposure of Lower Abdomen and Pelvis. J. W. Churchman, New Haven, Conn.—p. 180.
23 Abdominal Wound Technic. J. O'Conor, Buenos Aires.—p. 183.
24 Resection of Large Bowel at Rectosigmoidal Junction; Report of Cases. S. Stillman, San Francisco.—p. 189.
25 Left Paraduodenal Hernia; Report of Case. A. U. Desjardins, Rochester, Minn.—p. 195.
26 *Distribution of Fat in Appendix; Its Relation to Inflammation. G. M. Smith, Waterbury, Conn.—p. 202.
27 Spontaneous Panhysterectomy After Abdominal Contusion. L. F. Fallon, North New Foundland.—p. 208.
28 Intestinal Obstruction; Experimental Study. B. Brooks, H. W. Schumacher and J. E. Wattenberg, St. Louis.—p. 210.
29 *Etiologic Relationship of Benign Ulcer to Carcinoma of Stomach. A. O. Wilensky and W. Thalhimer, New York.—p. 215.
30 Improved Military Ambulance. G. W. Hawley, Bridgeport, Conn. —p. 226.

15. **Blood Counts in Noninfective Conditions.**—Fifty-one cases were studied by Meleney. These cases were chosen at random, the only cases not accepted in the series being those in which an acute infection was present before operation or a marked infection expected after it. A daily white cell count was made. In thirty-nine a daily differential count was made. In twenty-six the red cells were counted anteoperative and postoperative, and on alternate days thereafter. In every single case the white count rose six hours after operation. Nine cases were later set aside because of the presence of slight infection. Meleney says that the postoperative leukocytosis in noninfected cases is due almost entirely to the outpouring of polymorphonuclear cells. There is a trivial rise in red cells after operation, but in the subsequent ten days this is followed by a progressive anemia with an average loss of about one-half million cells per c.mm. The white cell count may be expected to fall rapidly in clean cases and reach normal on the fourth day. In infected or contaminated cases it will fall much more slowly. Infection and contamination have nothing to do with the initial rise, but on the second or third day after operation they will tend to keep the count high. Other things being equal, the count will be higher in those cases in which there are severe trauma to the tissues, many sutures and ligatures used, considerable loss of blood and long anesthesia, especially with ether. Normal individuals will produce a higher leukocytosis than abnormal types.

16. **Electric Burn Causing Necrosis of Skull.**—Lewis' patient recovered from a very severe shock, having come in contract with a live wire carrying an alternating current of 13,200 volts with an amperage of 150. He sustained an injury to the skull which corresponds to a certain definite type of which thirteen have been reported. Some eight weeks after the accident a double cataract developed rather rapidly.

18. **Bone Transplantation in Treatment of Paralytic Feet.**—The object of this operation is to secure bony ankylosis and so assure stability and prevent lateral deformity of a flail ankle, fixing it in a position of equilibrium midway between flexion and extension. This is done by Fuld by inserting a bone graft which passes through both malleoli and the body of the astragalus.

22. **Incision to Expose Lower Abdomen and Pelvis.**—The skin incision, described by Churchman, begins at the symphysis pubis, runs in the midline upward for about 2 inches, then diagonally upward and outward toward the anterior superior spine. The fascial incision repeats the direction of the skin incision, dividing the rectus sheath longitudinally, then crossing obliquely the anterior sheath and dividing the fascia of m. obliquus externus in the direction of its fibers and as high toward the anterior superior spine as desired.

26. **Fat in Appendix and Inflammation.**—Smith's work is based on a study of 217 appendices. He says that chronic inflammation of the appendix may be associated with or without an increase of visible fat. In about 14 per cent. of appendices examined which were chronically inflamed fat was very much increased and affected occasionally the muscular coat as well as the submucosa. Smith concludes that abnormal accumulation of fat in the appendix is induced by inflammation, aided probably by impairment of circulation in the wall of the appendix.

29. **Benign Ulcer and Carcinoma of Stomach.**—Forty-eight ulcerated lesions of the stomach comprise the material studied by Wilensky and Thalhimer. This includes 39 chronic ulcers, 7 ulcer-like carcinomatous lesions, 1 ulcer with regional carcinomatous lymphnodes, and 1 mixed lesion (resembling an ulcer but with carcinoma at many places on its periphery). This summary does not include 5 gastrojejunal ulcers and 2 healed ulcers which were also investigated. This investigation has not furnished absolute proof that carcinoma of the stomach can arise in a preexisting ulcer. In one specimen out of the 48 examined there was present a carcinoma arising in an ulcer. The majority of ulcerated gastric lesions, however, are either simple chronic ulcers or definite carcinomas. Any etiologic relationship of gastric ulcer to gastric carcinoma cannot be traced in these specimens. Ulcerated gastric lesions which appear benign grossly were proved by the microscope to be malignant in 18.7 per cent. of the cases studied. It is lesions of this sort which the authors claim have given rise to considerable confusion in the past. It is impossible to state whether they represent an ulcerating carcinoma or an ulcer which has undergone malignant transformation.

### Florida Medical Association Journal, Jacksonville

February, 1918, 4, No. 8

31 Florida's Care for Insane. W. M. Bevis, Chattahoochee.—p. 223.
32 Duties of Board of Health. J. H. Coffee, Fort Meade.—p. 226.
33 Erythema Scarlatiniforme. G. H. Edwards, Orlando.—p. 228.
34 Oral Infections and Their Relations to Systemic Disorders. W. H. Coker. Pensacola.—p. 230.
35 Conductive Anesthesia or Nerve Blocking. B. V. Dannheisser, Pensacola.—p. 231.

### Illinois Medical Journal, Chicago

March, 1918, 33, No. 3

36 Personal Hygiene for Troops in Field. M. L. Blatt, Chicago. —p. 129.
37 Suggestions for Prevention and Control of Venereal Diseases in Army. A. E. Mowry, Chicago.—p. 134.
38 Importance of Early and Efficient Doses of Antitoxin in Diphtheria. E. K. Armstrong, Chicago.—p. 139.
39 Early Diagnosis of Carcinoma of Stomach. A. Heinen, Chicago. p. 144.
40 Much Neglected Veru Montanum. F. Kreissl, Chicago.—p. 147.
41 Relation of Syphilis to Cardiovascular Disease. J. G. Carr, Chicago.—p. 149.
42 Special Disorders of Heart from Goiter. E. P. Sloan, Bloomington.—p. 152.
43 Oblique Inguinal Hernia. A. M. Harvey, Chicago.—p. 154.
44 Iridotasis in Simple or Chronic Glaucoma. F. Allport, Chicago. —p. 155.
45 Roentgenograms of Injected Arterial System. J. H. Carpenter, Chicago.—p. 156.
46 Malignant Papilloma of Bladder Complicating Enlarged Prostate and Stone. G. F. Lydston, Chicago.—p. 160.
47 Psychology as Factor in Surgery. G. D. J. Griffin, Chicago.—p. 161.
48 Roentgen Diagnosis of Gastric Cancer. A. Hartung, Chicago.—p. 163.
49 Anal Fissure; Its Radical Cure Under Local Anesthesia. C. J. Drueck, Chicago.—p. 167.
50 Operative Treatment of Tuberculosis of Small Bones. C. M. Jacobs, Chicago.—p. 169.
51 Three Cases of Appendicitis Complicated by Pregnancy. L. P. Dawes, Juneau, Alaska.—p. 171.

### Journal of Biological Chemistry, Baltimore

February, 1918, 33, No. 2

52 New Constituents of Milk. III. A New Protein, Soluble in Alcohol. T. B. Osborne and A. J. Wakeman, New Haven, Conn. —p. 243.
53 Influence of Injected Guanidin Hydrochlorid on Blood Sugar Content. C. K. Watanabe, New Haven, Conn.—p. 253.
54 Mathematical Formulas and Acid Excretion. G. D. Barnett, San Francisco.—p. 267.
55 Studies of Acidosis. D. D. Van Slyke, New York.—p. 271.
56 Effects of Acids and Salts on Precipitation of Gelatin by Alcohol. W. O. Fenn, Cambridge.—p. 279.
57 *Feeding Experiments with Peanuts. A. L. Daniels and R. Loughlin, Madison, Wis.—p. 295.
58 *Biologic Analysis of Pellagra Producing Diets. E. V. McCollum and N. Simmonds, Baltimore.—p. 303.
59 Thyroid Hyperplasia and Relation of Iodin to Hairless Pig Malady. E. B. Hart and H. Steenbock, Madison, Wis.—p. 313.
60 Estimation of Amino-Acid Nitrogen in Blood by a Heat-Kaolin Method. S. Okada, Tokyo.—p. 325.

61 *Respiratory Regulation of Carbon Dioxid Capacity of Blood. High Levels of Carbon Dioxid and Alkali. Y. Henderson and H. W. Haggard, New Haven, Conn.—p. 333.
62 *Id. Low Levels of Carbon Dioxid and Alkali Induced by Ether. Y. Henderson and H. W. Haggard, New Haven, Conn.—p. 345.
63 *Id. Effects of Excessive Pulmonary Ventilation. Y. Henderson and H. W. Haggard, New Haven, Conn.—p. 355.
64 *Id. Sequence of Trauma, Excessive Breathing, Reduced Carbon Dioxid Capacity and Shock. Y. Henderson and H. W. Haggard, New Haven, Conn.—p. 365.

57. **Peanut as Food.**—The experiments made by Daniels and Loughlin prompt the suggestion that the peanut, when rightly supplemented, will form a staple article of the human dietary. Like the soy bean, it needs only to have added suitable inorganic material and the fat soluble food accessory to make it a complete food.

58. **Pellagra Producing Diets.**—Even with food mixtures derived from two to five seeds McCollum and Simmonds have not found it possible to induce any growth in young rats when the animals were given distilled water to drink, and were therefore, afforded no inorganic salt supply other than what was contained in the seeds. The elements, sodium, chlorin and calcium, are the only ones which must be added in order to make the seeds complete from the inorganic side. Iodin was given in the drinking water once each week. Millet seed and flaxseed are both distinctly better as sources of the fat soluble A than are the cereal grains, wheat, maize and oats. Mixtures of seeds containing one of these may, when properly supplemented with calcium, sodium and chlorin support animals in apparently good health, and without the appearance of xerophthalmia. Emphasis is laid on the close similarity of seeds from the dietary standpoint and the danger of deriving the diet almost exclusively from this source.

61. **High Levels of Carbon Dioxid and Alkali.**—Experiments are reported by Henderson and Haggard in which a high level of carbon dioxid and alkali, or hypercapnia, was induced. Whenever respiration is depressed by means of morphin and the alveolar carbon dioxid is raised, or whenever by the administration of carbon dioxid in the air breathed the carbon dioxid content of the blood is forced up, the carbon dioxid capacity (alkaline reserve) of the blood also rises. This rise is probably due to a compensatory passage of alkali from the tissues into the blood. Through this mechanism respiration exerts a powerful influence on the alkaline reserve of the blood.

62. **Low Levels of Carbon Dioxid and Alkali Induced by Ether.**—Etherization so profound as to depress respiration causes a rise of the carbon dioxid capacity. Light etherization such as is otherwise most effective in lowering the carbon dioxid capacity, and most harmful to the subject, loses this influence when administered with sufficient carbon dioxid to maintain the alveolar carbon dioxid at a normal level. From these facts it is clear that under ether the carbon dioxid capacity of the blood (alkaline reserve) follows and is controlled by the carbon dioxid content, and that the carbon dioxid content is in turn dependent on the alveolar carbon dioxid, which is determined by the breathing. The authors are of the opinion that these results afford final proof of the essential correctness of their views on this topic.

63. **Effects of Excessive Pulmonary Ventilation.**—Excessive pulmonary ventilation by means of artificial respiration induces not only a lowering of the carbon dioxid content but also the carbon dioxid capacity of the blood. Arterial pressure also falls and death from circulatory failure may follow. If the artificial respiration, instead of being made with fresh air, is carried on by continual reinjection mainly of expired air, so that the carbon dioxid content of the blood is not reduced, the carbon dioxid capacity and arterial pressure do not fall and the other ill effects also fail to appear.

64. **Sequence of Trauma, Excessive Breathing, Reduced Carbon Dioxid Capacity and Shock.**—These experiments show that apart from overventilation of the lungs, trauma does not cause a lowering of the carbon dioxid capacity (alkaline reserve) of the blood, even when by general traumatization and cooling of the abdominal viscera and consequent stagnation of the blood in the injured parts, failure of the circulation and death are induced. If, on the other hand, no measures are taken to prevent excessive pulmonary ventilation, the overbreathing induced even by localized manipulation of the stomach, while the rest of the viscera are protected, causes lowering of the carbon dioxid content and carbon dioxid capacity of the blood, and also of arterial pressure. If the lowering of the carbon dioxid capacity is pushed beyond the apparently critical level, between 33 and 36 volumes per cent. the disturbance of the vital equilibrium results fatally. The same duration and degree of localized manipulation administered while the subject is inhaling 6 or 7 per cent. of carbon dioxid does not cause any marked lowering of the carbon dioxid capacity, arterial pressure, or general vitality. Below the critical level for the carbon dioxid capacity, treatment by the administration of 7 to 10 per cent. carbon dioxid in the air breathed does not cause restoration of carbon dioxid capacity or arterial pressure. These results are in general harmony with the conception of acapnia as a factor in shock.

## Journal of Cutaneous Diseases, Chicago

March, 1918, **36**, No. 3

65 Localized Areas of Atrophy of Fat Cells in Derma and Subcutaneous Tissue; Case Report. J. Sundall, Lawrence, Kan.—p. 145.
66 Painful Nodular Growth of Ear. O. H. Foerster, Milwaukee, Wis. p. 154.
67 Rhus Dermatitis. I. Toyama, Sendal, Japan.—p. 157.
68 Case of Schamberg's Progressive Pigmentary Dermatosis. L. B. Kingery, Ann Arbor, Mich.—p. 166.
69 *Infection in Cutaneous Disorders. H. Mackay, Winnipeg, Man. —p. 173.

69. **Infection in Cutaneous Disorders.**—Mackay says that in a preponderating number of cases of inflammatory affections of the skin, diligent search will reveal a focus of infection that may reasonably be assumed to stand in etiologic relationship to the disease. Vaccines are of distinct service in combating these maladies in selected cases. The removal of the focus, together with the exhibition of an autogenous vaccine, has almost invariably given a measure of relief to these sufferers, and in many cases have brought about a symptomatic cure. Relapses will usually supervene unless the focus is eradicated.

## Journal of Infectious Diseases, Chicago

March, 1918, **22**, No. 3

70 *Incidence of Intestinal Spirochetes in Philippine Islands. B. C. Crowell and F. G. Haughwout, Manila, P. I.—p. 189.
71 Necessity of Carbon Dioxid for Growth of B. Tuberculosis. W. B. Wherry and D. M. Ervin, Cleveland.—p. 194.
72 *Bacteriology of Chorea. W. J. Quigley, Chicago.—p. 198.
73 Use of Larger Quantities of Blood Serum in Wassermann Reaction. E. H. Ruediger, Bismarck, N. D.—p. 205.
74 *Treatment of Scarlet Fever with Immune Human Serum. G. H. Weaver, Chicago.—p. 211.
75 *Prophylaxis of Lobar Pneumonia. J. A. Kolmer and E. Steinfield, Philadelphia.—p. 220.
76 Complement Fixation of Streptococci. K. Howell, Chicago.—p. 230.
77 New Microscopic Method of Counting Bacteria Adaptable to All Grades of Raw and Pasteurized Milk. P. W. Allen, Urbana. —p. 245.
78 Differentiation of Paratyphoid Enteritidis Group. III. Uncommonness of B. Suipestifer in Intestines of Normal Swine. E. O. Jordon, Chicago.—p. 252.
79 *Studies of Antipoliomyelitic Serum: Its Protective and Curative Properties in Experimental Poliomyelitis of Monkeys. J. W. Nuzum and R. G. Willy, Chicago.—p. 258.
80 Effect of High Pressures on Bacteria. W. P. Larson, T. B. Hartzell and H. S. Diehl, Minneapolis.—p. 271.

70. **Intestinal Spirochetes in Phillipines.**—Fifty stools were examined by Crowell and Haughwout, representing forty-six separate hospital cases. Of these cases, thirty-five were positive for spirochetes. There were seventeen cases which showed a concomitant infection with endameba, and scattered infections with *Trichomonas intestinalis* and the more common helminths. The patients from whom these stools were obtained were undergoing treatment for various ailments. Of the thirty-five which were positive for spirochetes, ten patients were receiving treatment for endamebic dysentery.

72. **Bacteriology of Chorea.**—Cultures from the tonsils, and from the blood and cerebrospinal fluid of acute, subacute

and chronic cases of chorea were made by Quigley. Blood cultures were made in twenty-one patients, ten of whom gave positive results. Nine gave small cocci, slightly elongated and arranged in pairs, short chains, and a few groups, in aerobic cultures. The other positive blood culture gave a gram-positive short diphtheroid organism. The cerebrospinal fluid of twenty-one patients has been cultured, with thirteen positive results. One was not subcultured. Eight of the organisms isolated resembled very closely the organisms found in the blood. Throat cultures were made in fifteen patients, and twenty-nine cultures were isolated and studied. Ten were hemolytic streptococci of variable size, occurring in long and short chains. Thirteen were green producing cocci, growing in pairs and short chains. Six were organisms which grew on blood agar as pin-point colorless nonhemolytic colonies, and resembled the organisms recovered from the blood in their morphologic and cultural characteristics, with the exception of their fermentative reactions. Eleven patients gave histories of acute tonsillitis, two of rheumatism, and one of endocarditis. Eight gave no history of rheumatism, endocarditis, or tonsillitis. None gave any evidence of syphilis.

74. **Scarlet Fever Treated with Immune Human Serum.**—During the past winter and spring an unusual proportion of severe cases of scarlet fever has come under treatment in the Durand Hospital, and the most severe were selected for treatment with convalescent serum. The blood was drawn from the twentieth to the twenty-eighth day, only such convalescents being selected as were free from all suspicions of tuberculosis, who had not been septic patients, and who gave a negative Wassermann reaction. The serums from several patients were mixed, tested for sterility, and stored, until used, in the refrigerator in portions suitable for single doses. The serum was injected intramuscularly in doses of 25 to 90 c.c., 60 c.c. being the usual dose. Commonly a single dose was given, a few times a second dose was administered if the initial one did not produce the desired effect. The injections were made into the muscles on the outer side of the thigh, usually dividing the dose between the two sides. No local or general disturbances followed the injections. Nineteen cases of scarlet fever were treated in this manner and in a few additional cases convalescent serum was combined with antidiphtheria serum in cases of scarlet fever complicated by diphtheria. The effects of injections of convalescent serum in cases of scarlet fever as observed by Weaver correspond to those noted by others who have used it. Quite constantly a fall of temperature began two to four hours after the serum was injected and continued gradually until its limit was reached in twelve to twenty-four hours. In the purely toxic cases the temperature fell to nearly normal and showed little tendency to rise again. In cases with septic complications the initial fall of temperature also occurred and was associated with general improvement, but the fever rose again and ran a course such as occurs in septic cases. More striking than the fall in temperature, was the improvement in the general condition of the patient. This was most pronounced in the purely toxic cases, but also very prominent in the septic ones. Delirium subsided, the pulse became slower and improved in quality, cyanosis disappeared, and in twelve to twenty-four hours patients who had seemed almost hopelessly sick were apparently on the road to certain recovery. Septic cases coming under treatment late do not appear to be improved by the serum.

75. **Prophylaxis of Lobar Pneumonia.**—As recent investigations in the epidemiology of lobar pneumonia have indicated that the disease is frequently acquired by transmission of specific virulent types of pneumococci from a recovered person who still harbors in the mouth secretions the organisms responsible for the disease, or from a healthy carrier of pathogenic pneumococci, it is suggested by Kolmer and Steinfield that the systematic use by the patient and those in close contact with the disease of a mouth wash of 1 : 10,000 solution of ethylhydrocuprein hydrochlorid or quinin bisulphate in 1 : 10 liquor thymolis, may serve to destroy or inhibit the multiplication of the disease producing pneumococci and thereby aid in the prophylaxis of lobar pneumonia.

79. **Antipoliomyelitic Serum.**—Nuzum and Willy have produced a highly potent immune serum in the horse by repeated intravenous injections of aerobic cultures of the poliomyelitic coccus. Such a serum contains agglutinins, complement fixing bodies and especially opsonin in high titer. Monkeys can be immunized against several fatal doses of virulent monkey-adapted virus by repeated intravenous and intracerebral injections of the poliomyelitic coccus. The serum of the horse immunized with strains of the poliomyelitic coccus obtained from human and monkey sources possesses protective and curative properties against the virus in experimental poliomyelitis of monkeys.

### Medical Record, New York

March 9, 1918, **93**, No. 10

81 Plea for Better Team Work Between Internist and Surgeon in Treatment of Surgical Affections of Biliary Tract. D. N. Eisendrath, Chicago.—p. 439.
82 Problem of Syphilis. F. M. Harrison.—p. 402.
83 Common Deafness; Its More Accurate Handling. C. Gluck, New York.—p. 410.
84 National Bureau for War Cripples of France. D. C. McMurtrie, New York.—p. 415.
85 Need for an Intensive Study of Mortality Associated with Childbearing. G. W. Kosmak, New York.—p. 417.
86 Standards for Swimming Pool Legislation. W. A. Manheimer, New York.—p. 418.

### New Orleans Medical and Surgical Journal

March, 1918, **70**, No. 9

87 Dengue Fever. C. C. McCulloch, Washington, D. C.—p. 694.
88 Disposal of Human Bowel Excreta in Tropics. G. P. Paul.—p. 707.
89 Pituitary Extract; Its Value in Postoperative Treatment. N. Davis and R. Owens, Dalhart, Texas.—p. 712.
90 Diseases of Eyes in Cuba, Tropical Country. J. S. Fernandez, Havana, Cuba.—p. 717.
91 Frontal Sinus Operation (Lothrop) Performed Under Local Anesthesia. M. P. Boebinger, New Orleans.—p. 721.
92 Résumé of Health Conditions of Modern Department Store. E. Bloch, New Orleans.—p. 724.
93 Case of Primary Infection of Scrotum by Gonococcus. P. J. Kahle, New Orleans.—p. 733.

### New York Medical Journal

March 9, 1918, **107**, No. 10

94 Shoes, Physiologic and Therapeutic. D. D. Ashley, New York.—p. 433.
95 Reversionary Pseudobile Canaliculi Formation in Cirrhotic Liver by Vulpine Phalanger. F. D. Weidman, Philadelphia.—p. 438.
96 Trichinosis. J. G. Cumming, San Francisco.—p. 441.
97 Common Sense in Prevention and Correction of Some Paralytic Deformities. S. A. Jahss, New York.—p. 444.
98 Cases of Brain Abscess Caused by Chronic Suppurative Otitis. W. C. Braislin, New York.—p. 446.
99 *Two-Stage Prostatectomy. E. A. Graham, Chicago.—p. 447.
100 Eczema Due to Deficient Thyroid Secretion. M. H. Edelman, New York.—p. 450.
101 Modified Method of Bone Graft. J. A. Miller, New York.—p. 452.

99. **Two Stage Prostatectomy.**—Graham reports twenty consecutive prostatectomies without a fatality, performed by the two stage suprapubic method, many of which were on patients who would ordinarily be considered as bad surgical risks, bear witness to the relative safety of this method. He says that when properly controlled by functional and other tests, it minimizes much of the risk. A preliminary cystostomy has the advantages of providing the best possible drainage, thereby affording relief of back pressure on the kidneys and an opportunity greatly to improve an existing cystitis before performing the more radical operation of enucleation of the prostate.

### Ohio State Medical Journal, Columbus

March, 1918, **14**, No. 3

102 Periosteal Sarcoma of Clavicle; Report of Case. V. A. Dodd, Columbus.—p. 141.
103 Empyema. J. E. Pirrung, Cincinnati.—p. 144.
104 Our Duty to Feebleminded. E. J. Emerick, Columbus.—p. 147.
105 Treatment of Septic Arthritis. R. B. Cofield, Cincinnati.—p. 149.
106 Professional and Lay Attitude with Reference to Medical and Surgical Fees. R. R. Kahle, Columbus.—p. 151.

### Rhode Island Medical Journal, Providence

March, 1918, **2**, No. 3

107 Treatment of Poliomyelitis. F. E. Peckham, Providence.—p. 35.
108 Vaccine Treatment in Fifteen Cases of Typhoid at Rhode Island Hospital. H. A. Cooke, Providence.—p. 38.
109 Current Public Health Legislation. J. G. O'Meara, Providence.—p. 41.

### Surgery, Gynecology and Obstetrics, Chicago

March, 1918, **26**, No. 3

110 Treatment of Fractures of Extremities by Means of Suspension and Traction. J. A. Blake and K. Bulkley.—p. 245.
111 Sutureless Skin Sliding Method for Radical Treatment of Lung Abscess and Chronic Osteomyelitis. E. G. Beck, Chicago.—p. 259.
112 Gastric Function Following Gastro-Enterostomy; Analysis of Two Hundred and Seventy-Three Cases. F. Smithies, Chicago.—p. 275.
113 Cholesterol Content of Blood in Gallstone Disease. S. P. Reimann and J. A. H. Magoun, Philadelphia.—p. 282.
114 Angulation at Sigmoid; Report of Cases. H. B. Delatour, Brooklyn.—p. 285.
115 Malignant Neoplasm of Thyroid with Metastases in Intestine and in Bone. J. F. Binnie, Kansas City.—p. 288.
116 Cancer in Surgical Clinic of San Juan De Dios Hospital; Report of Cases. J. B. M. y Florez, Medellin, Columbia, S. A.—p. 291.
117 Urinary Extravasation. J. A. Wolfer, Chicago.—p. 296.
118 Bile Peritonitis Without Evident Perforation of Biliary Tract. J. J. Buchanan, Pittsburgh.—p. 303.
119 *Clinical Study of Blood Pressure and Hemoglobin in Postoperative Shock, Postoperative Hemorrhage and Postoperative Cardiac Dilatation. J. O. Polak and O. H. Heffter, Brooklyn.—p. 312.
120 Clinical and Experimental Studies on Congenital Pyloric Stenosis. R. Lewisohn, New York.—p. 318.
121 *Fascia Transplantation into Lateral Defects of Major Arteries. H. Neuhof, New York.—p. 324.
122 Care of Puerperal Woman; Polypoid Decidual Endometritis. A. J. Nyulasy, Perth, Australia.—p. 331.
123 Use of Bull's Serum in Three Cases of Infection with B. Aerogenes Capsulatus Welchii. A. McGlannan, Baltimore.—p. 336.
124 Universal Fracture Frame Combining Suspension with Traction of Lower or Upper Extremity and Fluoroscopic Control. G. W. Hawley, Bridgeport, Conn.—p. 339.
125 Case of Minor Displacement of Lumbar Vertebrae; Reposition. Cure. E. F. Cyriax, London.—p. 346.
126 *New Method of Treating Filiform Strictures of Urethra. L. Buerger, New York.—p. 347.
127 Case of Hemolytic Splenomegaly Cured by Splenectomy. L. Urrutia, San Sebastian, Spain.—p. 350.
128 Ethyl Chlorid as General Anesthetic of Choice in Operation of Short Duration. F. Hagler, St. Louis, and R. L. Bowen, Chicago.—p. 352.
129 French Service de Santé in Field. S. W. Kelley, Cleveland.—p. 354.

119. Abstracted in The Journal, July 21, 1917, p. 237.

121. **Fascia Transplantation in Defects of Major Arteries.**—Neuhof demonstrates that fascia is as serviceable as vessel wall or peritoneum-muscle for the replacement of even large lateral defects of the major arteries and, at the same time, offers greater possibilities for clinical application in the appropriate problems encountered in human surgery.

126. **Treatment of Filiform Strictures of Urethra.**—Buerger exposes the orifice of the stricture through an endoscopic tube, and inserts the filiform under the guidance of the eye. He has devised special instruments for this work.

### West Virginia Medical Journal, Huntington

March, 1918, **12**, No. 9

130 Cellular Determination of Sex. P. J. McElrath, Bramwell.—p. 321.
131 Some Problems of Cardiovascular Disease. E. E. Cornwell, Brooklyn.—p. 328.
132 Recent Advances in Medicine as Related to Diseases of Heart. J. W. Preston, Roanoke, Va.—p. 332.
133 Pyelitis. S. L. Cherry, Clarksburg.—p. 338.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

Dec. 8, 1917, **2**, No. 2971

1 *War Nephritis. J. S. Dunn and J. W. McNee.—p. 745.
2 *Hemagglutinin Reaction as Test of Toxicity of Various Antiseptic Reagents. C. J. Bond.—p. 751.
3 *War Nephritis. T. Oliver.—p. 755.
4 Experiments on Solubility of Plain Lead and Antimonial Lead. T. M. Clague.—p. 757.
5 Painless Childbirth. W. A. Potts.—p. 758.
6 Id. M. Vivian.—p. 760.

Feb. 2, 1918, **1**, No. 2979

7 *Etiology of Diabetes Mellitus. R. T. Williamson.—p. 139.
8 Effect of Intermittent Stretching on Muscles and Nerves After Nerve Severance. J. N. Langley.—p. 141.
9 *Helpful Diagnostic Sign in Ruptured Digestive Ulcers. R. J. Willan.—p. 142.
10 Primary and Secondary Impetigo in Soldiers. H. MacCormac.—p. 143.
11 War Surgery of Chest. A. L. Lockwood and J. A. Nixon.—p. 145.
12 *Treatment of Infected Hemothorax. J. F. Dobson.—p. 148.
13 *Gunshot Injuries of Elbow Joint; Treatment by Early Excision. W. M. Shepherd.—p. 149.
14 Two Cases of Abscess of Testis Due to Bacillus Coli. W. G. Nash.—p. 149.

Feb. 16, 1918, **1**, No. 2981

15 Pyrogenic Therapy. A. G. Auld.—p. 195.
16 *Treatment of Wounds of Chest; with Special Reference to Infected Hemothorax. W. Hutchinson.—p. 196.
17 *Modern Treatment of Empyema by Antiseptics. R. A. Stoney.—p. 198.
18 Paralysis Following Arterial Injuries. H. Burrows.—p. 199.
19 Case of Rat Bite Fever Treated Successfully by Injections of Novarsenobillon. G. C. Low and R. P. Cockin.—p. 203.
20 Home Disinfection in Pulmonary Tuberculosis. E. L. Dove—p. 204.

1. **War Nephritis.**—Fifty-one cases are analyzed by Dunn and McNee. Dyspnea appears to be an unusually prominent symptom. It is, in the great majority of cases, the most outstanding complaint, and is almost always present on admission of the patient to the hospital. Very often it is the first and earliest symptom to appear, and in only two cases was there no history or evidence of breathlessness. Breathlessness was present in thirty-four cases; swelling of the face or legs in seven cases; pains in the head, epigastrium, or back in six cases; sore throat in three cases and cough and hoarseness in one case. In association with the dyspnea, cough is frequently present, and in some instances this is accompanied by tenacious expectoration. Even though cough is absent and always in its presence, auscultation of the chest reveals the presence of râles and rhonchi; the physical signs, however, are often slight in comparison with the degree of breathlessness. In only one case was considerable effusion into the chest discovered. Hoarseness (from laryngitis) was the initial complaint of one man, and sore throat of three others. In the latter cases, apart from some faucial redness, nothing could be seen amiss. Edema, while generally present, is frequently confined to the face alone. In many cases, however, it is also present in the legs, and a few examples of general anasarca have been met with. Definite ascites was seen only once. Fever was present in six cases only, the highest being 103.4 F. Uremia ensued in four cases. The urine, when the patient is first seen, generally contains a large amount of albumin. Casts are always present in the centrifugalized sediment, but are often far from numerous. Bacteriologic examination was made of thirty-five catheter specimens; fourteen were sterile; streptococci were found in fifteen, other bacteria in six. Forty acute cases were examined by blood culture. All the cultures remained sterile, even after prolonged incubation.

The authors suggest that the high albuminuria, often without obvious blood, the absence of oliguria, the frequent rapid decrease in the amount of albumin, the predominant dyspnea, and the general healthy appearance of the patient while obvious signs of nephritis are present, give collectively a rather characteristic picture differing from that of the average case of acute nephritis at home. The rapidity with which the initial symptoms of the nephritis may subside, after admission of patients to the hospital, is remarkable. It is frequently so striking as to suggest that the mere transfer of the patient has brought about discontinuance of the circumstances which caused the disease. From a consideration of the pathologic conditions no direct conclusion has been drawn regarding etiology, but some important facts have been ascertained. The visible alteration in the kidneys which is most constant and distinctive is limited to the capillary blood vessels of the glomeruli. The absence of definitely inflammatory reaction in these structures, and the uniformity and selective distribution of the lesions, suggest that they are due to the presence, in the blood stream, or a mildly irritant agent with a special effect on the small blood vessels. The edema of subcutaneous tissue, and the vascular lesions in the lungs and the brain are probably due to the same factor. The minute cerebral hemorrhages which are occasionally present in nephritis are of exactly similar character to those which frequently occur after poisoning by phosgene. In fatal cases of war nephritis the pulmonary air passages are frequently the seat of lesions which bear some resemblance to those produced by irritant gases.

2. **Hemagglutinin Reaction.**—Bond claims that by the addition of a hemagglutinin to a liquor puris or a serum, one can induce the leukocytes to phagocytose native red cells—that is, red cells from the same blood—when incubated together. Isophagocytosis of red cells by pus cells may also be observed in pus from wounds in patients whose blood serum is hemagglutinative. Pus cells from "whole" pus (if it contains hemagglutinins of the right kind) will ingest washed human red cells more freely than washed pus cells from the same pus will digest them, although the washing in saline actually increases the activity of the cells by removing the bacterial toxins and tryptic content of the liquor puris. The difference in the two cases depends on the fact that hemagglutinins are present in the "whole" pus and absent in the washed cells. Moreover, no ingestion of red cells occurs if the "whole" pus is nonagglutinative. Putting all these facts together, Bond concludes that, so far as the phagocytosis of red cells by leukocytes is concerned, hemagglutinins also act as opsonins and prepare the red cells for ingestion.

3. **War Nephritis.**—Oliver suggests that in all cases in which pieces of shrapnel are retained in the body it would be well to have the patient's urine examined for lead. In some cases seen by him there seemed to be a distinct connection between albuminuria and retained shrapnel.

7. **Etiology of Diabetes Mellitus.**—The etiology in 300 cases of diabetes was carefully investigated by Williamson with the following results: History of prolonged great excess of sugar, sweet food, or sweet drinks (alone or combined with other predisposing causes) in 93 (= 31 per cent.). History of prolonged and intense mental anxiety, worry, overstrain, or sudden mental shock (alone or combined with other predisposing causes) in 120 (= 40 per cent.). Family history of diabetes (alone or combined) in 76 (= 25 per cent.). No definite predisposing cause in 59 (= 19 per cent.). Williamson considers it desirable for all to cut down sweet foods and drinks, chocolate, jam, sugar and alcohol to a minimum during the war, and especially for those who have a family history of diabetes, and are suffering from great mental strain or shock; they will thereby help the food controller and also diminish the risk of diabetes. Occupation and close attention to work are useful in diminishing the effects of mental worry and shock, and thereby the risk of diabetes, but in certain cases of excessive overwork it is desirable to cut off work not absolutely necessary, if this is possible; sleep is very important. The recent food restriction, as already mentioned, will check for most people any excess of sugar and alcohol, and will thus tend to diminish the risk of diabetes. Those who have been obliged through these restrictions to discontinue excess of alcohol or sugar should, however, not replace these by excess of nonalcoholic drinks containing much sugar, and excess of jam, chocolate and other sweet foods which may be still obtainable.

9. **Helpful Diagnostic Sign in Ruptured Ulcers.**—In cases of ruptured duodenal ulcer Willan has noted the presence of a transverse ring of constriction across the abdomen at the level of the lower margins of the ribs, and extending into the flanks on either side. The constriction does not always disappear with general anesthesia, although it does disappear when the condition has advanced to the stage of general abdominal distention. There is no marked hyperesthesia, and the patient is quite unconscious of any feeling of tightness at the site of the constriction. It is not confined to spare or emaciated persons, and is different altogether from the scaphoid abdomen seen in emaciation, etc. The appearance is as if an invisible rope was constricting the abdomen, dividing it into an upper portion which has a convex aspect centrally, and a normal lower part. Viewed laterally, the region of the rope forms the apex of a vertically situated obtuse angle. The ring of constriction corresponds to that portion of the anterior abdominal wall supplied by the ninth intercostal nerve, and is due to muscular contraction.

12. **Treatment of Infected Hemothorax.**—Dobson has treated cases of infected hemothorax by a method of irrigation through a special cannula which, he says, appears to be of promise. The curved silver cannula has no terminal aperture, and is perforated with twelve small holes. It is employed in the following manner: A sufficient opening is made into the chest by resection of a length of rib, preferably the eighth. Tuffier's spreader is then inserted, the pleural cavity wiped out, and perhaps a foreign body is removed or other complication dealt with. A point on the chest wall toward the upper limit of the cavity is selected where the cannula may most conveniently be introduced. This is usually in the third or fourth space, about or just external to the mammary line; a small incision is made through the skin, and the cannula pushed through the intercostal muscles into the chest. The tip of the cannula should point outward and downward, and the instrument is fixed in position by two sutures to the skin. The original incision is then closely sutured around a tube which may be long enough to reach into a bottle of antiseptic fluid. The tube of a Carrel ampoule is then attached to the cannula, and the cavity irrigated every two hours. A fine spray of fluid is thrown in every direction on to the lung and chest wall. The irrigation causes no distress; as the lung expands the point of the cannula is pressed against the chest wall and causes some pain; it should then be removed. For this reason it is desirable to insert it at some little distance from the anterior and upper limits of the cavity, otherwise it may have to be taken out before the infection is controlled. The infection is quickly controlled, the lung expands well, and the general condition of the patient improves very rapidly.

13. **Gunshot Injuries of Elbow-Joint Treated by Early Excision.**—Observation of fourteen cases has led Shepherd to the conclusion that excision of the elbow-joint in gunshot wounds offers the patient the best chance of combating the infection and of a rapid recovery with a movable joint. If excision can be performed without the removal of the heads of radius and ulna, the results are better and more quickly attained. Where possible the triceps insertion should always be preserved. The earlier the excision is performed the shorter is the illness and more perfect the result.

16. **Treatment of Chest Wounds.**—The method applied by Hutchinson in cases of infected hemothorax is as follows: As soon as a hemothorax is found to be infected the patient is taken to the operating room and nitrous oxid and oxygen administered. A portion of rib, long enough to allow the hand to be passed through the opening, is removed and the blood allowed to flow out. The clot is then removed by the hand, all parts of the cavity explored, and light adhesions broken down. Then by means of large pieces of gauze on dressing forceps the remainder of blood and clot is removed. After this the cavity should be washed out with saline and again mopped out and a running suture inserted in such a way as to include the pleura and intercostal muscles. This suture should be left quite loose, so that a small quantity of some antiseptic can be poured into the pleural cavity. This antiseptic should be spread all over the walls of the cavity by means of a small piece of gauze on long dressing forceps. As soon as this has been done the running suture is drawn tight, thus closing the pleural cavity completely. The muscles and skin are then closed and a dry dressing applied. Forty-eight hours after the operation the chest should be aspirated, thus removing a quantity of serum and air. Three or four aspirations are necessary during the course of convalescence. The antiseptics which Hutchinson has used in these cases include eusol solution, 1 in 2; a suspension of bipp in liquid paraffin in the following proportions: one-half ounce of bipp, 6 ounces of paraffin; flavine solution 1 in 5,000, and normal saline, the amount left in the chest being 3 ounces. The results obtained in twenty-nine cases treated in this manner have led Hutchinson to prefer the bipp treatment. Certain

type of infection lend themselves to this form of treatment better than others, such as *B. aerogenes-capsulatus.*

17. **Treatment of Emypema by Antiseptics.**—Stoney is convinced that most if not all cases of empyema can be cured without resort to such mutilating and dangerous operations as thoracoplasty and pulmonary decortication, because it is not necessary to obliterate the pleural space, but merely to render its walls sterile, and this is possible by frequent washings with hypochlorite solutions. Flushing of the pleural cavity with hypochlorite solution is not dangerous provided there is a free exit for the fluid, as by the use of a double drainage tube. The earlier this treatment is instituted the sooner and more surely will a cure be obtained, as there will be less formation of granulation and scar tissue, and the organisms will not have had time to entrench themselves deeply in the tissues, and will therefore be more exposed to the action of the antiseptic. The drainage should be free, and the opening should not be valvular; if a Carrel tube is used it should be introduced as far as possible into the pleural cavity through a large drainage tube, so that the fluid, starting at the most remote part of the septic space, passes down over its walls and escapes freely between the Carrel tube and the drainage tube. The opening is most sutiably made by removing 1 inch of the eighth rib in the scapular line, as this is the most dependent spot for practically all positions, and there is no fear of its closure by the rising diaphragm.

### Journal of Laryngology, Rhinology and Otology, London

February, 1918, **33**, No. 2

21 Fifty Cases of Innocent Laryngeal Growths. A. Wylie; with Pathologic Report. W. Wingrave.—p. 33.
22 Primary Tuberculosis of Faucial Tonsils in Children. A. P. Mitchell.—p. 40.
23 Atresia of Choane; Simple Device for Prevention of Reformation of Obstruction After Its Removal. A. J. Brady.—p. 49.
24 Ossiculectomy in Chronic Adhesive Otitis. A. J. Brady.—p. 50.
25 Deafness Due to Placing Candle Grease in External Auditory Meatus. G. E. W. Henderson.—p. 51.

### Journal of State Medicine, London

February, 1918, **26**, No. 2.

26 Value and Importance of Physical Exercises from National Standpoint. W. Milligan.—p. 33.
27 Treatment and Training of Cases of Surgical Tuberculosis. H. J. Gauvain.—p. 44.
28 Welfare Work and Public Health. B. S. Rowntree.—p. 51.

### Lancet, London

Feb. 16, 1918, **1**, No. 4929

29 Syphilis of Central Nervous System: with Special Reference to Use of Novarsenobillon. H. Carlill.—p. 243.
30 *Wolff's Law of Bone Transformation. A. Keith.—p. 250.
31 Case of Rat Bite Fever. S. R. Douglas, L. Colebrook and A. Fleming.—p. 253.
32 *Preservation of Typhoid and Paratyphoid Bacilli in Stools by Emulsifying in Glycerin. T. H. C. Benians.—p. 255.
33 *Action of Acriflavine and Proflavine. W. P. Morgan.—p. 256.

30. **Wolff's Law of Bone Transformation.**—Keith urges that the orthopedic surgeon should cultivate a close observance of the behavior of osteoblasts. If he understands them fully and treats them rightly, they can prove his most helpful friends; if he ignores them, they can and do prove obstinate. In the first place, as the author has seen from their behavior in grafts, they must be subjected to stresses; stress is as necessary for their health and activity as exercise is for the living body. The mode in which they build and the lines along which they will deposit their building material are determined by the forces which are brought to bear on them. They can, by manipulating such force, be made to build as we will. They can be stimulated to overwork in many ways. By beating the external condyle of the femur with a mallet, the bone cells will build up a rampart which prevents the outward dislocation of the patella. Injury to a bone excites every osteoblast in that bone; diaphyseal growth disks act as buffers in limiting the radiation of a stimulus. Acute inflammation increases their activity and destroys their sensitiveness to pressures. The study of diseased conditions brings out other qualities of osteoblasts. In giants they become stimulated to an extraordinary degree by a certain substance or substances derived from the pituitary body; in certain forms of dwarfs this elixir of growth is withheld. In acromegaly growth is again reawakened under a pituitary derivative—a growth which chiefly affects cartilage covered areas of bone, areas which are constantly subjected to pressure and movement. Paget's disease is quite another disturbance in the life of osteoblasts. They are no longer acutely sensitive to the stresses which fall on the skeleton; they lose their engineering qualities and lay down their materials clumsily. The study of many other conditions, such as achondroplasia, periosteal dystrophy, rickets, mollities ossium, fragilitas ossium, throws sidelights on the complex nature of osteoblasts.

32. **Preservation of Thyroid Bacilli in Stools.**—Benians' experiments support the work of Teague and Clurman, and show that if fecal specimens destined to be examined for the enteric organisms have to submit to delay in transport or for any other reason, it would be well if they were first emulsified in 30 per cent. glycerin; a positive result is then much more likely to be obtained. This is especially true in warm weather and in hot countries.

33. **Action of Acriflavine.**—Morgan found that acriflavine is, as regards both its antiseptic and toxic properties, more potent than proflavine. It has a very marked bactericidal inhibiting action on streptococci and a less marked on staphylococci, but on some other organisms its effect is practically insignificant. Its action is therefore strikingly selective. It has a marked but slow toxic action on the tissue. This toxic action of acriflavine is not so great that it should not make when used in dilute solution (say 1 to 4,000) an efficient application in a dressing for a wound infected with streptococcus or staphylococcus. It should be applied after the wound has been thoroughly cleansed by washing, first with a rapidly acting antiseptic lotion, such as neutral solution of chlorinated soda, and then by physiologic sodium chlorid solution.

### Medical Journal of Australia, Sydney

Feb. 2, 1918, **1**, No. 5

34 Military Orthopedics. V. Hurley and H. R. G. Poate.—p. 81.
35 Gunshot Wounds of Knee Joint. F. L. Gill.—p. 84.

### Archives des Maladies du Cœur, Paris

January, 1918, **11**, No. 1

36 *Blood Pressure in Typhus. D. Danielopolu and D. Simici.—p. 1.
37 Fragility of Heart in African Troops. A. Mougeot.—p. 12.
38 *Cardiovascular Disturbances in Typhus. J. Heitz.—p. 38.

36. **Blood Pressure in Typhus.**—Danielopolu and Simici recorded the blood pressure systematically in eighty-four typhus patients during the course of the disease and after defervescence. The maximal tension was generally found low, the minimal tension low also, but to a lesser extent. This drop in tension is due less to weakness of the myocardium than to the more or less generalized vasodilation. The latter is accompanied by extreme asthenia and these symptoms keep up and may even increase after defervescence. The asthenia persists for weeks and even months after recovery, and the arterial pressure keeps low. They found profound lesions in the suprarenal capsules, especially in the cases with particularly low pressure and asthenia. In one case of sudden death in typhus the medullary substance was transformed into a hemorrhagic pulpy mass, but some physicians have reported that the suprarenals were apparently sound in their cases that came to necropsy. Another suggestive fact is that injection of epinephrin does not induce the usual reaction. The response is less, the severer the case; there is no reaction to the intradermal tuberculin test in severe typhus, and no abscess after injection of turpentine.

38. **Cardiovascular Symptoms in Typhus.**—Heitz compares some old and recent descriptions of typhus. The fourteenth and fifteenth days seem to be the culminating point of the danger. Obliterating arteritis of the legs was frequent and definite lesions were often left in the myocardium.

### Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 23, 1917, **41**, No. 32

39 *Induced Diagnostic Eruption in Measles. H. Godlewski.—p. 1151.
40 *Serotherapy of Spirochete Jaundice. L. Martin and A. Pettit. —p. 1156.
41 Suprarenal Tuberculosis in Young Man. R. M. Martin.—p. 1161.
42 *Cholalemia in Jaundice. M. Garnier and J. Reilly.—p. 1163.
43 Autochthonous Malaria. V. Raymond.—p. 1167.
44 *Acute Gastritis in the Gassed. F. Ramond, A. Petit and P. A. Carrié.—p. 1169.
45 *Paratyphoid B Fever. G. Etienne and J. Mondelange.—p. 1173.
46 Acute Liver-Kidney Intoxication with Azotemia. L. Giroux and M. Rechner.—p. 1175.
47 *The Gonococcus Pus Under Potassium Permanganate. J. Maheu. p. 1178.

39. **Induced Diagnostic Eruption in Measles.**—Godlewski gives a colored plate of the findings when dry cupping is applied to the chest or back for thirty, forty or fifty seconds. On 200 healthy persons there was left a whitish ring where the cup had rested. When applied to a person during the incubation stage of measles, three days before the eruption appeared, a reddish ring was seen, the skin looking as if it were stippled with red in the form of a circle. If applied forty-eight hours before the eruption, the red circle is much wider and the color deeper; twelve hours before the eruption the red circle is still wider and the color veers more to purple. This induced erythema reaches its height in three and a half minutes and then subsides, lingering sometimes up to ten minutes. This test was applied to 218 persons and the eighteen giving a positive reaction developed a typical measles eruption four or five days afterward. The subjects included children and adults; in each case there was nothing to suggest measles at the time except this ring of induced erythema. The color deepens the closer to the date of the measles eruption. Godlewski relates that ten cases of what seemed to be measles developed in epidemic form in one barrack, but this cupping glass test was negative, and the assumption of measles was disproved by the course of the cases. He has had no opportunity to apply the test thoroughly in scarlet fever, but it was negative in the two cases tested. If time and experience confirm the reliability of this reddish crown induced by the cupping glass as a sign of incipient measles, it will prove useful in camps and institutions to weed out the cases of measles without waiting for the eruption.

40. **Antispirochete Serotherapy.**—Martin and Pettit cite conflicting testimony as to the value of the serum now being made for spirochetosis icterohemorrhagiae.

42. **Influence of the Bile Salts in the Blood on the Course of Spirochete Jaundice.**—The data presented by Garnier and Reilly apparently confirm the assumption that the bile salts have a destructive action on the spirochetes. When the bile salts in the blood reach a certain level, then the septicemia stops. The various forms of the disease, the cyclic, the irregular, the transient and recurring and the abortive cases seem to be all conditioned by the variations in the excretion of the bile salts. An emulsion of liver tissue from a guinea-pig that has died from spirochetosis icterohemorrhagiae, loses its virulence when treated with a little human or beef bile or guinea pig bile. After the clinical jaundice had lasted two or three days, inoculation with the blood was always negative. The fever runs up again when only the bile pigment is getting into the blood and the active part of the bile is no longer diverted from its normal route. Definite defervescence occurs when the organism has manufactured enough antibodies to assure immunity. Otherwise the temperature keeps normal while the Hay reaction is positive; fever returns when this reaction veers to negative.

44. **Acute Gastritis in the Gassed.**—After a period of persisting nausea with vomiting and possibly hematemesis, lasting a few hours or days, there follows an acute gastritis, with pains in stomach and esophagus, and sometimes sensations of intense hunger. Vomiting and pyrosis follow immediately after eating. There may be an acute febrile gastro-enteritis for about two weeks. After this conditions may return to normal but generally the men are left with dyspepsia. They lose their appetite and feel languid and drowsy after eating, with a sense of oppression in the stomach region, and they cannot bear even the weight of the hand on the stomach region at night, but nothing objective can be found to explain these disturbances. Necropsy of the gassed, however, has shown hyperemia of the mucosa of the alimentary canal with hemorrhagic suffusions.

45. **Paratyphoid B.**—A restaurant waitress ate a can of spoiled salmon and developed an extremely grave choleriform intoxication, evidently from the toxins already in the can. The ninth day symptoms of paratyphoid fever developed. The germs had evidently required eight days for their incubation.

47. **Gonococcus Pus under Potassium Permanganate.**—Maheu has been keeping microscopic control over the urethral secretions of thirty-four men with gonorrhea who had been given a course of treatment with intramuscular injections of permanganate. In a week the number of gonococci in each islet is considerably smaller although the number of islets keeps about the same. The pus persists abundant but the nuclei of the cells show fragmentation and large macrophages follow directly after the polynuclears. The gonococci at this stage show that they are suffering.

### Journal de Chirurgie, Paris

February, 1918, **14**, No. 3

48 *Suture of Old Infected War Fractures. M. Guillot and H. Woimant.—p. 217.
49 *Gas Gangrene. E. Job and E. Roux.—p. 233.
50 Hernia of Stomach through Diaphragm. P. Lecène.—p. 247.

48. **Suture of Old Infected Fractures.**—Guillot and Woimant write to extol the advantages of applying the Carrel method in cases of old bone lesions with fistulas, and also in cases of fractures several days after evacuation. They say that fully 50 per cent. of the men with fracture of the femur still have a fistula a year after the fracture unless they have been amputated. By applying the Carrel method to these old cases we not only heal them up but we avoid the functional disturbances from sclerosis, and we are able to get consolidation when this has not occurred properly. They describe the various steps of the Carrel procedure as applied to these cases, the preliminary disinfection under bacteriologic control, the operation, the sterilization of the focus, and the closure of the wound. When the cavity has to be filled up before suture is possible, they found that a graft of adipose tissue answered the purpose better than Beck's paste or other substances, as it is always available close by, and it keeps its place even if the wound gapes. Certain precautions were found necessary with it, however. The article is illustrated and the encouraging experiments with the first fifty cases thus treated are reviewed. They thus cured 70 per cent. of ten cases of fracture of the femur, that came into their hands six, ten, twenty-seven up to ninety days after the fracturing wound. The cure was complete in nine, eleven, fifteen up to fifty-one days, an average of twenty-six days. Two of the other cases are still in treatment, and one healed spontaneously. In none of the series of fifty cases was amputation required, and there were no deaths.

49. **Gas Gangrene.**—Job and Roux relate that the perfringens seemed to be solely responsible for the gas phlegmons and gas gangrene in the eleven cases they have encountered.

### Lyon Médical

January, 1918, **127**, No. 1

51 *Vincent's Angina. Deglos.—p. 3.
52 Peptic Jejunal Ulcer after Gastro-Enterostomy; Three Cases. J. Guérin.—p. 12.

51. **Vincent's Angina.**—Deglos found twenty-one cases of ulceromembranous stomatitis, Vincent's angina, among 255 men with sore throat sent to his contagious diseases hospital. The men were usually young, and the onset of the angina had been insidious, but in all there was a swollen and painful gland at the angle of the jaw on the same side, and all seemed depressed and pale. The reds usually numbered less than normal, down to 3,000,000, the whites about 10,000. Bacteriologic examination is indispensable. The "fusospirillar" symbiosis was pure in all his cases. Good

results were realized by repeated application of a 10 per cent. solution of methylene blue after clearing out the contents of the ulcer and swabbing with a solution of silver nitrate. In certain rebellious cases a single intravenous injection of neosalvarsan, 0.3 gm. in 2 or 3 c.c. of double distilled water, led to the almost complete healing of quite deep ulcerations in from four to six days. A second injection four days after the first was followed by complete recovery in eight or nine days. Otherwise the stomatitis lasted up to several weeks in some cases notwithstanding vigorous local treatment.

### Paris Médical

Jan. 26, 1918, **8**, No. 4

53 *Contracture of the Hand. R. Dumas.—p. 65.
54 Technic for Heliotherapy. Cololian.—p. 69.
55 Gardening for Convalescent Soldiers. A. Subercaze and J. Galup.—p. 74.
56 *Siphon Sterilization of the Pleura. Costantini and Vigot.—p. 78.

53. **Contracture of the Hand.**—Dumas refers particularly to what is called Volkmann's contracture. It is absolutely irreducible even under anesthesia, the trouble being a retraction more than a contracture. He explains it as a lesion of the median and ulnar nerves; this entails the temporary or definite paralysis of the extensors of the last phalanges. They become sclerosed in time as they are thus immobilized, and this is what fastens the retraction so that it can be corrected only by an operation. Treatment should be applied before this stage is reached, and the treatment required does not differ from that for any similar nervous affection of the hand. After fracture of the arm at any point, or contusion or abscess or any trouble liable to injure these nerves, the physician should bear in mind the possibility of this type of contracture, and should examine the fingers every day to see that extension occurs normally. At the slightest sign of disturbance in the sensory or motor functioning of the small muscles of the hand, all causes of compression of the nerves must be removed without the slightest delay, the cast removed, the part dressed over again. The muscles menaced should be massaged twice a day if possible, and the flexor tendons stretched repeatedly in hyperextension. At night the fingers should be immobilized on a board in complete extension. The patient should keep repeating the useful active movements.

56. **Carrel Drainage of the Pleura.**—Costantini describes the technic for application of the Carrel-Dakin method to clear out and sterilize the pleural cavity.

### Presse Médicale, Paris

Feb. 7, 1918, **26**, No. 8

57 *Shock in the Wounded. E. Quénu.—p. 69.
58 *Typhus. L. Muratet.—p. 70.
59 Pseudo-Aneurysms. N. A. Dobrovolsky.—p. 72.

Feb. 14, 1918, **26**, No. 9

60 Errors in Technic with the Wassermann Reaction. Leredde and Rubinstein.—p. 77.
61 *Reduction in Normal Transparency of the Apices in Tuberculosis. H. Lebon.—p. 78.

57. **Shock with War Wounds.**—Quénu urges in treatment of shock immediate amputation if the damage is such that conservation is out of the question. If conservative measures are possible, he advocates applying some substance that will keep the tissues in the status quo, possibly preceding it with some hypertonic fluid. In this way the man could be safely left undisturbed until he had recuperated from the state of shock, and then the operation could be done under more favorable conditions. Quénu mentions that the stretcher bearers say that the wounded are seldom in a state of shock at first, that is, within an hour of the wound. The immediate shock, the nervous shock, is comparatively rare. When it is encountered, the wise plan is to defer the operation until the shock and the effects of the chilling, the fatigue, loss of blood, etc., have worn off and the blood pressure has risen somewhat. Further loss of blood should be prevented, the vessel ligated and epinephrin injected. This should be done regardless of shock, and heat applied. Probably Mencière's guaiacol solution might answer for treatment of the wound to prevent absorption from it. (The formula for this was given March 23, 1918, p. 893.) Secondary shock is always complex; absorption of septic matters is superposed on the other elements of shock. Prophylaxis of shock and the arrest of developed shock are effectual only during the immediate or primary phases.

58. **Typhus.**—Muratet remarks that no case of typhus has been known in the French and British armies since the beginning of the war to date, but Netter recently reported six cases in civilians at Paris. This shows that typhus is a constant menace, and if a person with typhus should bring the germs to the trenches there might be a serious epidemic. Typhus should be suspected by the sudden stormy onset; the fever running up to 104 or even 106 F., keeping at this height without much remissions; the small weak pulse of 110 or 120; the congestion in all the mucous membranes and the conjunctivitis, the erythematous sore throat and the presence of red spots from 1 to 3 mm. in diameter on the palate. There may be from five to fifteen of these spots the first and second day; by the third day they blanch and disappear. The petechial eruption begins from the second to the fifth day; it can be brought out by scrubbing the arm or chest or applying a ligature to the root of a member, before any general eruption. The brain symptoms may be intense from the first, but the extreme prostration is a pronounced symptom, even in the abortive cases. Inoculation of a guinea-pig with 2 or 2.5 c.c. of blood from the patient will solve all doubts. The results with serotherapy are promising. The serum is obtained from a horse inoculated with spleen or suprarenal tissue from guinea-pigs with experimental typhus.

61. **Reduction in Transparency of Normal Lung.**—Lebon expatiates on the misleading findings possible even in the normal lung. The obese and persons with thick muscles are less transparent to the roentgen rays than others; if the apical regions are not fully transparent this need not imply a bilateral lesion. The apices may not dilate evenly on both sides during inspiration, and the right apex is nearly always less transparent than the left apex. Persons who have been long in bed may have an area of dulness over each apex, and the same factors responsible for this may render the apices less transparent. The difference in the size of the bronchi aids in rendering respiration asymmetrical. Hence a slight haze over the right apex, and exceptionally over the left, is not incompatible with the integrity of the lungs. Sometimes the clavicle interferes with roentgenoscopy, and only by having the patient cough can we get a glimpse of the apex as the clavicle is transiently lowered during the cough. Examination from the rear is more instructive. A radiograph of the apex alone, taken in apnea, with brief exposure, usually is decisive; roentgenoscopy alone may not suffice. Even with small lesions, revealed by auscultation, the roentgen findings may be negative. In Lebon's experience, positive roentgen findings were always accompanied by positive auscultation signs. He warns that a haze over both apices, without stethoscopic signs, is by no means a reason for assuming a tuberculous lesion. When one apex alone seems veiled, this is much more suggestive, but even this does not justify the diagnosis of tuberculosis if the stethoscope is negative. Only when the roentgen, auscultation and percussion findings harmonize, can we regard as certain the probabilities of a tuberculous apical lesion.

### Progrès Médical, Paris

Feb. 9, 1918, **33**, No. 6

62 *Shock. J. L. R. Berger and H. Vignes.—p. 49.
63 Factitious Jaundice. M. Dugardin.—p. 53.

62. **Shock in the Wounded.**—Berger and Vignes protest against the blanket term "shock" which adds an element of mystery to what is already clearly known. Instead of saying shock in the gassed, septicemic shock, shock from concussion, let us drop this vague term and speak only of the gassing, the septicemia, the condition after concussion, etc. As long as we depend on impressions rather than on carefully observed facts, there is little chance of learning the true essence of

shock and whether it is a definite entity, independent of the hemorrhage, the chilling, the pain and the emotional stress. The condition we call shock is remarkably like that from rapid anemia. The hemorrhage in the wounded is always profuse, and the intense emotion felt by the wounded, his inability to seek shelter, the pain, the chilling for hours, and the long trip on the stretcher, possibly also incipient infection—all these amply explain the difference between the condition after the simple hemorrhages of peace and the condition of the war wounded, without calling on any further morbid entities to explain the condition we call shock. Treatment should be addressed to the factors we are sure of: the chilling, the low blood pressure, with morphin and suprarenal extract, and lowering the man's head.

### Revue Médicale de la Suisse Romande, Geneva

January, 1918, **38**, No. 1

64 *Carcinosis of the Lung. L. Bard.—p. 1.
65 *Forms of Uremia. F. Heim and J. Tchertkoff.—p. 15.
66 *Sacral Meningocele. S. Roux.—p. 47.

64. **Cancerous Lymphangitis of the Lungs.**—Bard says that very little has been published on generalized cancerous lymphangitis of the lung, but he has encountered several cases of it. The clinical picture is entirely different from that with lymphangitis from direct encroachment of the cancer, and also from that with cancer of the serous membrane without participation of the deeper tissues of the lung. It sometimes has been known to occur isolated, without any metastatic nodule in the lungs, and both lungs may be uniformly involved. The pleuropulmonary lymphatics form a converging apparatus different from that with any other organ, and the physiologic mechanism facilitates retrograde aspiration of the lymph into the entire system of lymphatics in the lungs, and thus the extension of the malignant process. Only two cases have been diagnosed during life, and it is probable that many cases have been overlooked at necropsy. In those two cases, a man of 39 and a woman of 36 had gastric cancer; the abrupt development of râles, cough and dyspnea suggested generalized lymphangitis, which was confirmed by the necropsy. There was some fever but not much leukocytosis. The pulmonary disturbances run a rapidly fatal course, sometimes in two or three days and never longer than three or four weeks, after the onset of the dyspnea which auscultation does not explain. Gastric cancer in the young usually runs a rapid course, with pains, and this generalized lymphangitis is one of its special features. The lymphangitis may prove puzzling if the primary tumor is not known. The rapid extension of the cancer toward the peritoneum explains the early involvement of the lymphatics. He has never encountered this generalized lymphangitis except with malignant disease of the stomach.

65. **Clinical Forms of Uremia.**—Heim and Tchertkoff emphasize the difference in the clinical picture when uremia is from retention of chlorids or from retention of urea, or there is pseudo-uremia from cardiovascular disturbance. With the latter, the symptoms are not due to retention of certain substances ingested or produced in metabolism, but they are the result of purely circulatory disturbance in the nerve centers, the arteriosclerosis in the kidneys being merely a local manifestation of the general arteriosclerosis. The clinical picture is thus a pseudo-uremia. They tabulate in great detail for comparison the symptoms of these three clinical forms of uremia. The first type, tending to convulsions, chloridemia, occurs mostly in the young; the true uremia, at all ages, and the pseudo-uremia after 40. Recovery is the rule in the first type; death is inevitable with true uremia, but the pseudo-uremia permits long survival. Treatment of the first type merely requires restriction of salt and water. In the second type, restriction of albuminous food and of salt, with copious intake of water. The third type, the pseudo-uremia, requires some restriction of fluids, with rest for body and mind, and eventually tonics and stimulants for the heart. Ten cases are described in detail to illustrate these various types and their possible coincidence. In the first type, the disturbances are essentially of a mechanical nature from the retention of salt and water. The disturbances in the second type, true uremia, are essentially toxic; urea and indican are the main toxic substances to be incriminated. The third type, the arteriosclerosis type, entails symptoms resembling those of true uremia, but they are merely the result of deranged circulation. It is not difficult to trace each symptom observed to one of these three types, with the indications for treatment which proceed therefrom. Detection of indican in the blood is a simple and certain means to reveal true uremia, and the writers' further experience has confirmed the reliability of their test for indicanemia. (It was described in The Journal, Oct. 6, 1917, p. 1206.)

66. **Anterior Spina Bifida.**—Roux states that an anterior sacral meningocele should be suspected when an elastic or fluctuating tumor, with a smooth surface, can be palpated back of the rectum or of the uterus, evidently fastened to the sacrum and without connection with the uterine adnexa. The symptoms are those of any tumor in the pelvis, compressing the rectum and bladder. Malformation of the sacrum is sometimes apparent and malformations elsewhere may give the clue. She has found twelve cases in the literature of the last sixty years, all in women from 19 to 36 years old, which she summarizes, and then reports in detail a case in a boy of 8. The meningocele was evacuated and the opening into the spine sutured with catgut and the walls of the cyst were excised, with favorable outcome. The pressure on the rectum had caused disturbances from birth. There were never any spontaneous formed stools, on account of the "stenosis of the rectum," and a kind of glove-stretcher instrument was used every day for a year to stretch the rectum. There was also some incontinence of urine during the day, never at night. The internists consulted ascribed the trouble to nervous factors or stenosis of the urethra, but examination under general anesthesia revealed the anterior sacral cyst.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Jan. 12, 1918, **48**, No. 2

67 *Pyelitis in Children. E. Wieland.—p. 33. Continued.
68 *Symptom of Atrophy of the Retina. A. Vogt.—p. 51.
69 *Tuberculous Ascites. L. Gelpke.—p. 55.
70 Ready To Use Ampules for Subcutaneous Injection. V. Kühne. —p. 56.

67. Summarized in The Journal, March 16, p. 817.

68. **Ophthalmoscopic Symptom of Atrophy of the Retina.**—Vogt expatiates on the valuable information to be derived from the use of a light free from red rays in examining the fundus of the eye. He gives five colored illustrations showing the difference between the sound and the atrophied retina in this light. It is possible thus to differentiate disease in the retina and optic nerve long before the retrobulbar neuritis shows in the papilla.

69. **Tuberculous Ascites.**—Gelpke warns against removing recent tuberculous effusions. All the patients operated on for tuberculous peritonitis within two months of its apparent onset have died, in his experience with 100 cases, and similar evil experiences have been reported by Thöne at Göttingen and from the clinics at Berne, Tübingen, Bonn and Heidelberg, all the patients dying sooner or later after the operative intervention. Clinical observation and animal experimentation, he declares, seem to render it highly probable that fresh tuberculous effusions contain some curative agencies. Only the old effusions, from three to five months old, should be removed. After they are removed there follows spontaneously a new, curative effusion. At least this is the view now held by many clinicians, and to which Gelpke has been converted by his experiences since 1896 in over 100 cases.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Jan. 10, 1918, **39**, No. 3

71 *Trophic Lesions in the Face. G. Talamo.—p. 27.

71. **Trophic Changes in the Face.**—Talamo's three patients were men and women from 42 to 60 years old. The left cheek was the seat of the partial atrophy in one case, and the condyles of the jaw in the oldest woman. She applied

for treatment of bilateral dislocation of the lower jaw. Both condyles had wasted practically away while the coronoid processes had greatly enlarged. The face had a myxedematous, waxy aspect, and there was cranial glaucoma with atrophy of the papilla. The hypertrophy of the coronoid processes seems to have been the primary disturbance. In the man, the lower jaw had enlarged. The chin during the last six months protruded forward in a peak and the condyles could be felt as abnormally small. The Wassermann test was positive in all. Talamo concludes from his study of these cases that neuritis of the trigeminal nerve is the primary cause, and that syphilis or some irritation of mechanical origin, is responsible for the neuritis.

### Policlinico, Rome

Jan. 20, 1918, **25**, No. 3

72 Epidemic Meningitis. M. Rizzi.—p. 54.
73 Present Status of Vaccination against Paratyphoid A. V. Forli.—p. 56.

Jan. 27, 1918, **25**, No. 4

74 *The Work of the Modern Medical Clinic. V. Ascoli.—p. 81. Commenced in No. 2.
75 Nervous Sequels of Skull Wounds. G. Dragotti.—p. 87.
76 Abuse of Tincture of Iodin. A. di Sant'Agnese.—p. 89.

74. **The Present Tasks of Clinical Medicine.**—This article is the address delivered by Ascoli on assuming the chair of clinical medicine at the University of Rome as successor to Baccelli. He emphasized that the scientific study of the sick man plus social sympathy, fecundated with a passionate love of truth and intense altruistic zeal, are bound to ensure the success of any school of clinical medicine. The modern clinic is concentrating its energies more and more on the sick man. It is growing more refined, more human, it insists on more scrupulous hospital care, and it is participating more and more in the solution of social problems. For the exercise of such comprehensive and arduous functions, the physician requires capacity and trained powers of observation in the organic and psychic fields; a wealth of scientific knowledge and a trained memory; lively imagination and a severely critical spirit; ethical and social sentiments, prompt decision and practical common sense. The practice of the profession harmonizes and balances these various elements.

### Riforma Medica, Naples

Jan. 19, 1918, **34**, No. 3

77 *Mercurial Treatment of Nervous plus Renal Syphilis. C. B. Farmachidis.—p. 42.
78 *Suppurative Paranephritis Following Tonsillitis; Two Cases. R. Botteselle.—p. 44.

Jan. 26, 1918, **34**, No. 4

79 *War Nephritis. A. Cecconi.—p. 62.
80 *Iodin Urine Reaction. C. Pezzi and V. Forli.—p. 68.
81 Mouth Infection and Metastasis. B. de Vecchis.—p. 71.

77. **Specific Treatment of Endocranial plus Renal Syphilis.**—The symptoms from the diseased kidneys suggested at first that the cerebral symptoms were from the uremia, but the symptoms pointed to a tumor in the cerebellum and the positive Wassermann reaction called for specific treatment. The coexistent renal symptoms warned of the necessity for caution, but they subsided along with all the other symptoms under vigorous mercurial treatment. Concomitant kidney lesions therefore need not always be regarded as contraindicating mercurial treatment of syphilitics. It is imperative, however, to keep constant watch over the urine, and to commence with small doses.

78. **Paranephritis after Tonsillitis.**—Botteselle says that in two cases described, no other cause for the suppurating process in the adipose capsule of the kidney could be discovered except the tonsillitis just before. The patients were two young women and the staphylococcus was found in one, the streptococcus in the other.

79. **War Nephritis.**—Ceconi found a history of recent tonsillitis, acute articular rheumatism or severe chilling in a large proportion of cases of acute nephritis in soldiers on active service; in others there was pyorrhea, otitis or furuncles, but in fully 50 per cent. of the cases nothing could be found to throw light on its origin, notwithstanding its more or less epidemic character. Influenza, intestinal infection, food deficiencies and a preceding catarrhal cystitis—none of these could be actually incriminated in his cases. There is much to sustain the assumption, he thinks, that the war nephritis is a hitherto undescribed infectious disease. It seems to have been known in Russia in times of peace, and also during preceding wars. Some recent German writers on the subject are inclined to regard it as the work of the same germs which are responsible for the acute edema without albuminuria which has also been observed in almost epidemic form in some regions. The blood vessels seem to bear the brunt of the attack, and the vascular lesions are liable to retrogress completely with early and complete recovery in both these diseases. In conclusion Ceconi queries whether there may not be some connection between typhus, relapsing fever and these epidemics of acute edema and acute nephritis, besides their sharing certain factors of privations and vermin.

80. **The Iodin Urine Reaction.**—Pezzi and Forli were never able to obtain Petzetakis' iodoreaction in urine from healthy persons, or it was so faint as to be negligible, as also in most acute febrile diseases. In typhoid and paratyphoid, on the other hand, it was pronounced, and this occurred early in the disease. It thus has differential importance for the early diagnosis, while the technic is simple and easy. The reaction is often positive also in tuberculosis but it rarely happens that these two diseases are liable to be confused. To about 15 or 20 c.c., of filtered urine in the test tube are added 3 drops of a 5 per cent. alcoholic solution of iodin. The tube is lightly agitated until the reagent mixes with the urine in the upper part of the column of fluid for about 2 cm. With a positive reaction, the upper part of the fluid turns bright yellow, the tint more or less distinct but always clearly defined against the fluid below. With a negative reaction there is no change in tint.

### Rivista di Clinica Pediatrica, Florence

January, 1918, **16**. No. 1

82 Visceral Syphilis in Sixteen Young Infants. G. Menabuoni.—p. 1.

### Archivos Españoles de Pediatria, Madrid

November, 1917, **1**, No. 1

83 *The Throat and the Skin in Scarlet Fever. M. Vargas.—p. 3.
84 *Disease of the Tibial Tubercle. A. L. Duran.—p. 17.
85 Enterococcus Otitis Media. C. J. Encina.—p. 44.

83. **Treatment and Prophylaxis of Scarlet Fever.**—Vargas has for years been treating the throat and skin in scarlet fever with a technic something like Milne's, but, he thinks, superior to the latter. When the treatment is systematically applied, the other children in the house do not contract the disease while the sick child is soothed, and rendered more comfortable. The throat is gargled every three or six hours or is swabbed out gently with a tepid mixture of 5 gm. sodium biborate; 100 c.c. of hydrogen dioxid of 10 volumes, and 400 gm. boiled water. After the gargling the mucosa is gently swabbed with a mixture of 0.1 gm. phenol; 0.01 gm. mercuric chlorid in 10 gm. each of water and glycerin. Three or four times a day a few drops of mentholized oil or phenolized liquid petrolatum are instilled into the nose. A teaspoon can be used for this if the child is unruly. Equally important is the sterilization of the skin, and for this he anoints the eruption patches with washed lard, containing 0.5 gm. thymol and 1 gm. phenol to 50 gm. of the lard. As the lard melts it absorbs more heat than other fats while the scales laden with the lard are not so apt to float about in the air. The children feel so much better from the anointing that they clamor for it. A cleansing bath is given every two days. Not only in his hospital service but in private homes with six or eight children, there has been no contagion from the primary cases given this treatment.

84. **Lesions of the Tibial Tubercle.**—Duran gives thirty-three roentgenograms. In six of his fourteen cases a detailed

roentgen study was made. Thirteen of the patients were encountered among the 6,500 patients at the public orthopedic surgery service of the Instituto Rubio at Madrid. The first symptoms had been observed from six weeks to four or five years before when he first saw the child. All complained of pain in the tubercle of the tibia, aggravated by walking or jumping and by palpation, and flexing the knee to the utmost was extremely painful. The tubercle region was always somewhat protuberant and sometimes quite hard and unduly warm, but there was never redness or fluctuation. The ages ranged from 9 to 21 and all were males except three. In five cases the lesion was bilateral, and in seven cases there was no history of trauma of any kind, and none of the patients played football or took part in other rough sports.

Violent contractions of the femoral quadriceps probably interfere with the circulation in the region, and the ossifying cartilage suffers. The consequence is an abnormal ossification of the cartilage of the tubercle, so the anomaly should be known as osteochondritis of the tibial tubercle or the tibial apophysitis of adolescents. The name of Schlatter's disease should be limited to cases of actual fracture of the tibial tubercle. Most writers agree that treatment should be restricted to immobilization with massage and mechanotherapy, but this takes from a month to two years; it has always proved successful in time. Duran preferred incising the soft parts over the tubercle for 2 or 3 cm., down to the bone, and then rapidly scraping the bone and suturing the skin. The whole procedure took less than ten minutes under general or local anesthesia, and all disturbances subsided in two weeks thereafter. He had applied conservative measures before, without benefit, and did not want to have to keep them up for a year or two longer.

### Cronica Medico-Quirurgica, Havana

January, 1918, **44**, No. 1

86 *Postoperative Results of Cataract. J. S. Fernandez.—p. 8.
87 *Filaria Hematuria. R. G. Lee.—p. 15.
88 *The Cardiorespiratory Syndrome in Rachitis. C. M. Garcia.—p. 18.
89 *Starvation Treatment of Diabetes. R. G. San Martin.—p. 20.
90 Inefficacy of Autogenous Vaccine Treatment of Trachoma. J. M. Penichet.—p. 22.
91 The Glands with an Internal Secretion. A. M. Crispin.—p. 26.
92 Sclerocystic Ovaritis. E. R. de Aragon.—p. 30.

86. **Cataract Operations.**—Santos Fernandez reviews the research to date on the pathogenesis of cataract, in search for ways and means to ward off secondary, postoperative cataract. The traumatism of the operation is probably responsible for the changes in the nutrition of the parts which seem to entail the secondary cataract.

87. **Filarial Hematuria.**—Lee has encountered eighteen cases of filariasis inducing hematuria, and reports excellent results from treatment with potassium iodid. He gives it in a solution of 32 gm. potassium iodid in 60 gm. water. Before the principal meals 5 and 6 drops are taken in two tablespoonfuls of water. These doses are increased by 5 drops at a time, until the patient is taking 40 and 50 drops, under constant supervision, reducing the doses on signs of intolerance. In some cases he reached the dose of 300 drops morning and evening. All the patients were cured with the exception of one still under treatment.

88. **The Cardiorespiratory Ratio in Rachitis.** — Garcia describes a typical case of subacute rachitis in a boy of 3 in which the puzzling symptoms were explained by the abnormal ratio between the heart beat and the respiration. The ratio in this case was 2:1 instead of the normal 4:1. This is Hess' sign of rachitis, and it gave in this case the clue to the phenomena.

89. **The Skin in the Starvation Treatment of Diabetes.**—San Martin has often found that the pruritus increased during the starvation days, but it then invariably declined and sometimes it disappeared completely when the patient kept within the tolerated diet. In one case of rebellious pruriginous eczema of the prepuce for eight years, in a diabetic of 40, rebellious to all treatment, the eczema subsided during the starvation days and did not return when the tolerated diet was gradually resumed. A woman of 65, diabetic for fourteen years, had had for a year a number of congested and pigmented patches, which itched intensely and there was desquamation in some. These patches became intensified during the starvation days and for two weeks after the urine had been cleared of sugar. Then the skin returned to normal. Later there was an attack of intercostal zona with a tendency to necrosis. She reduced her diet as a precautionary measure, but there was no recurrence of the diabetic symptoms and her skin soon recuperated and threw off the herpes zoster as if full of vitality.

### Prensa Medica Argentina, Buenos Aires

Dec. 30, 1917, **4**, No. 21

93 The Glands with an Internal Secretion. A. M. Crispin (New York).—p. 279.
94 *Blood Cyst in the Kidney. D. del Valle.—p. 280.
95 Venereal Granuloma Yielding to Antimony. A. H. Roffo and J. T. Zarate.—p. 283.
96 *Pituitary Body and Polyuria. B. A. Houssay and L. Romaña. —p. 284.

94. **Blood Cyst of the Kidney.**—Del Valle comments on the rarity of large blood cysts of the kidney. Israel reported only one in 297 operations on the kidney, and Albarran in twenty years of kidney surgery encountered only twenty-four. In a case reported, with the naked eye and microscopic findings, the man, a field hand of 48, had always been healthy until pain and swelling in the flank had attracted attention, two months before. On the assumption of an echinococcus cyst the tumor was removed through a transverse incision. The cyst was shelled out in its own capsule after incising the kidney capsule. There was considerable hemorrhage but several deep sutures were taken in the parenchyma cavity and except for hematuria for a few days smooth recovery followed. In practically all the other cases on record, nephrectomy was done, and Del Valle emphasizes the facility and good results with the technic he followed, saving the kidney.

96. **The Pituitary Body and Polyuria.**—Houssay and Romaña report the results of extensive experimental and clinical research on the action of pituitary extracts. In different concentrations and in different species they seem to have a vasoconstricting action on the kidneys sometimes, and sometimes a vasodilating action. Nothing observed sustains the assumption that polyuria is the result of pituitary insufficiency, or that the active substances—such as are found in the pituitary extracts—pass into the cerebrospinal fluid. Puncture within a small area of the base of the brain constantly induced polyuria, but not outside of this area, and the pituitary body is not included in this area. The final conclusions are against the assumption that hypersecretion of the pituitary body is responsible for polyuria.

### Revista Medico-Cirurgica do Brazil, Rio de Janeiro

November, 1917, **25**, No. 11

97 *History of Syphilis in Brazil. E. Rabello.—p. 409.
98 "Cholelithiatics" and "Nephrolithiatics." L. Ribeiro, Jr.—p. 428.

97. **Syphilis in Brazil.**—Rabello is inclined to doubt the prehistoric existence of syphilis in Brazil, and cites evidence against it. He urges the necessity for a systematic campaign against syphilis along the lines adopted in the United States, England and elsewhere.

### Revista de Medicina y Cirugia Practicas, Madrid

Dec. 28, 1917, **41**, No. 1488

99 The Lafora Symptom—Itching of the Nose—Early in Meningitis. G. G. Urdiales.—p. 441.

Jan. 7, 1918, **42**, No. 1489

100 *Cure of Paraplegia from Rupture of Posterior Vertebral Ligament. A. M. Perez.—p. 5.

100. **Paraplegia from Rupture of Common Ligament.**—Perez ascribes to F. Rubio of Madrid the first description of the characteristic curvature of the spine which results from rupture of the posterior common ligament. It differs entirely from the curvature with Pott's disease, etc., and there is

always a history of sudden pain in the back coming on after some extra physical exertion or trauma. One woman developed the paraplegia while dancing. Rubio's law of the morbid responsibility of the tissues links the paraplegia with the rupture, the phlegmonous focus, and the spread of this to the meninges and thence to the spinal cord. Perez gives no further differentiating points, but describes in detail a case in a young man who had been hit in the shoulder by a falling tree. The paraplegia had confined him to bed for six months but the bladder sphincter was not paralyzed. In such cases Rubio felt at liberty to guarantee a cure—like a quack—and Perez did the same, contingent on the perseverance in the course of treatment which consisted merely in suspension in a Sayre apparatus and plaster cast. He gave nux vomica in progressive doses, at the same time, to combat the tendency to paralysis in the digestive tract, with electric treatments. In eight months the man was walking with crutches, and by the end of the year was able to walk almost normally for long distances with only a light cane.

### Semana Medica, Buenos Aires

Nov. 22, 1917, **24**, No. 47

101 *Mycetoma in Argentina. E. F. Solari.—p. 573.
102 Hygiene of the Eyes. P. B. Ferro.—p. 582.
103 High Infant Mortality Last October. E. R. Coni.—p. 586.
104 Osteoplastics on Frontal Sinus. J. B. Abalos.—p. 587.
105 Care of Sick and Poor at Buenos Aires. E. R. Coni.—p. 590. Continuation.

Nov. 29, 1917, **24**, No. 48

106 The Obstetrician. J. C. Llames-Massini.—p. 601.
107 Ectasia of Aorta after Rheumatism. J. C. Navarro.—p. 604.
108 Research on Anilinarsenic Acid. J. A. Sanchez.—p. 609.
109 *Acute Dilatation of the Stomach. P. O. Bolo and A. G. Gallo.—p. 611.
110 Infection from Books. C. Wassermoos.—p. 621.

101. **Mycetoma in Argentina.**—Solari describes in detail the first case of Madura foot observed at Rosario. A fungus was cultivated from the tissues; it evidently belongs to the order of hyphomycetes.

109. **Acute Dilatation of the Stomach.**—Bolo and Gallo opened the abdomen and after removal of five liters of a blackish fluid from the dilated stomach, applied posterior gastro-enterostomy. The patient was a woman of 54 with two healthy children. The acute dilatation of the stomach developed suddenly without known cause, sudden and intense pain being the first sign of trouble. The laparotomy followed three days later. The woman vomited repeatedly in the interval, a blackish vomit.

### Siglo Medico, Madrid

Dec. 29, 1917, **64**, No. 3342

111 Renal Lithiasis. A. P. Martin.—p. 982.
112 Morphology of the Trachoma Bodies. F. Mas y Magro.—p. 985. Conclusion.
113 *Plantain Flour for Convalescents. J. S. de Figueroa.—p. 988.
114 Prophylaxis of Criminal Abortion. J. Canseco.—p. 989.
115 Pemphigus in the Newborn. Sicilia.—p. 991.

113. **Plantain Fruit Flour in the Diet of Convalescents.**—The plantain, *Musa paradisaica,* bears a fruit very much like a banana, and de Figueroa extols the advantages of the pulverized pulp as a nutritious and easily digested flour for convalescents.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Dec. 22, 1917, **2**, No. 25

116 *Osteomalacia. J. F. Selhorst.—p. 2176.
117 *Mammary Cancer and Marriage. H. T. Deelman.—p. 2187.
118 *Separation of Inferior Epiphysis of Femur. C. Hijmans.—p. 2193.

Dec. 29, 1917, **2**, No. 26

119 *Roentgen Treatment of Eczema. E. Penso.—p. 2235.
120 Dental Dispensaries. G. H. Bisseling.—p. 2237.

116. **Osteomalacia.**—In the case described, Selhorst diagnosed osteomalacia although the pelvis seemed normal. The osteomalacia had developed in a previously healthy woman during a pregnancy and had returned during the next pregnancy. The first symptoms were pain and disturbances in the gait. Contracture of the adductors of the left leg followed. Phosphorus was given perseveringly, trusting to Latzko's positive statements that every case of osteomalacia can be cured with phosphorus, even the gravest cases. When finally all hope from the phosphorus was given up, and the ovaries were removed, unmistakable benefit was manifest. But—probably from the excessive administration of phosphorus—a hematoma and later an abscess developed in the leg, with decubitus and death in a few weeks. The general and local improvement after castration was so pronounced that Selhorst is convinced that the woman might have been saved if it had been applied earlier. The over-long use of the phosphorus evidently damaged the heart, kidneys and blood picture. This is the second case of osteomalacia published in the twenty-five years before 1913 in the clinics for women in the Netherlands, but in the three years, 1913 to 1916, twenty-three cases have been reported but none in connection with pregnancy. The history of osteomalacia is reviewed and various theories are discussed. The present conception of the disease is a return to Kilian's description of it in 1829 as being restricted to pregnant women previously healthy and of slender build. No characteristic microscopic findings have been demonstrated in any organs, not even in the ovaries, although their connection with the osteomalacia seems beyond question. Perfected technic may reveal changes which now escape us.

117. **Mammary Cancer and Marriage.**—Deelman tabulates the Amsterdam statistics in regard to the mortality from mammary cancer at various ages in the married and the unmarried since 1869. The conclusions from the data presented, as also from the 1913 report of the British registrar of births, deaths and marriages, are to the effect that mammary cancer occurs proportionately more frequently in the unmarried than in the married. At the height of the reproductive phase more married women seem to be affected than the unmarried, but, after 40, the unmarried much predominate. Nothing was found to sustain the assumption that mastitis induces a predisposition to cancer. After the fortieth year there are five married women to every unmarried woman, which readily explains the apparent predominance of mammary cancer in married women, as there are so many more of them. But calculating by percentage of each group, the predominance is altogether on the side of the unmarried.

118. **Traumatic Separation of Epiphysis.**—Hijmans gives illustrations of a typical case of traumatic separation of the inferior epiphysis of the femur in a boy of 16. The epiphysis had tilted up and lay parallel to the femur, causing the knee to bulge. Under ethyl chlorid anesthesia and strong extension the knee was flexed more and more while the loose epiphysis was manipulated until it finally sprang back suddenly into place. When the knee was straightened the epiphysis became dislocated anew, so the joint was immobilized in this extreme flexion. The plaster cast included the pelvis and the entire leg. The flexed knee in its cast was suspended by a rope and heavy weight just above the knee from an upright standard. The foot was warm; the circulation before had been somewhat obstructed by the pressure of the displaced lower end of the femur on the vessels in the popliteal fossa. By the end of the third week the upper part of the plaster cast was removed, leaving merely an open cast below the knee in which rested the leg and foot. The supporting loop of rope was moved gradually farther down on the leg which reduced the bending of the knee. Massage and exercise were then begun and by the end of the eighth week the boy was using his leg normally, and soon returned to his military academy. At first there was a tendency for the knee to keep flexed all the time, but this was corrected by laying a bag of sand on it for a while.

119. **Chronic Eczema.**—Penso has been giving from one to eight roentgen exposures in twenty-eight cases of chronic eczema which had proved refractory for from one to fifteen years to other measures. He gave a 1 ¼ H unit exposure and states that 50 per cent. seem to be completely cured. This represents 70 per cent. of those who returned for the entire course. He computes the cost of the salves and dressings previously used in these cases, and estimates that roentgen treatment is from 400 to 15,000 times the cheaper treatment.

### Hygiea, Stockholm

Dec. 31, 1917, **79**, No. 24

121 *To Detect Simulation of Deafness. H. Nordlund.—p. 1361.

Jan. 16, 1918, **80**, No. 1

122 *Serotherapy of Scarlet Fever. C. Kling and G. Widfelt.—p. 2.

121. **Simulation of Deafness.**—The long list of measures that have been proposed to detect malingering in regard to the hearing shows that none of them is absolutely reliable. Nordlund describes fourteen methods based on speech; eleven tuning fork or similar methods, and seven methods for detecting bilateral deafness. Few attempt to simulate absolute bilateral deafness; if it is attempted, the Gowseef method or the Kindlmann method is instructive. With the former, the man's back is brushed with a brush or the hand or both. Then the investigator uses only one on the subject and the other on his own coat, brushing his own coat with the brush or hand while the subject's coat is brushed with the other. The sound and the touch combine so that the normally hearing are unable to tell whether the hand or the brush is being used on their own backs. The deaf person, not hearing the sound on the other person, is able to tell by the sensation on his own back which is being used. Unilateral deafness is tested best, perhaps, with the Lombard-Bárány method, that is, the use of an apparatus that produces a noise intermittently while the subject is reading aloud in his ordinary voice. Unconsciously he raises his voice and loses control of it when he hears the noise of the automatic drum. It may be necessary to apply a number of the tests to detect the simulation; if all give concordant results, they may be accepted as conclusive.

122. **Treatment of Scarlet Fever with Convalescents' Serum.**—Kling and Widfelt's success with this treatment has already been heralded by cable as the "triumph of serotherapy." During the last seventeen years at Stockholm there have been annually from 291 to 1,865 cases of scarlet fever, and the mortality has ranged from 1.45 to 8.63 per cent. In 1916 the disease became unusually prevalent and the death rate was 14.7 and 11.5 during two of the earliest months. Within a year there were 2,165 cases and many were of a malignant type, in both children and adults. In this epidemic they began to use convalescent serum in the severest cases, and it soon became apparent that it was effectual, but mainly in the serious toxic cases. It had comparatively little influence in warding off or curing complications. Of the 237 given this treatment all recovered except 10.5 per cent. who died early in the treatment and 7.2 per cent. who succumbed later to complications. The total mortality was thus 17.7 per cent. while the mortality in a corresponding group of 91 severe cases not given serotherapy was 70 per cent.

In the severe toxic cases, the patients in delirium or stupor when the serum was injected towards night, it was almost impossible to recognize the patient in the morning, as he was lively and sitting up and feeling almost well. The convalescents seeing this remarkable change for the better in the sick given their serum, gave their blood gladly for the purpose, the adults first, and the children followed their example without fear. It seemed to be immaterial whether the attack had been a mild or severe one; the serum from all seemed to be nearly equally effectual, but some difference was apparent in the date when the serum was taken. Good results were obtained in 70 per cent. of the convalescents' serums from the fourth week; with 58 per cent. at the fifth week; 65 per cent. at the sixth week, and 60 per cent. at the seventh week. Of the 186 convalescent serums, 111 were used alone; the other serums were mixed. Over 93 per cent. recovered of those treated the second day of the disease; all of the three treated the first day; 88.8 per cent. the third day; 76.9 per cent. the fourth day; 50 per cent. the sixth; all but one of the eight treated the seventh day, and the one patient treated the ninth day, but the one treated the tenth day died.

The serums were generally 1 or 2 weeks old when used but sixteen effectual serums were 3 weeks old; six, 5 weeks; three, 6 weeks; two, 7 weeks, and three, 8 weeks old. The blood was drawn from a vein in the back of the arm, a lightly constricting band applied above, the donor opening and closing his hand to promote the flow and the arm massaged besides. The blood is drawn into an Erlenmeyer jar with a capacity of 500 c.c. By this means it is easy to obtain through a large puncture needle 200 or 300 c.c. from an adult, with children 200 c.c. was the limit. This generally yields on standing for forty-eight hours from 50 to 150 c.c. of serum. It is distributed in vials of 25 c.c. capacity, and phenol is added in the proportion of 0.5 per cent. This was calculated by using a 5 per cent. solution of phenol and adding one ninth of the volume of the serum after 1 c.c. has been taken for the Wassermann test. The serum in question is tested further to ensure its sterility, both with bouillon and agar cultures. A positive Wassermann reaction was obtained in ten of the 196 serums tested. The vials of the prepared and tested serum are plugged with a rubber stopper and set on ice till needed.

A number of other data of various kinds are tabulated for comparison, and several typical cases described in detail. One case was that of a young woman with temperature of 105.8, pulse 140 to 160 and weak, delirium and cyanosis. The serum was given the second day after the stormy onset and the next day the general condition was transformed, the temperature normal, pulse down to 84. Typical desquamation followed in about two weeks. Before the serotherapy, 50 per cent. of cases of this kind terminated fatally. In 101 of the 195 cases proceeding to recovery under the serotherapy the temperature dropped rapidly in this way and the general condition showed remarkable improvement. The effect was similar but less rapid in fourteen other purely toxic cases. In the eighty cases with complications, this rapid success was never observed, the benefit becoming only gradually evident. One of the tables compares the mortality in the complicated cases without and with serotherapy, the percentage being with lymphadenitis 17.7 and 2.8 per cent.; with otitis media, 15.5 and 0 per cent.; with mastoiditis, 4.4 and 1.4 per cent. With seven cases of nephritis in the untreated, the mortality was 2.2 per cent., while in the forty-four cases in the treated group, 3.1 per cent. died. The proportion of cases with complicating nephritis was 20.7 per cent. in the treated group, and 21.5 per cent. among the 1,928 not given the serotherapy. The serum was injected by the vein alone in some cases, in the others, both intravenously, intramuscularly and subcutaneously.

### Ugeskrift for Læger, Copenhagen

Jan. 10, 1918, **80**, No. 2

123 *Treatment of Contracture of the Elbow. H. Abrahamsen.—p. 45.
124 Living Expenses of Average Danish Family. P. Heiberg.—p. 56.

123. **Contracture of the Elbow.**—Abrahamsen refers to flexion contracture from cicatricial shortening of the soft parts or contracture from overlong immobilization. A foreign body irritating the biceps or its innervation may entail contracture, as also a neuroma on a sensory nerve inducing reflex disturbance. In one such case removal of a bullet at the median margin of the biceps cured the contracture flexion of 90 degrees in the elbow. The most favorable position for a stiff elbow is a right angle. He remarks that about 33 per cent. of all the wounded have been wounded in the arm, and the functioning of few joints is so indispensable as the elbow. Early use of the elbow to ward off ankylosis and contracture is now the accepted principle in treating wounds in this region. When contracture is already installed, cautious correction under general anesthesia, followed by a cast, may be indicated. It is better to proceed gradually and not attempt to make the entire correction at one sitting, but waiting a week or two before resuming the attempt. He warns against forcible correction as this may arouse old troubles or induce local hemorrhage. Four cases are described in detail; one shows the fine result that can be obtained sometimes with persevering conservative measures alone. This case also teaches the danger of waiting too long before exercising the arm after a fracture. A splint was worn for six months. In a second case all that was necessary was to sever the cicatricial tissue at one point. The other cases required plastic lengthening of the tendon.

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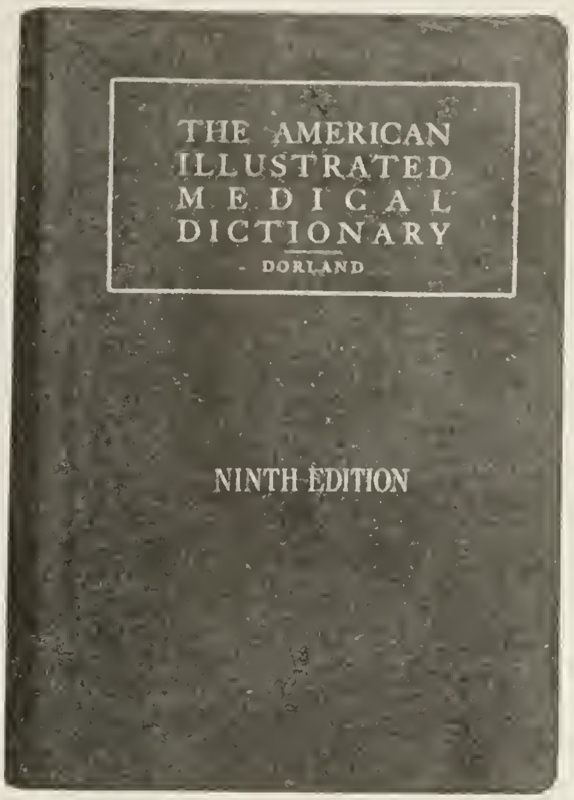

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chronaxia
coaguloviscosimeter
complуetic reaction
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ferrivine
frigorism
focal infection
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holopon
hydrodictiotomy
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isobolism
kinetosis
lambliasis
lithomoscus
littritis
lymphopoiesis
malignometer
Morelli's reaction
mortinatility
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narco-anesthesia
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| Climatological and Clin. Assn. | J. H. Elliott, Toronto, Ont. | Guy Hinsdale, Hot Springs, Va. | Boston, June 5-6, 1918 |
| Dermatological Association | Abner Post, Boston | Oliver S. Ormsby, 25 E. Washington St., Chicago | Phila., May 23-25, '18 |
| Gastro-Enterological Association | John A. Lichty, Pittsburgh | F. W. White, 322 Marlborough St., Boston | Atlantic City, May 6-7 |
| Gynecological Society | John G. Clark, Philadelphia | Geo. G. Ward, Jr., 71 W. 50th St., New York | Philadelphia, May 16-18, '18 |
| Laryngological Association | Thos. H. Halsted, Syracuse, N. Y. | Harmon Smith, 44 W. 49th St., New York | Atlantic City,May 27-29, '18 |
| Laryn., Rhin. and Otol. Society | Geo. L. Richards, Fall River, Mass. | Wm. H. Haskin, 40 E. 41st St., New York | 1918 |
| Medico-Psychological Association. | James V. Anglin, St. John, N. B. | Henry C. Eyman, Massillon, Ohio | Chicago, June 4-7, '18 |
| Neurological Association | E. W. Taylor, Boston, Mass. | Alfred R. Allen, 2013 Spruce St., Philadelphia | |
| Ophthalmological Society | William H. Wilder, Chicago | W. M. Sweet, 1205 Spruce St., Philadelphia. | N.Lond.,Conn.,July,9-10,'18 |
| Orthopedic Association | John L. Porter, Chicago | John Ridlon, 7 W. Madison St., Chicago | Washington, D.C., Apr.22-23 |
| Otological Society | Norval H. Pierce, Chicago | Geo. E. Shambaugh, 122 S. Mich. Ave., Chicago. | Atlantic City, May 28-29 |
| Pediatric Society | L. E. La Fetra, New York | H. C. Carpenter, 1805 Spruce St., Philadelphia | Lenox,Mass.,May 27-29,'18 |
| Physicians, Association of | Francis H. Williams, Boston | Thomas McCrae, 1627 Spruce St., Phila. | Atlantic City, May 7-8 |
| Physiological Society | Frederic S. Lee, New York | C. W. Greene, State Univ., Columbia, Mo. | |
| Proctologic Society | Jerome M. Lynch, New York | C. F. Martin, 1831 Chestnut St., Philadelphia. | Chicago, June 10-11, 1918 |
| Psychopathological Association | Adolf Meyer, Baltimore | John T. MacCurdy, 969 Park Ave., New York | |
| Public Health Association | C. J. Hastings, Toronto, Ont. | A. W. Hedrich, 126 Massachusetts Ave., Boston. | 1918. |
| Roentgen Ray Society | Lewis G. Cole, New York | Wm. H. Stewart, 222 W. 79th St., New York | |
| Society of Tropical Medicine | C. C. Bass, New Orleans | John M. Swan, 457 Park Ave., Rochester, N.Y. | |
| Surgical Association | T. H. Huntington, San Francisco | John H. Gibbon, 1608 Spruce St., Philadelphia | Cincinnati, 1918 |
| Therapeutic Society | W. Wayne Babcock, Philadelphia | Lewis H. Taylor, The Cecil, Washington, D. C. | Richmond, Va., June 7-8, '18 |
| Urological Association | F. W. Robbins, Detroit | Henry L. Sanford, Osborn Bldg., Cleveland | |
| Association of Military Surgeons of the United States | Surg.-Genl. Rupert Blue, U.S.P.H. Service, Washington, D. C. | Lieut.-Col. Edw. L. Munson, M. C., U. S. A.<br>Col. J. V. R. Hoff, Sec. ad interim, Army Med. Museum and Library, Washington, D. C. | |
| Cong. Am. Phys. & Surgs. of N. A. | W. S. Thayer, Baltimore | W. R. Steiner, 4 Trinity St., Hartford, Conn. | Washington, May, 1919 |
| Conf. of St. and Prov. Bds. of N. A. | T. D. Tuttle, Seattle, Wash. | Eugene R. Kelley, State Health Dept., Boston. | |
| Med. Association of the Southwest. | Edw. H. Martin, Hot Springs, Ark. | Fred H. Clark, El Reno, Okla. | Dallas, Tex., 1918 |
| Mississippi Valley Medical Assn. | F. M. Pottenger, Monrovia, Calif. | Henry Enos Tuley, 705 S. 3d St., Louisville, Ky. | Louisville, Ky., 1918 |
| Missouri Valley, Med. Soc. of the | A. J. MacKinnon, Lincoln, Neb. | C. Wood Fassett, 613 Lathrop Bldg., K. C., Mo. | Omaha, 1918 |
| National Assn. for Study of Pellagra | Capt. Jos. F. Siler, U. S. A. | J. W. Babcock, Columbia, S. C. | 1918. |
| Nat. Assn. for S. and P. of Tuber. | Charles L. Minor, Asheville, S. C. | Henry B. Jacobs, 11 Mt. Vernon Pl., Balt. | Boston, June 6-8 |
| Nat. Assn. for Study of Epilepsy | D. F. Weeks, Skillman, N. J. | Arthur L. Shaw, Sonyea, N. Y. | |
| Society of Amer. Bacteriologists | Leo F. Rettger, New Haven, Conn. | A. Parker Hitchens, Glenolden, Pa. | |
| Southern Medical Association | L. F. Barker, Baltimore | Seale Harris, Empire Bldg., Birmingham, Ala. | Asheville, N. C., 1918 |
| Southern Surgical Association | I. S. Stone, Washington, D. C. | H. A. Royster, Raleigh, N. C. | Baltimore, 1918 |
| Western Surgical Association | Leonard Freeman, Denver | Arthur T. Mann, Donalson Bldg., Minneapolis | |

State Association list appeared in this space two weeks ago; officers of the A. M. A. last week. Corrections will be appreciated

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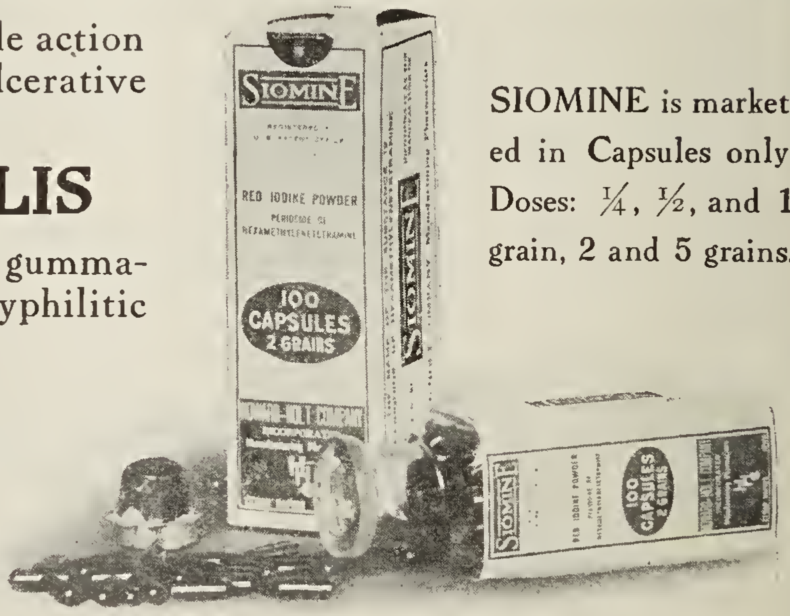

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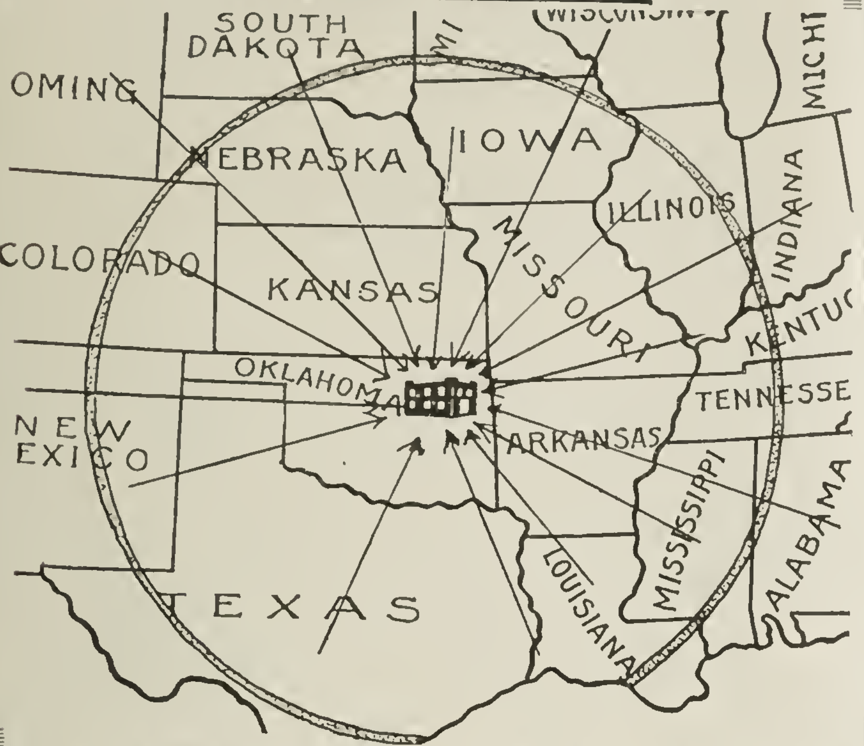

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**The Management of an Infant's Diet**

**Constipation**

Constipation in infancy is a symptom that should not be passed over lightly, for deferred elimination of the waste products of digestion, especially if allowed to become chronic, may lead to digestive disorders difficult to correct. Loss of appetite, disturbed sleep, a slow gain in weight and a generally uncomfortable baby are some of the early signs that are likely to be observed, as well as a change in the consistency of the infant's previously normal stool.

It is interesting and well worth while to study the effect of different food elements upon the individual infant, for in no other way can a satisfactory conclusion be drawn as to the real cause of delayed bowel movements. This matter is set forth clearly in a pamphlet which physicians may obtain by writing to

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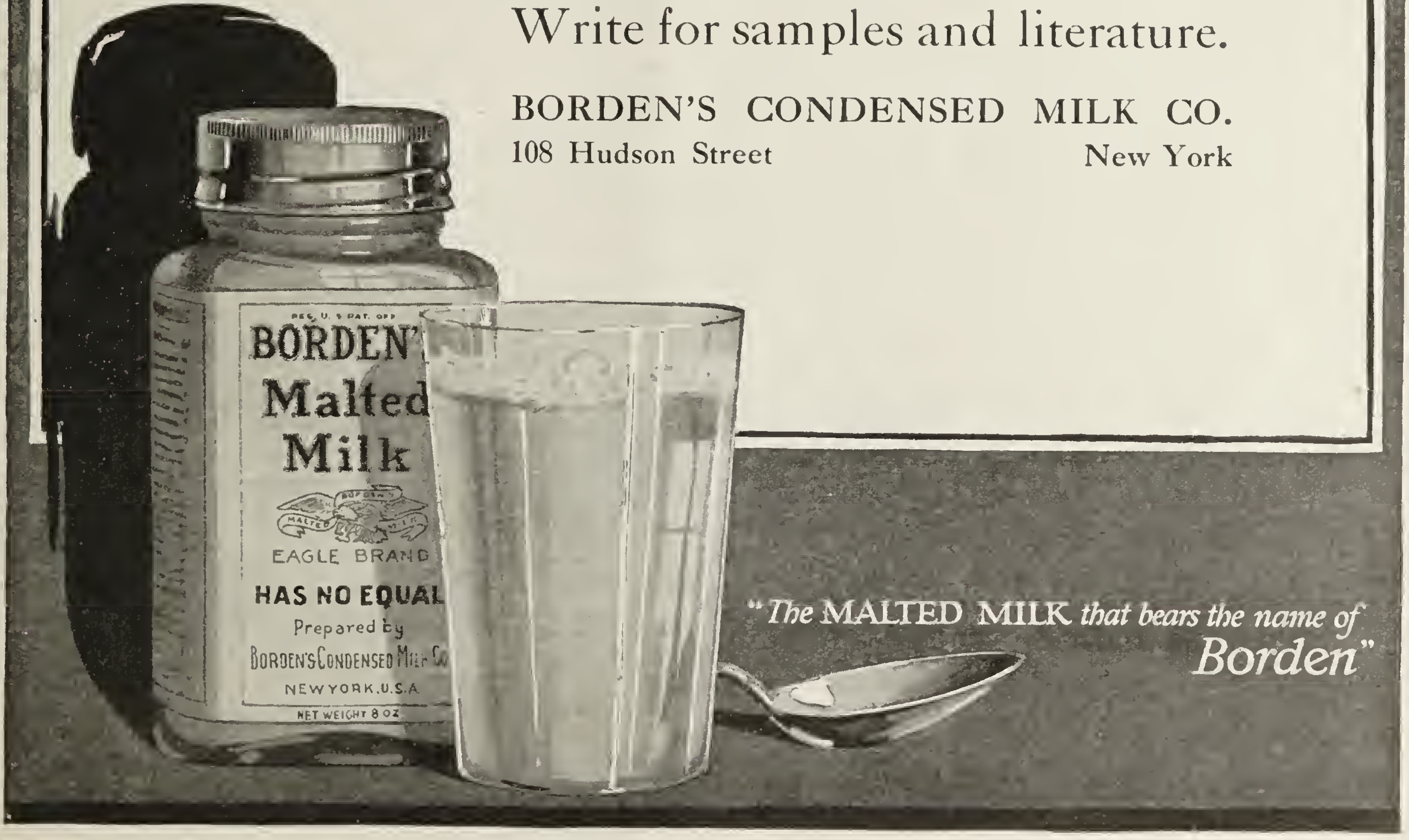

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MOUNT SINAI HOSPITAL — RESIDENT surgeon, private pavilion. The position of resident surgeon, private pavilion, is vacant; hospital graduates only are eligible for this position; candidates not subject to military service preferred; allowance, $1,200 per annum, with maintenance. Apply to S. S. Goldwater, M.D., Director, 5th Ave. and 100th St., New York City. A

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## ASSISTANTS WANTED

WANTED — ASSISTANT BACTERIOLOGIST and pathologist for the South Dakota State Health Laboratory; graduate in medicine preferred; must have had some special training and experience in the above lines of work; give details of preparation and references in the first letter. Salary $1,600 per annum, with rapid financial advancement upon demonstration of ability; a good live assistant, not afraid of work is needed. Address Mortimer Herzberg, M.D., Director, Vermillion, S. D

WANTED — MALE ASSISTANT PHYSICIAN for state insane hospital service; preference given to applicant with general hospital training and exempt from draft; salary $1,200 and living, with increase depending on experience. Add. H. W. Mitchell, M.D., Superintendent, State Hospital for the Insane, Warren, Pa. B

WANTED — EXPERIENCED PHYSICIAN in mental and nervous diseases for acute service as second assistant, in a large State Hospital for the Insane in the Middle West; must be single; permanent position; salary, $1,500 per year with increase. Only those with hospital experience need apply. Add. 3897 B, % AMA.

WANTED—PHYSICIAN FOR ASSISTANT city physician and hospital intern in North Carolina city of 40,000; half time to be devoted to city hospital; half as city physician; single man preferred, not subject to draft; salary, $1,800 to $2,000 and maintenance; give full information first letter. Add. 3883 B, % AMA.

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WANTED — ASSISTANT PHYSICIAN IN a sanatorium for tuberculosis; sanatorium 24 miles from New York; good salary for man with experience. Add. J. E. Runnells, M.D., Supt., Scotch Plains, N. J. B

WANTED — ASSISTANT PHYSICIANS, state hospital for insane; hospital experience preferred; single men; give age, schools, hospitals, religious affiliations and nationality. Add. 3877 B, % AMA.

WANTED—AN ASSISTANT PHYSICIAN on salary; position can be taken at once; for full information as to work, location and amount of salary, write. Add. 3818 B, % AMA.

*(Continued on page 22)*

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## Tonics and Sedatives

*Daylight is about the only thing any one is able to save these days.*

—o—

SYSTEMATIC

Tommy (to captured Hun)—Nah, then, get along with the others. Wot yer 'anging about 'ere for?

Hun—I vos vait for mine brudder. He vos surrender in der next batch.

—o—

### Keeping the Public Correctly Informed

"The work accomplished by the medical staff at this station has been excellent," said Major Flexner at the conclusion of his tour of the camps.

"Rats are to blame for the hemorrhagic jaundice common in the trenches. But a serum immunizing the soldiers to that disease, without any reaction, has also been found.

"Gas gangrene is not so much due directly to the gas used by the enemy as to the development of gas bacilli in wool clothing."—Chicago *Examiner.*

—o—

THE RETORT COURTEOUS

He was a young subaltern. One evening the sister in the hospital had just finished making him comfortable for the night, and before going off duty asked:

"Is there anything I can do for you before I leave?"

Dear Little Two Stars replied: "Well, yes! I should like very much to be kissed goodnight."

Sister rustled to the door. "Just wait till I call the orderly," she said. "He does all the rough work here."—London *Opinion.*

—o—

### *Aint It the Truth?*

**"This daylight saving," says Abe Martin, "merely means that the old woman will get up an hour earlier every morning and the old man will come rolling in an hour later every night."**

—o—

REAL ECONOMY

Mrs. Smith (to Mr. Smith who has recovered from influenza)—"Want to get up, eh? Well, you just stay in bed till you finish that bottle of medicine that I paid a dollar for."

—o—

OUCH!!

"In what way does Germany resemble Holland?"

"It is a low, lying country, and damned all around."

—o—

### All About Stovaine

On account of the physical condition of Mr. McBee a local anesthetis, known as stovaine, had to be used. This anesthetic will probably never come into general use as it can only be administered by persons who are especially trained in its use, and so far as it has been used many of the patients have not rallied from its effect. It is only used where the conditions of the patient are such that the better known anesthetics can be used.—Morgantown (W. Va.) *Post.*

—o—

STICK TO YOUR LAST

A physician took it into his head to go hunting, and started out bright and early on a beautiful October morning, fully armed for game. About four o'clock in the afternoon he returned tired out and empty-handed, telling his wife he had not killed a thing, whereupon she remarked triumphantly: "I told you so," adding, in the next breath: "If you had stayed at home and attended to your legitimate business you might have been more successful."

*(Continued on next page)*

*(Continued from page 20)*

WANTED — ASSISTANT PHYSICIAN state tuberculosis sanatorium; $100 monthly and maintenance; promotion if satisfactory; state age, medical school, year graduation, hospital experience, full references, earliest date available. Add. 3902 B, % AMA.

WANTED—ASSISTANT FOR $15,000 GENeral practice; Minnesota modern town 2,000; recent graduate with hospital experience; able to do refracting preferred; $150 per month to begin; partnership later if mutually agreeable. Add. 3789 B, % AMA.

WANTED — AN ASSISTANT FOR MINing practice in Upper Michigan; must have had some experience in that class of work; must be exempt from draft; married man preferred; salary $175 a month; references required. Add. 3895 B, % AMA.

WANTED — COMPETENT ASSISTANT, not subject to draft; office work, general practice, no surgery; beginning salary $150 per month; promptly increased with value. Add. 3798 B, % AMA.

WANTED—COMPETENT MAN AS ASSIStant in eye, ear, nose and throat practice; salary first year, $200 per month; state full particulars. Add. 3709 B, % AMA.

WANTED—A MALE ASSISTANT PHYSIcian at the Northampton State Hospital; will accept a man above the draft age. Apply to Dr. J. A. Houston, Northampton, Mass. B

## PHYSICIANS WANTED

WANTED — TWO PHYSICIANS FOR southern insane hospital; single; above draft age, with at least one year's general hospital experience; salary $125 per month and maintenance; reciprocity college or state board required to practice; in replying give experience and personal and professional references to avoid delay. Add. 3814 C, % AMA.

WANTED — RESIDENT PHYSICIAN, Stony Wold Sanatorium, Lake Kushaqua, New York, Adirondacks, for treatment of tuberculosis; routine work; salary $50 a month with maintenance; reference required. Add. Dr. M. F. Lent, Medical Director. C

WANTED — PHYSICIAN — UNUSUAL opportunity for high class man devoting his time exclusively to internal medicine; prefer man with hospital training not subject to draft; write giving full particulars and credentials. Add. 3893 C, % AMA.

WANTED—PHYSICIAN—$4,000 COUNTRY practice; nothing to buy; heated office; rich farming country; electric lights, telephones, waterworks; no physician here; doctor left to practice surgery. Write Taplin Drug Co., Milroy, Minn. C

WANTED — RESIDENT PHYSICIAN FOR 40-bed tuberculosis hospital; beautiful location; opportunity for physician taking the "cure"; moderate salary and maintenance. For particulars add. G. C. Johnson, Medical Director, Evansville, Ind. C

WANTED — RECENT GRADUATE OF Class A medical college, with training in bacteriological and serological work for laboratory work in large and reputable manufacturing company in middle west. Add. 3892 C, % AMA.

WANTED — THREE RESIDENT PHYSIcians; 60-bed general hospital, located in Philadelphia; service one year, beginning July 1; salary $25 per month, room, board and laundry. Add. 3842 C, % AMA.

WANTED — PHYSICIAN FOR A GOOD territory; desire Norwegian speaking doctor; fine opportunity for the right man to continue good practice. Add. Lock Box 21, Brandt, S. D. C

WANTED—A PHYSICIAN TO LOCATE IN north Wisconsin city of 2,000; county seat with good surrounding country; have an excellent proposition to offer. Add. 3875 C, % AMA.

WANTED—CHIEF RESIDENT—WOMAN—General hospital 100 beds; active service; salary and maintenance. For particulars add. 3889 C, % AMA.

WANTED — A YOUNG WOMAN PHYSIcian; in writing state qualifications. Add. Rochester State Hospital, Rochester, Minn. C

*(Continued on next page)*

WANTED—HOUSE SURGEON—AT ONCE —At Hillcrest Hospital, Pittsfield, Mass.; term one year; hospital 40 beds; active service; one house man; last year 875 operations and 5,296 dressings in outpatient department; also 6,214 persons examined for employment at General Electric Co.; do all surgery for latter company, employing 7,000 people; salary, $600, with room, board and laundry; an excellent position for any one wishing surgical experience. Send application with photo and credentials to W. L. Tracy, M.D., Secretary. C

WANTED — IN CHAO TONG, YUMAN Province, Western China, capable physician to work at English Methodist mission; excellent general experience; travel expenses paid one way; salary $1,000 per annum and home; only recent graduates of high class school with good references need apply. Add. P. O. Box 655, La Jolla, Calif. C

WANTED—THREE PHYSICIANS AT THE Maryland Tuberculosis Sanatorium; salary $660 to $900 per year; applicant must be single. Apply stating experience, to Dr. V. F. Cullen, Supt., State Sanatorium, Md. C

## INTERNS WANTED

WANTED—INTERNS—AT THE WOMAN'S Hospital, New York City; unusual opportunity for intensive training in gynecological and abdominal surgery; also obstetrics; term of service one year, with residence in the hospital; examination to be held May 1 and 2; successful candidates to report for duty June 1; two vacancies to be filled every four months; applicants who have had a previous hospital training and who are not subject to military call will be given the preference. For further information add. with credentials, Dr. Dougal Bissell, 219 W. 79th St., New York City. D

WANTED — INTERNS — THE VOLUNTEER Hospital, New York City, offers fifteen months services, subject to the "draft" regulations for medical men. The ambulance district serves the busiest section of New York City, and offers a general medical and surgical service, together with gynecology, obstetrics and dispensary work; $20 month salary. Applicants are requested to make application to the Superintendent, Volunteer Hospital, Beekman and Water Sts., New York. D

WANTED—SINGLE PHYSICIAN FOR INTERN at Dannemora State Hospital; previous experience not necessary; write complete personal and professional particulars; compensation $1,000 per year and maintenance; excellent chance for promotion. Add. John R. Ross, M.D., Medical Superintendent of Dannemora State Hospital, Dannemora, N. Y. D

WANTED — INTERN—EXCELLENT OPportunity; southern city; $25 month and maintenance; to assist in operations, go with ambulance, treat patients, learn practical medicine and surgery, x-ray work, pathology, etc. Add. with full particulars of training, experience, etc., North Louisiana Sanitarium, Shreveport, La. D

WANTED — INTERN OR CAPABLE woman physician to give anesthetics in 50-bed hospital operating thirty to forty times a month; one with laboratory experience can make extra fees; salary $50 per month and maintenance. All Saints Hospital, McAlester, Okla. D

WANTED—TWO INTERNS ABOUT JUNE 1; recent graduates preferred; habits and character must be good; excellent experience in practical work for right men; one year's service; hospital 200 beds. Write Superintendent, General Hospital, Regina, Sask., Canada. D

WANTED — UNION HOSPITAL, FALL River, Mass., requires two interns for general service, starting July 1 and November 1; salary paid; enlisted Medical Reserve Corps men accepted. Apply to Dr. Geo. L. Richards, 124 Franklin St., Fall River, Mass. D

WANTED — INTERNS — SHORT TERM services in medicine, surgery, dispensary and outpractice; general hospital active service; vacancies April 15. Add. 3888 D, % AMA.

WANTED—TWO INTERNS FOR HOSPITAL in middle west; 250 beds; large surgical service; salary, maintenance, etc. Apply Grant Hospital, Columbus, Ohio. D

WANTED — A MAN INTERN FAMILIAR with routine laboratory work and anesthetics; must be graduate of A1 school; good salary. Add. 3906 D, % AMA.

*(Continued on next page)*

## TONICS AND SEDATIVES

*(Continued from preceding page)*

### THEN SHE KNOCKED HIM UNCONSCIOUS

A colored man was standing at Main and Second streets, Evansville. He wore a bright checked waistcoat and all the other clothes that usually go with waistcoats of that sort. A colored woman came along and, seeing him, said: "Mr. Brown, what you doing here on this corner?"

"I'm Hooverizing, Mrs. Jones," he said. "Don't you see my waistcoat?"

"Yes, but I don't see what that's got to do with Hooverizing," the woman said.

"Well, don' you see—I'm puttin' a check on my appetite," he replied.

—o—

*This is a world of sadness,*
*This is a world of vice,*
*This is a world of badness—*
*Isn't this world nice!*

M. L. A.

—o—

### THE MIND OF A DRUGGIST

Some of the drug stores in Reading, Pa., sell magazines and other publications. Recently a lady was trying to find a certain magazine. She called up by phone a drug store in the residence section. When the druggist answered she asked:

"Do you keep periodicals?"

For a few moments there was silence, and then came the hesitating reply:

"Why—er—ah—madame, we only have them in pill form!"

—o—

**"The subscribers who overlooked the subscription slip inserted in The Journal," says Dr. B. F. Metcalfe of Greenwich, Ohio, "must feel as guilty as the young man who did not find the ten dollar bill which his mother placed in his Bible when she sent him off to college."**

—o—

### THE LAST WORD

The motorist was looking disconsolately at his car that lay helplessly on its side on the border of a small plowed field. It had obviously skidded off the road.

Presently a passer-by of the genial kind that will ask senseless questions came along.

"Hallo! Have you had an accident?"

"No," returned the exasperated motorist. "I've just bought a new car, so I brought the old one out to bury it in this field. Got a pickax and shovel in your pocket you could lend me?"

—o—

### DON'T TELL ME WHAT YOU DREAMT LAST NIGHT

A loving husband sat one morn' at breakfast with his wife,
And said to her: "Oh, Minnie, pass the cream.
Last night I dreamed that Fritzi Scheff pursued me with a knife,
And though I tried, I couldn't even scream."
His little wife put up her hand, and said: "Oh, pray desist!
To tell the rest of it might break my heart.
That dream, I fear, is plain to any psychoanalyst."
And then she softly wept, and said, in part:

CHORUS

"Don't tell me what you dreamt last night, I must not hear you speak!
For it might bring a crimson blush unto my maiden cheek,
If I were you, that subject is a thing that I'd avoid—
Don't tell me what you dreamt last night, for I've been reading Freud."

F. P. A.

*(Continued on next page)*

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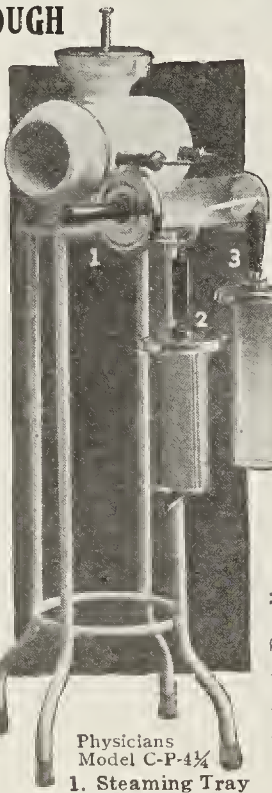

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## TONICS AND SEDATIVES

*(Continued from preceding page)*

### THE PSYCHOLOGICAL TAILOR

The tailor measured him, calling out the dimensions to a clerk with a book. After the measuring the tailor said:

"Married or single, sir?"

"Married," replied the customer.

"One pocket concealed in lining of vest," the tailor bade the clerk.

—o—

### THE DIRECTNESS OF YOUTH

In a certain Sunday School the superintendent, after talking for nearly an hour, made this appeal: "Now, children, what more can I say?" "Pleathe, thir," lisped a small weary youngster in the front row, "thay amen and thit down."—*Tit-Bits.*

—o—

### DIE SCHOENSTE LENGEVITCH

"Last week I was teaching a spelling lesson to a class of little second-graders," said the teacher. "The word 'each' occurred, was written on the board, and from it I expected to derive 'peach,' 'reach,' 'teach,' etc. Pointing to the word I said, 'Can any child give a sentence using "each"?'

"A hand was unhesitatingly thrust up and a little German girl replied, 'Does your back each?' "

—o—

A physician in a Southern state received the following note:

"My wife has lost her recompense for me. She are giving her distributions to another man. I want you to send me something to put in her coffee and make her malgnify herself to me again, if you please."

—o—

### Joke Caught Napping

*(From* THE JOURNAL, *March 16)*

Lacy Bebee Darling, M.D., Palmyra, N. Y.; Long Island College Hospital, Brooklyn, 1893; aged 54; a member of the Medical Society of the State of New York, and the Rochester Academy of Medicine; died at his home, February 19, from chronic *intestinal* nephritis.

—o—

### THE FACT IN THE FICTION

A stranger knocked at a man's door and told him of a fortune to be made.

"Um!" said the man. "It appears that considerable effort will be involved."

"Oh, yes," said the stranger, "you will pass many sleepless nights and toilsome days!"

"Um!" said the man. "And who are you?"

"I am called Opportunity."

"Um!" said the man. "You call yourself Opportunity, but you look like hard work to me."—Pittsburgh *Post.*

—o—

### REPORTS NOT IN FROM GOMORRAH

*(Sodom Correspondence in Warrensburgh (N. Y.) News)*

On Monday morning of last week the dam on Ross Lake sprung a leak and sent the water and ice through Sodom to North Creek, blocking up the road with cakes of ice so the stage had to go around by Wevertown. The following morning the wind began to blow and it made things look rather bad. It blew four sheets of roofing off from John White's house and six off Harvey Rist's house; blew down Mrs. Ross' wood pile and tipped over the outdoor closet; took one and set it over the fence on to George Cooper's meadow, and tore one all up ready for the stove, and took half of the chimney off of Ed Wakely's kitchen and tore Ed Kathan's barn up badly. Sodom got quite a shaking up and isn't entirely settled down yet.

—o—

### *Medical Proverbs—VII*

*You can lead a man to thoughts but you can't make him think.*

*(Continued from preceding page)*

## LOCUM TENENS WANTED

WANTED — PHYSICIAN — FOR LOCUM Tenens, either registered North Dakota or able pass board first Tuesday June; start work at once; state experience, age, training, reference, languages spoken, how soon come and all details first letter. Add. 1498 F. V. Kniest, Bee Bldg., Omaha, Neb. F

WANTED — LOCUM TENENS — FIRST-class practitioner to take charge of my Wisconsin practice, unopposed, duration war; can make good living from first day; I retain only 15 per cent. collections; tenant must furnish complete description self, good references and photo in first letter and be prepared to come at once. Add. A. H. Ward, Cashier Readstown Bank, Readstown, Wis. F

WANTED — A PHYSICIAN TO TAKE charge of my practice for the duration of the war; located in a modern Connecticut town of 1,000; 90 per cent. of the work within a radius of 1 mile from the office; income in excess of $4,000; may consider sale later. Add. 3715 F, % AMA.

WANTED — LOCUM TENENS DOCTOR (Protestant) to take place for one year; Illinois town; established 21 years; practice above $4,000 year; population 1,000; one other physician in active practice; prosperous people; ready for work immediately. Add. 1493 F. V. Kniest, Bee Bldg., Omaha, Neb. F

WANTED—LOCUM TENENS—PHYSICIAN to take charge $6,000 general and surgical practice for six months; Kansas town 20,000; pay running expenses and keep what you make; at end of time will consider sale or partnership. Add. 3882 F, % AMA.

WANTED — PHYSICIAN IMMEDIATELY for locum tenens in Minnesota; population 1,500; average $5,000 cash income general and surgical practice; collections 99 per cent.; make satisfactory arrangements; send full particulars self, experience, registration and all points of interest. Add. 1499 F. V. Kniest, Bee Bldg., Omaha, Neb. F

WANTED—LOCUM TENENS— OR WILL sell unopposed $4,000 practice in western Washington mill town of 5,000; good school, church, electric lights, etc.; reason, entering army. Add. 3782 F, % AMA.

WANTED — LOCUM TENENS DURING war for equipment and practice of only oculist and aurist in county seat, 8,000; county 30,000; northwestern Ohio; monthly rental. A. C. Bartholomew, Van Wert, Ohio. F

## PHARMACIST WANTED

WANTED—A YOUNG WOMAN PHARMAcist who is able to do a limited amount of laboratory work; in writing state qualifications. Add. Rochester State Hospital, Rochester, Minn.

## LABORATORY TECHNICIANS WANTED

WANTED — ROENTGENOLOGIST, TECHnician or physician to take charge of modern laboratory; must be able to do fluoroscopic, plate and treatment work; gas and Coolidge tubes; references, etc., first letter; position vacant April 1. Crouse X-Ray Laboratory, El Paso, Texas.

WANTED — AN EXPERIENCED LABORAtory technician who is capable of doing routine laboratory work, Wassermann, tissue diagnosis, etc.; state age, experience, religion, etc. Agatha Hospital, Clinton, Iowa. V

## NURSES WANTED

WANTED—A NURSE WITH EXPERIENCE in x-ray and laboratory work, to assist in large office practice; permanent position and good salary to right party. Roger S. Parry, M.D., Washington, Pa. T

WANTED — SUPERINTENDENTS — SURgical and general duty nurses, etc.; send for free book. Aznoe's Central Registry for Nurses, 30 N. Michigan Blvd., Chicago.

NURSES FURNISHED—ANY KIND WORK anywhere. Quick service; also attendants, institutional employees. Wire or write F. V. Kniest, Bee Bldg., Omaha, Neb.

*(Continued on next page)*

## LOCATIONS WANTED

WANTED—A CONTRACT PRACTICE—THE south preferred; 37 years old, married, with two children; ten years in private practice; references furnished. Add. J. G. Hale, M.D., Bonnieville, Ky. E

WANTED — LOCATION — MIDDLE OR western state; town of 5,000 or more preferred; two years' internship in large municipal hospital; experienced in private practice; will pay cash for equipment and practice; accept partnership or hospital position; can take place immediately; give full details first letter. Add. 3711 E, % AMA.

WANTED—PHYSICIAN, UNMARRIED, 23 years' experience, good address, personality and executive ability, would like to engage in institutional work or form partnership with genito-urinary specialist; Michigan. Add. 3891 E, % AMA.

WANTED—CONTRACT PRACTICE, SAWmill, mine; registered Alabama, Louisiana; not draft subject; single, strictly temperate; one year hospital experience; prefer southern state; give full details first letter. McInnis L. Goff, M.D., Crichton, Ala. E

WANTED — PHYSICIAN TO TAKE charge of $3,500 unopposed village and country practice, eastern Indiana; established 18 years; drugs and office equipment optional; army service. Add. 3903 E, % AMA.

WANTED — LOCATION IN UTAH, NEvada, Wyoming or Colorado; contract work preferred; by young married man; references on request; doing contract work at present. Write Dr. Ivan Linsin, Zortman, Mont. E

WANTED—DOCTOR, 35 YEARS OLD AND single desires contract practice in this or foreign country; gilt-edge references as to character and professional ability; Shriner. Add. 3860 E, % AMA.

WANTED — CALIFORNIA LOCATION— General practice, unopposed; will buy real estate. Add. Doctor, 643 W. 60th St., Los Angeles, Calif. E

WANTED—UNOPPOSED LOCATION ON good roads in Illinois or western Indiana; no real estate. Add. 3853 E, % AMA.

## PARTNERS WANTED

WANTED—ASSOCIATE TO TAKE OVER established eye, ear, nose and throat practice; collected over $1,000 per month gross last year; going into M. O. R. C.; probability of permanent association after my return from service; must be A1 and competent with best references; prefer Protestant, married man of good character, exempt from service, licensed in Ohio and reciprocating states. Add. 3838 G, % AMA.

## PARTNERSHIP WANTED

WANTED—PHYSICIAN OF TEN YEARS' successful practice desires association with physician or surgeon where there is opportunity for permanent practice; American, Protestant, aged 36; Minnesota license; reciprocity; just completing twelve-month postgraduate course surgery and urology; proposition must be strictly ethical and bear investigation; references exchanged. Add. 3670 H, % AMA.

WANTED — PARTNERSHIP — OCULIST and aurist of unusual experience in minor and major surgery of the eye, ear, nose and throat wishes to become associated with a group of No. 1 physicians; contract work would be considered; California preferred, but would consider other parts of west or southwest; references of experience, etc., cannot be rejected. Add. 3776 H, % AMA.

## SITUATIONS WANTED

WANTED — AN EXPERIENCED STATE hospital physician desires a position in state hospital for insane; unmarried; prefer southern or eastern hospital. Thos. R. Evans, M.D., Acme, W. Va. I

WANTED — ASSISTANTSHIP OR PARTnership; assisted in contract work for five years; obtained wide experience in general and surgical work; graduated from A plus school; can give references. Add. 3623 I, % AMA.

WANTED—I WISH TO ASSIST A SURgeon or general practitioner doing major surgery, in Detroit; I am 32 years old, single, graduate of U. of M., 1916; hospital experience. Add. 3831 I, % AMA.

(*Continued on next page*)

## *Books Received*

Books received are acknowledged in this column, and such acknowledgement must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A Manual of Clinical Diagnosis By Means of Laboratory Methods for Students, Hospital Physicians and Practitioners. By Charles E. Simon, B.A., M.D., Professor of Clinical Pathology and Physiological Chemistry in the University of Maryland Medical School. Ninth edition. Cloth. Price, $6. Pp. 851, with 235 illustrations. Philadelphia: Lea & Febiger, 1918.

Details of Military Medical Administration. By Joseph H. Ford, B.S., A.M., M.D., Colonel, Medical Corps, U. S. Army. Published with the approval of the Surgeon-General, U. S. Army. Cloth. Price, $5 net. Pp. 741, with 30 illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

The Anatomy and Physiology of the Female Body. By Hubert E. J. Biss, M.A., M.D., D.P.H. Plates by George M. Dupuy, M.D. Second edition. Paper. Price, $2. Pp. 24, with 45 illustrations. New York: William Wood & Co., 1917.

Criminology. By Maurice Parmelee, Ph.D. Cloth. Price, $2. Pp. 522. New York: The Macmillan Company, 1918.

Second Report of the Illinois Society for the Prevention of Blindness. 1916-1917. Paper.

North Manchurian Plague Prevention Service Reports (1914-1917). Paper. 1917.

## *The Public Service*

Changes for the seven days ended March 13, 1918:

Glennan, A. H., senior surg., relieved at the Bureau effective April 3, 1918. Proceed to the San Diego, Calif., quarantine station and assume charge.

Pierce, C. C., senior surg., proceed to such points in the States of Arkansas, Oklahoma, Louisiana and Mississippi as may be necessary for conference with health officers regarding the venereal problem.

Brown, B. W., surg., proceed to Richmond, Va., March 12, 1918, to deliver lecture before Richmond Academy of Medicine.

Gardner, C. H., surg., proceed to such points in the State of Texas as may be necessary for conference with health officers regarding the venereal problem.

Foster, M. H., surg., detailed as chairman of a medical board for the re-examination of aliens at Boston, Mass., vice Assistant Surgeon M. V. Safford, resigned.

Bahrenburg, L. P. H., surgeon, proceed to such points in the State of Missouri as may be necessary for conference with health officers regarding the venereal problem.

Lanza, A. J., passed asst. surg., assume charge of the Marine Hospital, Pittsburgh, Pa. and of field investigations of industrial sanitation.

Wilson, J. G., asst. surg., proceed to such points in the States of Kansas and Nebraska as may be necessary for conference with the health officers regarding the venereal problem.

Wynne, R. E., asst. surg., bureau letter dated Feb. 19, 1918, amended to grant eight days leave of absence on account of sickness from Feb. 18, 1918.

Witte, W. C., asst. surg., proceed to such points in the State of Iowa as may be necessary for conference with health officers regarding the venereal problem.

Fox, W. F., asst. surg., relieved at New Orleans, La., quarantine station. Proceed to the Galveston, Tex., quarantine station.

Anderson, T. B. H., asst. surg., granted two days leave en route. Prof. Earle B. Phelps, proceed to Quantico, Va., for conference regarding sewage disposal.

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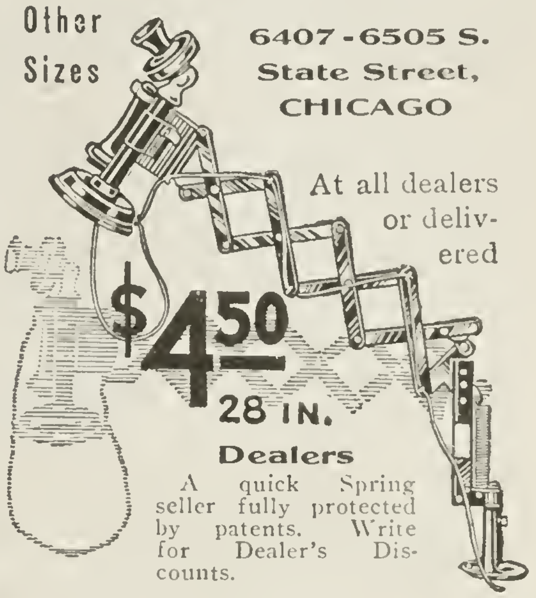

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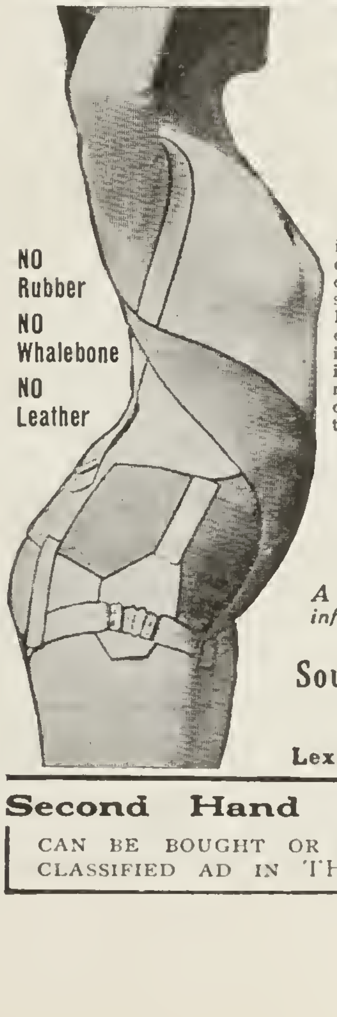

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WANTED — POSITION OR LOCUM TENens; also consider purchase of practice or partnership in any state reciprocating with Oklahoma or Texas; graduate Louisville Medical College, 1906; do general practice and some major surgery; age 39; post-graduate work; formerly on staff Bellevue Hospital, N. Y.; unmarried, strong and healthy. Add. 1489 F. V. Kniest, Bee Bldg., Omaha, Neb. I

WANTED—PHYSICIAN AND SURGEON, married, knows German, experienced in hospital and general practice, seeks assistantship with A1 surgeon or practitioner, where efficiency will insure future; references; Illinois, Wisconsin. Add. 3851 I, % AMA.

WANTED — ROENTGENOGRAPHER — thoroughly efficient woman technician desires connection with modern laboratory; seven years' experience every branch roentgen technic and photographic procedure; highest references. Add. 3761 I, % AMA.

WANTED — ASSISTANTSHIP OR PARTnership in general practice or internal medicine with Christian physician; married; 5 feet 4 inches tall; five years' practice; internship; available April; references. Add. 3832 I, % AMA.

WANTED—ASSISTANTSHIP WITH SURgeon or general practitioner doing major surgery; I am 30 years of age, married, graduate A+ school; have served 18 months' internship in Cook County Hospital; prefer Chicago or near vicinity. Add. 3901 I, % AMA.

WANTED—ASSISTANTSHIP WITH EYE, ear, nose and throat man; general and special internship; well up on refraction; experience desired; salary secondary consideration; aged 34, single; available immediately; references. Add. 3876 I, % AMA.

WANTED—POSITION WITH BUSY SURgeon or eye and throat man; expect some salary and good training; age 38; ten years general practice; good refractionist; no bad habits; willing worker; surgical internship accepted. Add. 3898 I, % AMA.

WANTED — PHYSICIAN, 36, PROTESTant, married, sober, draft exempt, 12 years' experience in country town, desires assistantship to busy medical man; no surgery; can meet people; can make diagnosis. Add. 3878 I, % AMA.

WANTED — POSITION AS MATRON IN sanitarium or housekeeper in good private home, or would accept position as traveling companion; speak German fluently; best of references. Add. 3900 I, % AMA.

## SALESMEN—ORGANIZERS

WANTED — SALESMEN — EXCLUSIVE territory can be obtained for the sale of a new and important line of medical and dental publications; liberal commissions and special training; commission paid weekly; physicians desiring a change or dissatisfied with their income will benefit themselves by engaging in work of this character. C. V. Mosby Company, Metropolitan Bldg., St. Louis, Mo.

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## NURSES LOCATIONS WANTED

WANTED — POSITION BY GRADUATE nurse; speaks German and English; good organizer; general and surgical experience; good health and strength; graduated 1913; well experienced. Sadie Brail, % Central Hotel, Chickasha, Okla.

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FOR SALE—CALIFORNIA—$7,000 PRACtice; city residence district; commodious house, including office suite and $25 per month store room; $9,000 buys all; terms right; purchaser introduced. Add. 3777 N, % AMA.

FOR SALE — EASTERN COLORADO — general practice; small railroad town; mostly country practice; $2,000 in real estate and drugs; 12 years building to present paying proposition of $5,000 year cash; will remain with successor 6 months to introduce; price $7,000, cash only. Add. 3765 N, % AMA.

FOR SALE — NORTHEAST COLORADO— General unopposed $5,000 village and country practice; level roads, auto used year round; Lincoln Highway Union Pacific R. R.; surgeonship to railroad; eight life insurance appointments transferable to purchaser of my town property and some office furniture, including x-ray and static machine; all for $1,200. Add. 3778 N, AMA.

*(Continued on next page)*

FOR SALE—ILLINOIS—$8,000 PRACTICE—Town of 2,500; 100 miles from Chicago; splendid opportunity for man doing surgery; office equipment and drugs; cheap to immediate buyer. Add. 3633 N, % AMA.

FOR SALE — NEAR CHICAGO — $2,500 town and country practice; easily increased; hard roads; use car year around; electric lights; two-year high school; railroad work; insurance appointments; money from start; will introduce. Add. 3884 N, % AMA.

FOR SALE — SOUTHERN INDIANA—Manufacturing town 4,000 on river and railroad; well-established $3,500 practice; good schools and churches; eight-room residence and office combined on Main St.; strictly modern; $5,000 takes all; competition right. Add. 3793 N, % AMA.

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FOR SALE — INDIANA — MEDICAL practice in live city of 75,000; physician now deceased; will lease rooms formerly occupied by physician and sell all equipment, including Betz electric generator, x-ray, furniture and fixtures, etc. Add. 3874 N, % AMA.

FOR SALE—IOWA—$3,000 TO $3,500 UNOPPOSED practice in the corn belt; nearly all American people; 99 per cent. collections; nearest doctors, south 14 miles, north 14 miles, east and west 6 miles each side; price of office outfit, $800; no property to buy; good opening for a young man. Add. 3849 N, % AMA.

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(*Continued on next page*)

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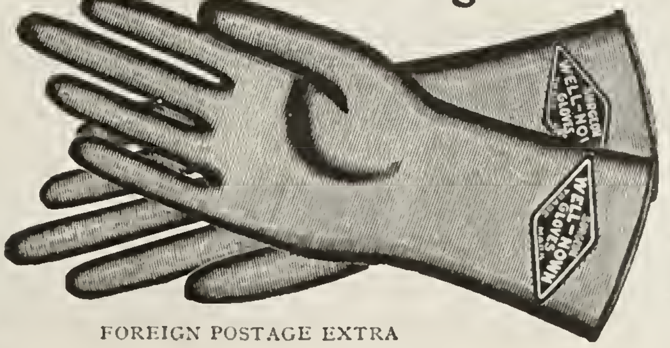

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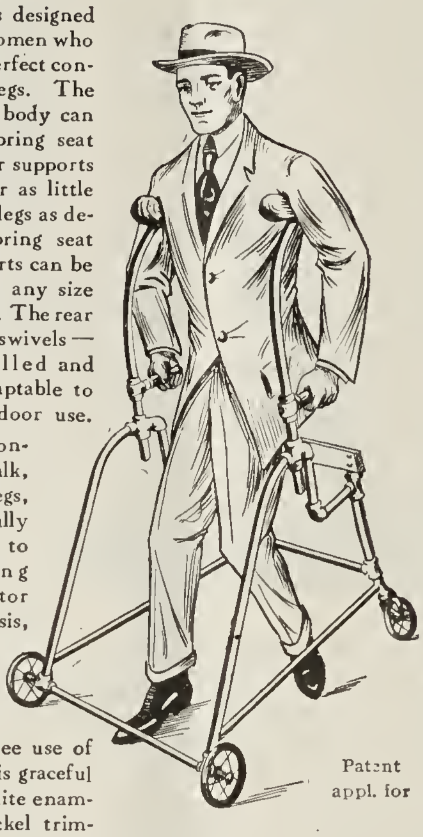

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FOR SALE — WISCONSIN—PRACTICE, nets $2,000 to $3,000 and over per year; excellent opportunity; very low price; everything equipped in office and 7-room hospital; fine country; accredited high school; population 1,200; no surgeon here and physician wanted; case histories, etc.; collections high; low rent; no real estate to buy. Dr. W. C. Jones, Kilbourn, Wis. N

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FOR SALE — PRIVATE HOSPITAL AT Marshfield Hills, Mass.; 33 beds, fully equipped; medical, surgical and obstetrical cases; in successful operation two years; splendid chance for surgeon. Write S. L. Strong, M.D., Marshfield Hills, Mass. O

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DID YOU SEE TEN DAY FREE TRIAL offer on the Sanborn Blood Pressure Outfit in Journal March 23d issue, page 47? You should use a scientifically accurate sphygmomanometer in your practice. This is an opportunity to secure one at low cost and on satisfactory terms. See above metioned adv. Frank S. Betz Co., Hammond, Ind. KK

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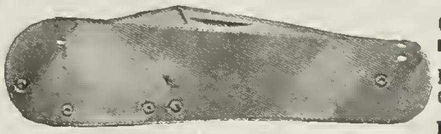

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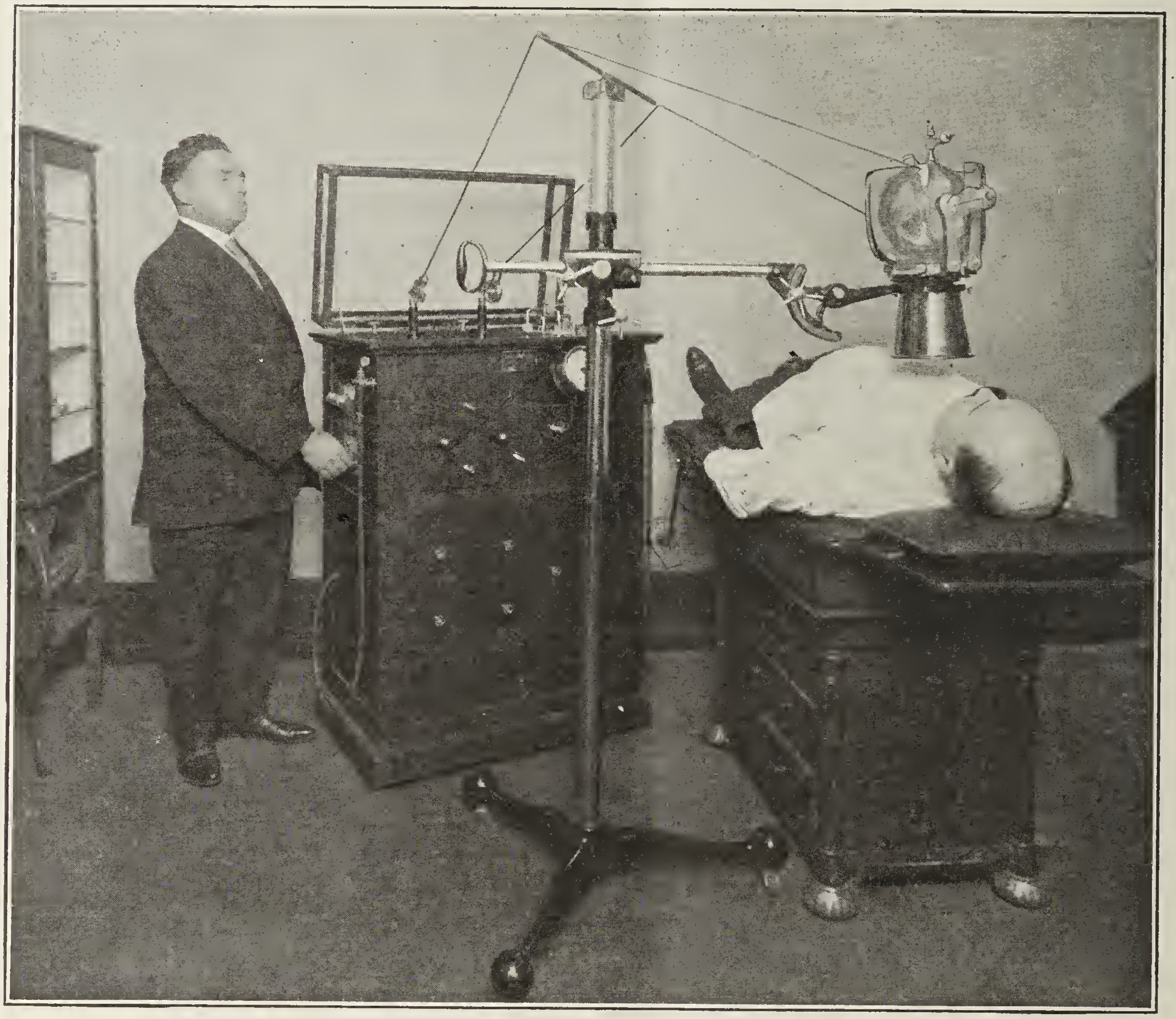

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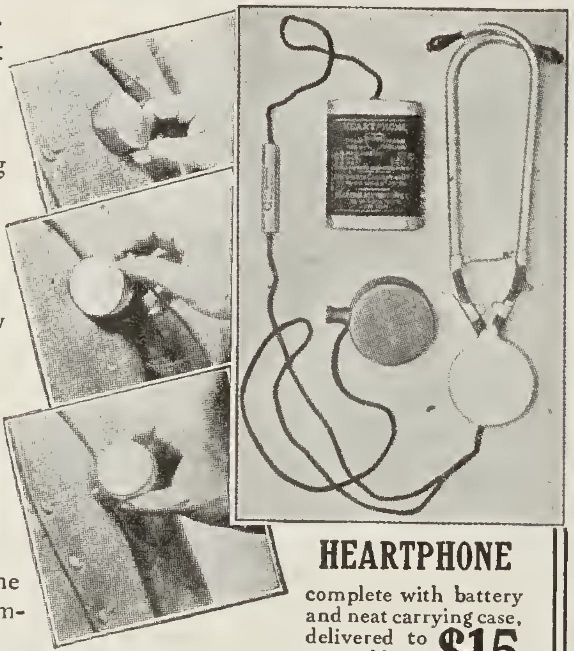

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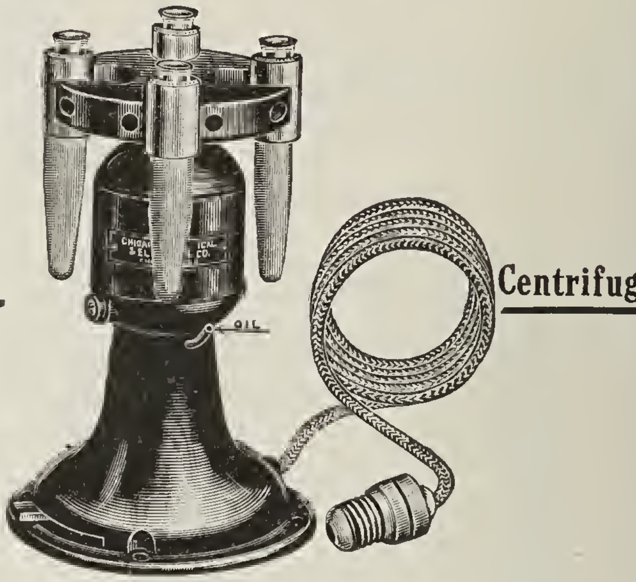

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NEXT SESSION BEGINS OCTOBER 1, 1918.

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Since classes are limited in size, application should be made before July 1st. For particulars, address

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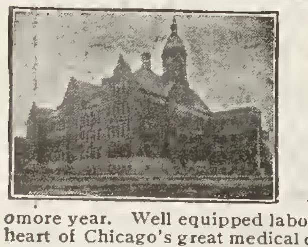

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## UNIVERSITY OF LOUISVILLE, Medical Dept.

Eightieth Annual Session begins Sept. 25, 1917. Entrance requirements for the 1917-18 session—one year of College work in Physics, Chemistry, Biology and a modern foreign language, in addition to the fourteen units' work in an accredited, standard high-school.

Beginning with 1918-19 session, matriculates in medicine will be required to have two years of premedical college work. A premedical course of instruction is given in the Academic department of the University. A combined B.S. M.D. degree granted after two years of study in College of Arts and Sciences and four years in Medical Department.

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## Washington University Medical School

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**Facilities for Teaching:** Abundant laboratory space and equipment. Three large general hospitals absolutely controlled by the faculty and thirteen hospitals devoted to specialties, in which clinical teaching is done. The next regular session will open October 1, 1918.

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## SCHOOL OF HYGIENE AND PUBLIC HEALTH *of the* JOHNS HOPKINS UNIVERSITY

THE establishment of a School of Hygiene and Public Health is announced by the Johns Hopkins University. Instruction will begin with the opening of the academic session, October 1, 1918. Men and women students will be admitted on the same terms. Courses have been arranged leading to the degrees of Bachelor of Science in Hygiene, Doctor of Science in Hygiene, and Doctor of Public Health. A circular describing these courses and giving other information will be sent on application to the Director of the School of Hygiene and Public Health, care of the Johns Hopkins Medical School, Washington and Monument Streets, Baltimore, Maryland.

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## Fordham University
### MEDICAL DEPARTMENT

**Bathgate Avenue and Fordham Road**
**Borough of the Bronx, NEW YORK**

The Medical School is an integral part of the University and is in close affiliation with Fordham Hospital.

The session of 1917-18 begins on September 26. COLLEGE OF PHARMACY and the COLLEGIATE MEDICAL CLASSES September 19th.

For the annual catalogue giving full information of the courses, requirements for admission, and graduation, address **JOHN J. SHERIDAN, M.D., Secretary**

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## NEW YORK UNIVERSITY MEDICAL DEPARTMENT

### The University and Bellevue Hospital Medical College

**Session 1917-1918 begins Wednesday, September 26, 1917**

Candidates for admission to the University and Bellevue Hospital Medical College are required to present evidence of the completion of one year of collegiate work in addition to graduation from an approved four year high school course. It is required that this year of college work include one year each of Chemistry, Physics, Biology, and two of the following languages: English, French. or German.

To meet this requirement, the Collegiate Division offers the following Medical Preparatory Courses:

1. Course extending from September, 1916 to June, 1917.
2. Course extending from February 1, 1917 to September, 1917.

The completion of either of these courses admits to the medical school for sessions 1917-1918.

The requirement for admission to the Medical Preparatory Course is any one of the following: (1) A diploma of graduation from a four-year high school course recognized by the Regents of the State of New York. (2) A certificate of the College Entrance Examination Board covering fifteen units of Secondary School Subjects. (3) Entrance Examinations of the University College covering fifteen units of Secondary School subjects. (4) A certificate of admission to the freshman class of a recognized college.

Beginning with September, 1918 (Session 1918-1919) candidates for admission to the Medical College will be required to present in addition to graduation from a four year high school course, evidence of the completion of TWO YEARS OF COLLEGE WORK, including at least one year each of Chemistry, Physics, Biology and two of the following languages: English, French or German.

New York University offers a Combined Course leading to the degrees of B.S, and M.D upon the completion of six and a half years, the first two and a half years of study to be pursued in the College and the last four years in the Medical College. Upon the completion of the first two years in the Medical College, the degree of Bachelor of Science will be conferred. For Bulletin or further information, *address*

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# Johns Hopkins University

## Medical School

The Medical School is an Integral Part of the University and is in close Affiliation with the Johns Hopkins Hospital

### ADMISSION

Candidates for admission must be graduates of approved colleges or scientific schools, with at least one year's instruction including laboratory work, in physics, chemistry, and biology, and with evidence of a reading knowledge of French and German.

Each class is limited to 90 students, men and women being admitted on the same terms. *Except in unusual circumstances, applications for admission will not be considered after July 1st.*

If vacancies occur, students from other institutions desiring advanced standing may be admitted to the second or third year, provided they fulfill all of our requirements and present exceptional qualifications.

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The academic year begins the first Tuesday in October and closes the second Tuesday in June. The course of instruction occupies four years, and especial emphasis is laid upon practical work in the laboratories, in the wards of the Hospital and in the Dispensary.

### TUITION

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**Summer Work for Graduates in Medicine**

Owing to war conditions, the Summer Courses in Medicine, Surgery, and various specialties will not be given this year.

The annual announcement, application blanks and circular describing graduate courses may be obtained by addressing the

**Dean of the Johns Hopkins Medical School**

**Washington and Monument Sts. BALTIMORE, MD.**

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# University of Pennsylvania

1765 **SCHOOL OF MEDICINE** 1918

The First and Second Year Classes are ordinarily limited to 100 students; during the period of the war this limitation will not be strictly enforced. Application for admission should be in the hands of the Dean before July 1.

**UNDERGRADUATE DEPARTMENT**—The 153d Session will begin Sept. 28, 1918. The course of instruction, extending over four annual sessions of eight and one-half months each, is a carefully graded and eminently practical one beginning with the fundamental branches with full laboratory exercises, proceeding through a comprehensive system of clinical instruction in which ward and bedside instruction and individual work on the part of the students form a large part, and terminating in the Fourth Year with the assignment of students as clinical clerks in the Hospital.

**REQUIREMENTS FOR ADMISSION**—Candidates must have successfully completed the work prescribed for the Freshman and Sophomore Classes in colleges recognized by this University, which must include at least one year of college work in Physics, General Biology or Zoology and Chemistry (Qualitative Analysis is required; Organic Chemistry is recommended and in 1919 will be required), together with appropriate laboratory exercises in each of these subjects, and either French or German of more than elementary grade.

**GRADUATE WORK**—To properly prepared men (Bachelor's degree required) certain of the subjects of the Medical School are open for election in work in the Graduate School of the University, leading to the Master's Degree or to the degree of Doctor of Philosophy. For graduate physicians having had a preliminary education similar to that required for admission to the Medical School, courses in Public Hygiene, leading to the degree of Doctor of Public Hygiene (Dr.P.H.) are open; or to other persons with adequate preparation parts of this instruction are offered without reference to degree. Courses in Tropical Medicine are conducted from the beginning of the session to about Feb. 1st. The clinics and laboratories are open throughout the year. For further information apply to **Dean of School of Medicine, University of Pennsylvania, Philadelphia**

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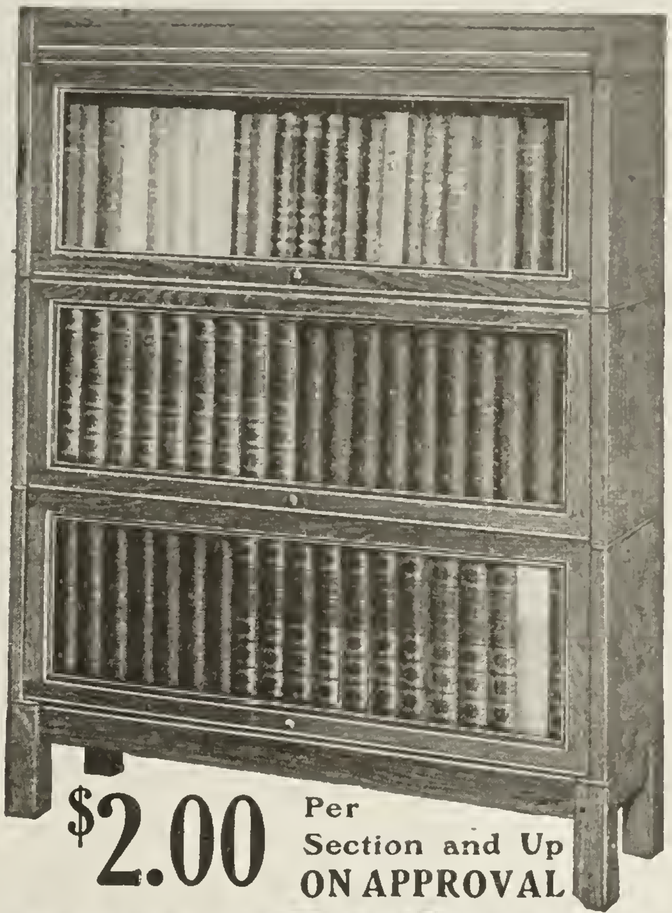

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**CLINICAL COURSES** in the University Hospital, one general, one special, and the municipal hospitals and in the dispensary adjoining the college, in all of which senior students serve as clinical clerks. Tuition $200.

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**Chicago Office, 59 East Madison Street**

Telephone Randolph 5794 Consultation by appointment only.

*All correspondence should be addressed to*

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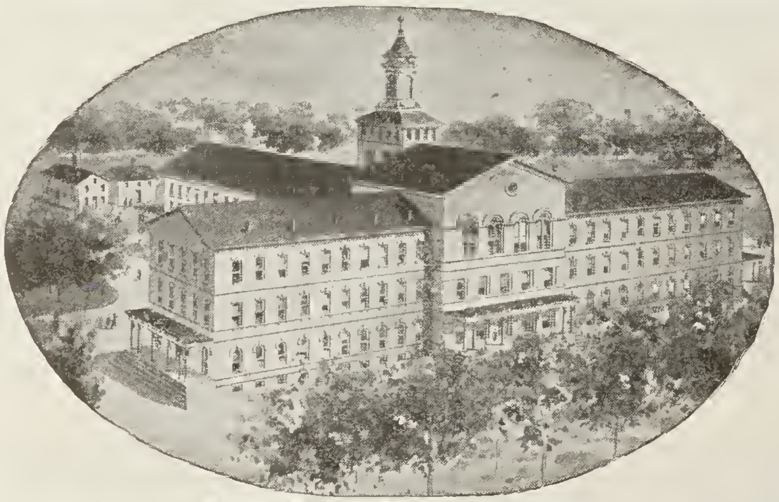

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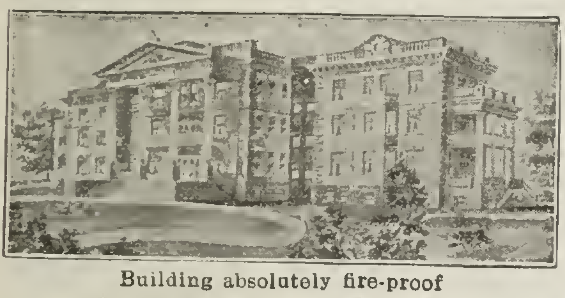

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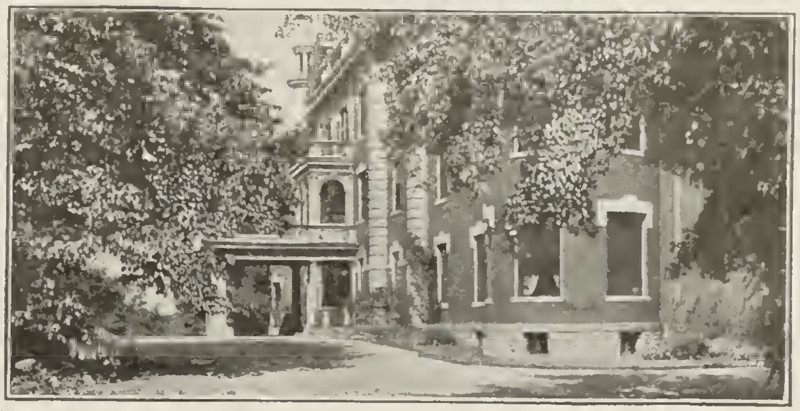

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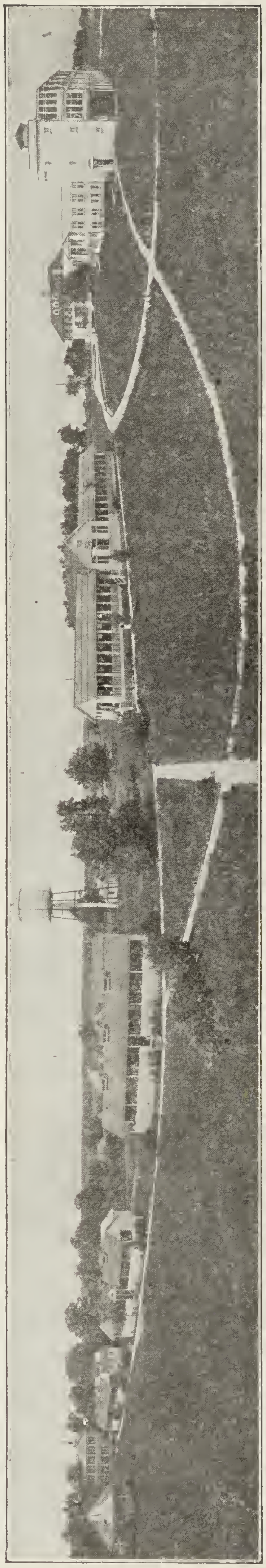

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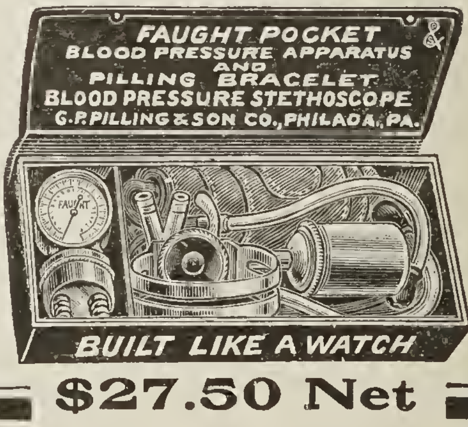

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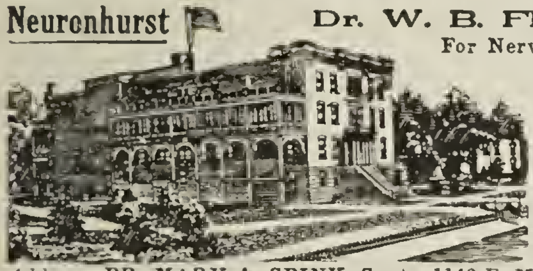

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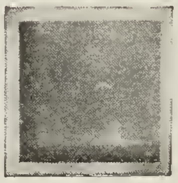

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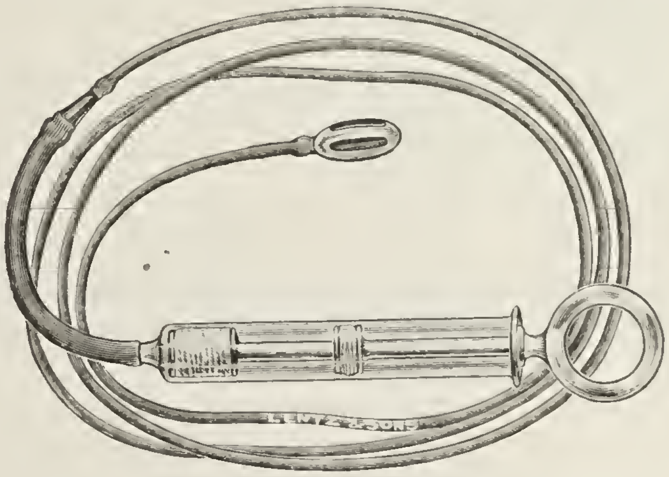

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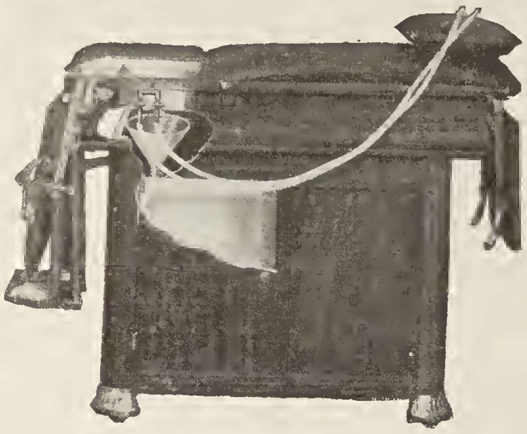

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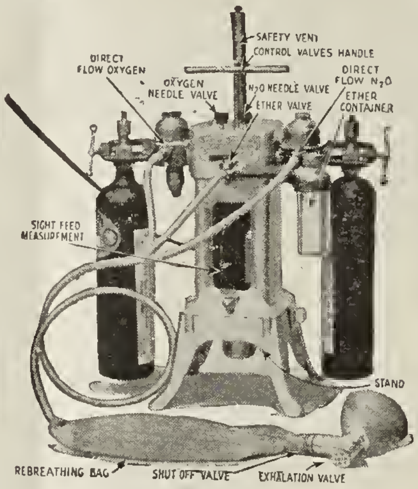

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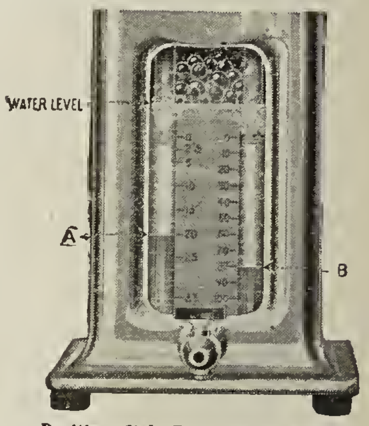

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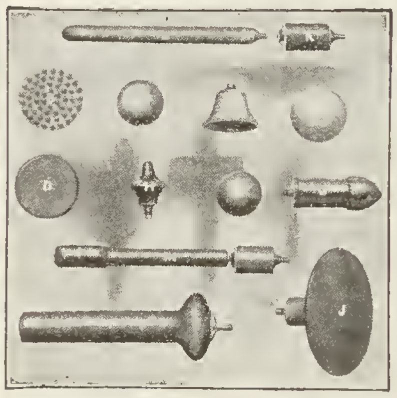

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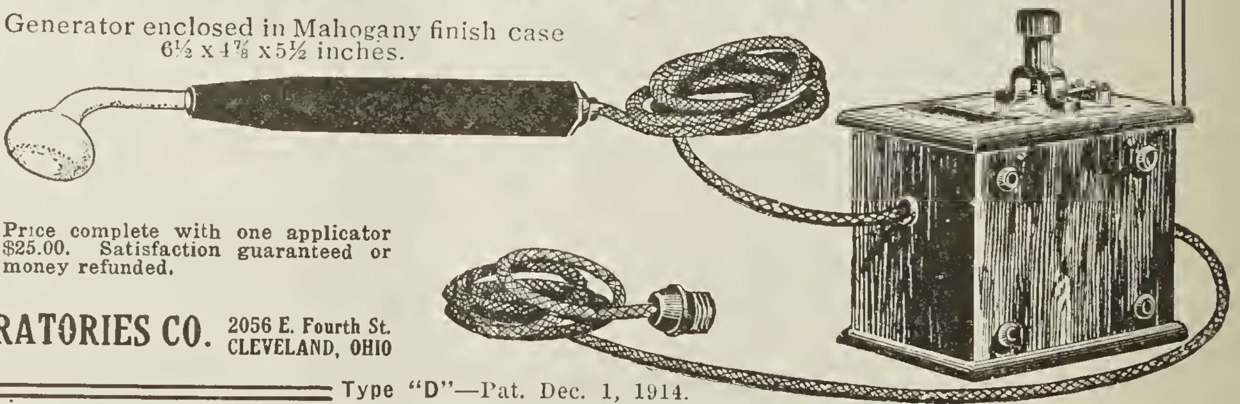

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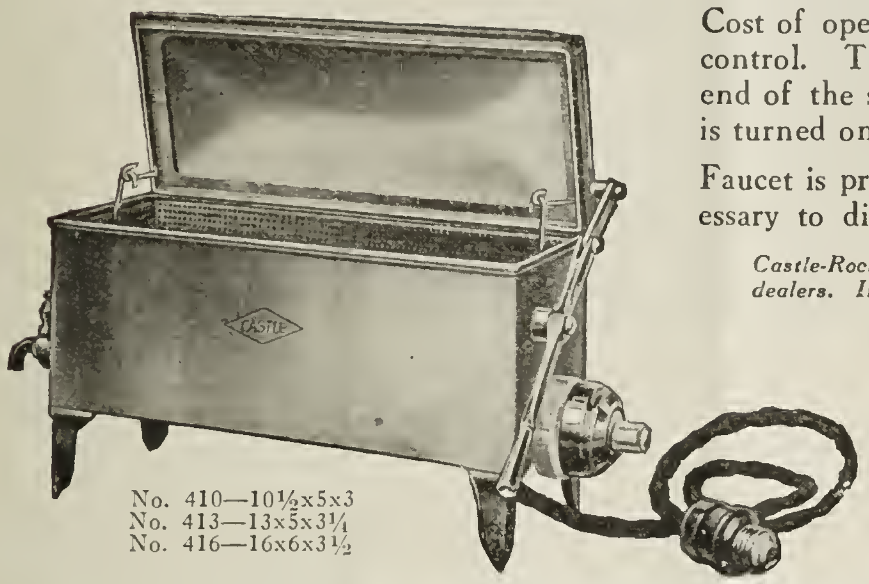

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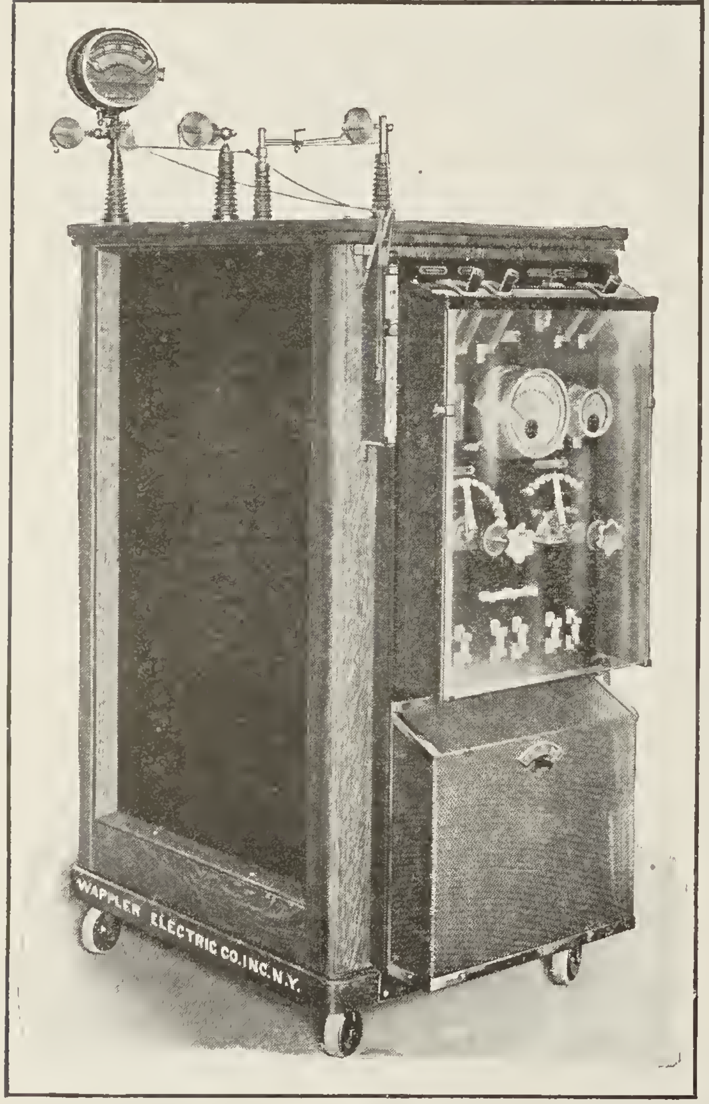

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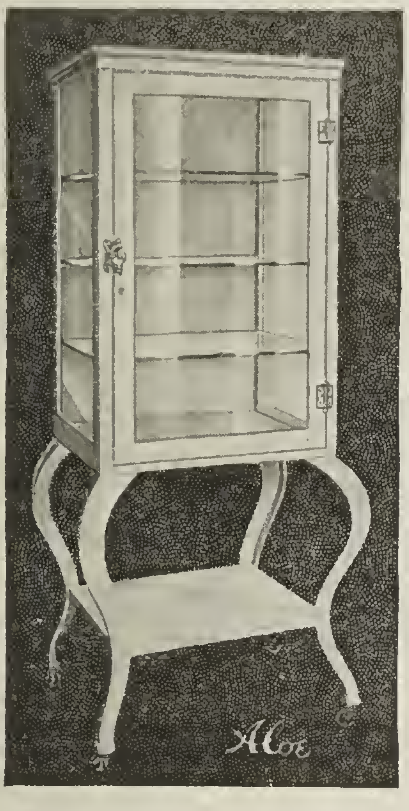

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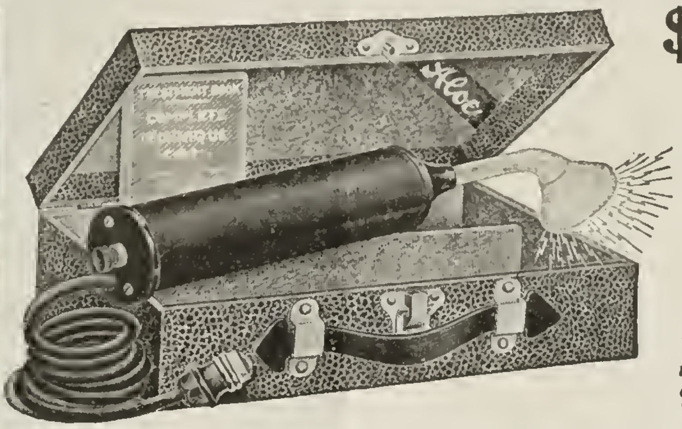

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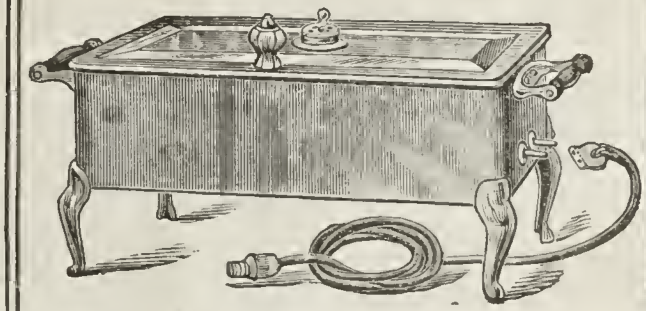

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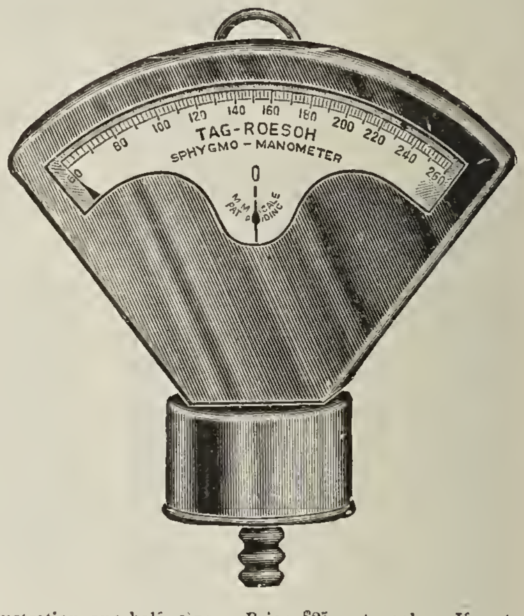

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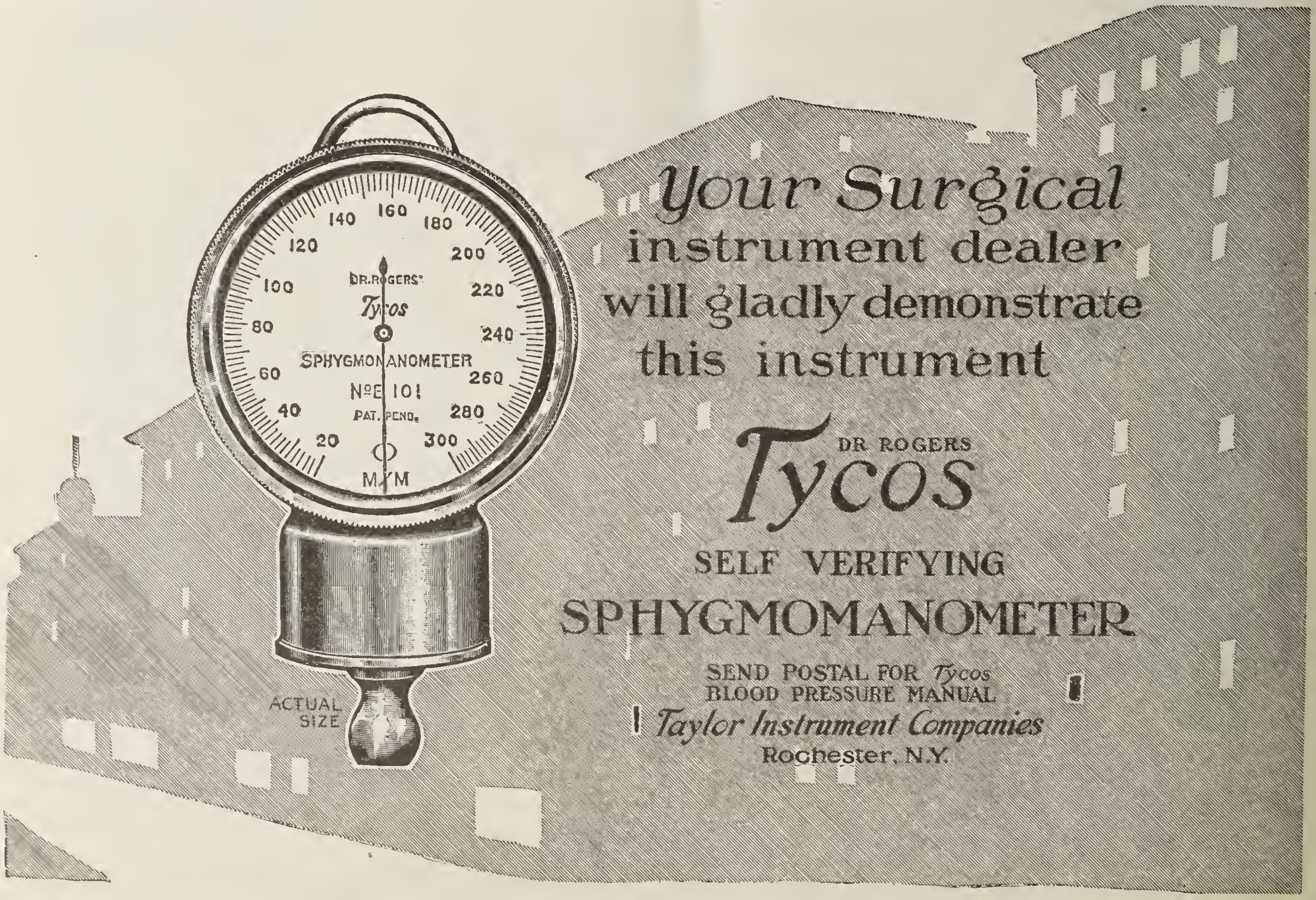

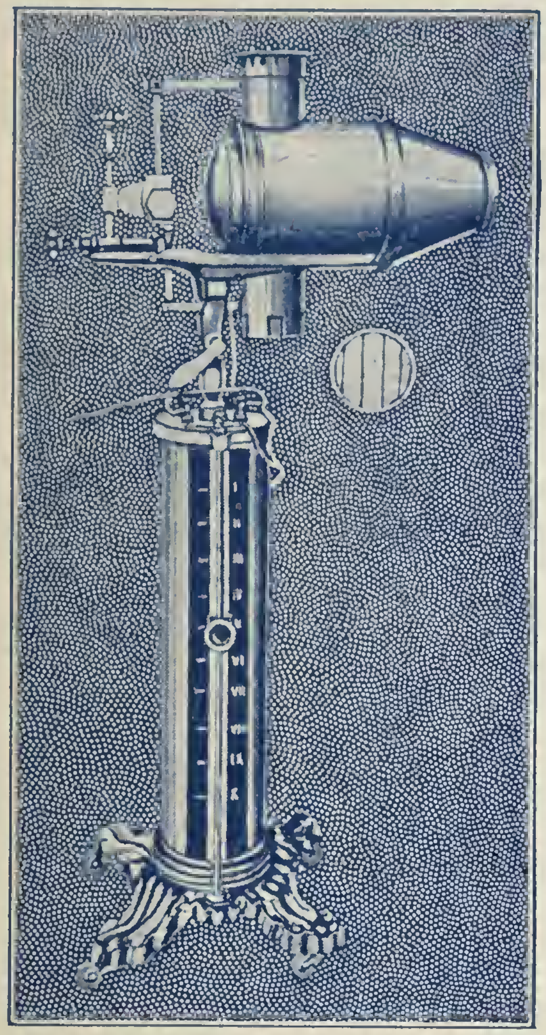

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